

CX-1

Resolution No. STD- 1171

TRANSPORTATION DIVISION  
TARIFF & LICENSE BRANCH  
Tariff Section

**Before the Public Utilities Commission  
of the State of California**

**RESOLUTION ORDERING DISPOSITION OF  
SPECIAL TARIFF DOCKET REQUESTS**

Requests as identified hereinafter have been filed on the Special Tariff Docket for authority to make tariff changes for which permission of the Commission is requisite under provisions of the Public Utilities Code or orders of the Commission. Due consideration has been given to the representations contained in the verified requests, and good cause appearing, the following findings and order are made:

The Commission finds that the following requests are justified and should be granted subject to conditions specified in the orders which are attached hereto and by this reference made a part hereof:

Request and  
Order No.

Request Filed By:

STD 9998

California Trucking Association and  
National Motor Freight Classifica-  
tion, Inc., Agent

STD 9999

California Trucking Association and  
National Motor Freight Classifica-  
tion, Inc., Agent

STD 10000

California Trucking Association and  
American Trucking Association, Inc.

Resolution No. STD-1171  
(Concluded)

The Commission finds that the following requests do not contain sufficient justification for the authority sought, and therefore should be denied without prejudice:

Request and  
Order No.

Request Filed By:

NONE

The Commission finds that the following requests are of a nature not suitable for processing on the Special Tariff Docket, and therefore should be dismissed without prejudice:

Request and  
Order No.

Request Filed By:

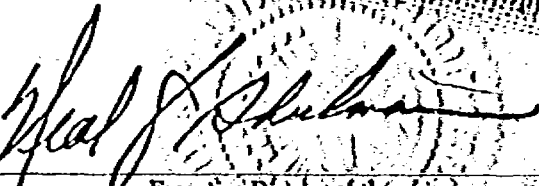
STD 9997

National Trucking Company of Los Angeles.

IT IS ORDERED that the aforesaid requests are granted, denied or dismissed, as the case may be, in accordance with the findings hereinbefore set forth, and as specified in the orders which are attached hereto and by this reference made a part hereof.

I certify that the foregoing resolution was duly introduced, passed and adopted at a conference of the Public Utilities Commission of the State of California, held on the 4th day of May, 1990, the following Commissioners voting favorably thereon.

G. MITCHELL WILK  
President  
FREDERICK R. DUDA  
STANLEY W. HULETT  
JOHN B. OHANIAN  
PATRICIA M. ECKERT  
Commissioners

  
Executive Director of the  
Public Utilities Commission of the State of California

Order No. STD- 9997

Before the Public Utilities Commission of the State of California

Request filed by:

WESTERN MOTOR TARIFF BUREAU, INC.,  
Agent, for and on behalf of NATIONAL  
TRUCKING COMPANY OF LOS ANGELES (NATL)

Special Tariff Docket  
Request Numbered Same as  
Order Number Above.

In conformity with the findings and order made by the Commission in a resolution entered this day, the request attached hereto and by this reference made a part hereof is dismissed, without prejudice, for the reason that the request is of a nature not suitable for processing on the Special Tariff Docket:

Request for cancellation of NATL's participation in Western Motor Tariff Bureau's tariffs that certain rates on fresh fruits and vegetables, Vehicle Unit Rates, and uncrated new furniture considered controversial under Rule 2(d), General Order 109. There are no alternative rates for the Vehicle Unit Rates and decreases as well as increases may occur on uncrated new furniture. Other procedures exist that will let the carrier attain its goals.

This order issued May 4, 1990, by the Public Utilities Commission of the State of California by the adoption of the resolution of which this order is a part.

  
Executive Director of the  
Public Utilities Commission of the State of California

Order No. STD- 9998

Before the Public Utilities Commission of the State of California

Request filed by:

CALIFORNIA TRUCKING ASSOCIATION AND  
NATIONAL MOTOR FREIGHT CLASSIFICATION  
INC., AGENT

Special Tariff Docket  
Request Numbered Same as  
Order Number Above.

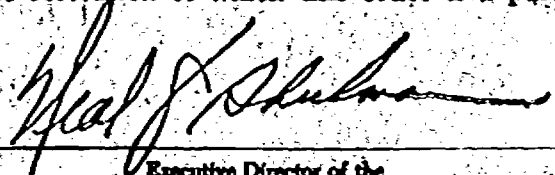
In conformity with the findings and order made by the Commission in a resolution entered this day, the request, copy of which is attached hereto and by this reference made a part hereof, is granted, subject to the following conditions:

NONE

The authority herein granted is limited strictly to its terms, and shall expire unless the tariff provisions authorized herein are published and filed in the San Francisco office of this Commission within ninety days after the date hereof. The item of tariff or supplement issued pursuant to this order shall bear reference to this order in substantially the following form:

"Authorized by Cal. P.U.C. Order No. STD- 9998"

This order issued May 4, 1990, by the Public Utilities Commission of the State of California by the adoption of the resolution of which this order is a part.

  
Executive Director of the  
Public Utilities Commission of the State of California

Order No. STD- 9999

Before the Public Utilities Commission of the State of California

Request filed by:

CALIFORNIA TRUCKING ASSOCIATION AND  
NATIONAL MOTOR FREIGHT CLASSIFICATION  
INC., AGENT

Special Tariff Docket  
Request Numbered Same as  
Order Number Above.

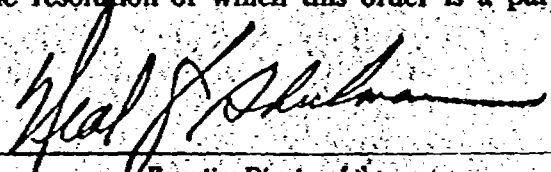
In conformity with the findings and order made by the Commission in a resolution entered this day, the request, copy of which is attached hereto and by this reference made a part hereof, is granted, subject to the following conditions:

NONE

The authority herein granted is limited strictly to its terms, and shall expire unless the tariff provisions authorized herein are published and filed in the San Francisco office of this Commission within ninety days after the date hereof. The item of tariff or supplement issued pursuant to this order shall bear reference to this order in substantially the following form:

"Authorized by Cal. P.U.C. Order No. STD- 9999."

This order issued May 4, 1990, by the Public Utilities Commission of the State of California by the adoption of the resolution of which this order is a part,

  
Executive Director of the  
Public Utilities Commission of the State of California

Order No. STD-10000

Before the Public Utilities Commission of the State of California

Request filed by:

California Trucking Association and  
American Trucking Association, Inc.

Special Tariff Docket  
Request Numbered Same as  
Order Number Above.

In conformity with the findings and order made by the Commission in a resolution entered this day, the request, copy of which is attached hereto and by this reference made a part hereof, is granted, subject to the following conditions:

NONE

The authority herein granted is limited strictly to its terms, and shall expire unless the tariff provisions authorized herein are published and filed in the San Francisco office of this Commission within ninety days after the date hereof. The item of tariff or supplement issued pursuant to this order shall bear reference to this order in substantially the following form:

"Authorized by Cal. P.U.C. Order No. STD-10000"

This order issued May 4, 1990, by the Public Utilities Commission of the State of California by the adoption of the resolution of which this order is a part,

  
Executive Director of the  
Public Utilities Commission of the State of California

State of California

Public Utilities Commission  
San Francisco

MEMORANDUM

Date : April 18, 1990

To : The Commission  
(Meeting of May 4, 1990)

From : *Jim Diani*  
Jim Diani, Principal  
Tariff and License Branch  
Transportation Division

Subject : CA-1

SPECIAL TARIFF DOCKET RESOLUTION NO. 1171

STD - 9998 - California Trucking Association and National Motor Freight Traffic Association, Inc., Agent.

Requests authority for the adoption of the National Motor Freight Classification NMF 100-Q concurrent with the national effective date of May 5, 1990, and to make such provisions applicable to the tariffs of highway common carriers and express corporations which participate in and are listed in the classification.

STD - 9999 - California Trucking Association and National Motor Freight Traffic Association, Inc., Agent.

Requests authority for the adoption of Supplement 1 to the National Motor Freight Classification NMF 100-Q, and to make such provisions applicable to the tariffs of highway common carriers and express corporations which participate in and are listed in the classification.

STD - 10000 - California Trucking Association and American Trucking Association, Inc.

Requests authority for the adoption of Supplement 1 to the American Trucking Association (ATA) Hazardous Materials Tariff ATA 111-J concurrent with the national effective date of May 17, 1990, and to make such provisions applicable to the tariffs of highway common carriers and express corporations which participate in and are listed in the publication.

Recommended Denial

NONE

Recommended Dismissal

STD - 9997 - National Trucking Company of Los Angeles.

Request to cancel Bureau participation in Tariffs 113 Vehicle Unit Rates, 271 uncrated new furniture and 127 fresh fruits, fresh vegetables and empty containers. Since there are no alternative rates, it is considered controversial under Rule 2(d), General Order 109.



# Western Motor Tariff Bureau, Inc.

M.J. Nicolaus  
General Manager

GENERAL OFFICE  
South Gate, California 90280  
5042 Cecella St./P.O. Box 1907

(213) 773-8180  
FAX (213) 773-8188

TO THE  
CALIFORNIA PUBLIC UTILITIES COMMISSION  
Docket Office  
505 Van Ness Avenue, 2nd Floor  
San Francisco, CA 94102

March 19, 1990

APPLICATION A-6596

STD# 9997

## SPECIAL TARIFF DOCKET REQUEST

WESTERN MOTOR TARIFF BUREAU, INC., AGENT, (WMT), by M. J. Nicolaus, Tariff Issuing Officer, for and on behalf of National Trucking Co. of Los Angeles (NATL) (File T-23994), hereby applies for authority under Sections 454, 460 and 491 of the Public Utilities Code for an order granting permission to cancel tariff participation to become effective on five (5) days' notice:

To cancel NATL's participation as set forth in Exhibit "A" attached hereto and made a part hereof.

The proposed participation is intended to be published in Western Motor Tariff Bureau, Inc; Agent, Tariff WMT 171-C, CA PUC 148.

This application is based upon the following special circumstances and conditions:

For justification, see Exhibit "B" attached hereto and made a part hereof.

In view of the above special circumstances and conditions, petitioner respectfully requests that the authority herein sought be granted.

I hereby certify under penalty of perjury that the foregoing is true and correct.

Provisions herein, to our knowledge, if effective, will not affect the fuel efficiency of the carrier involved.

Signature /s/ M. J. Nicolaus

VF MJN dn

M.J. Nicolaus, Tariff Issuing Officer

Attachment

RECEIVED  
PUBLIC UTILITIES COMMISSION

MAR 22 1990

TARIFF SECTION

EXHIBIT "A"

PROPOSED PUBLICATION

Cancel NATL from the tariff hereinbelow indicated, as follows:

<u>TARIFF WMT</u>	<u>CA PUC</u>	<u>NATURE</u>
113	19	Vehicle Unit Rates
127	39	Fresh Fruits, Fresh Vegetables, and Empty Containers
271	46	Transportation of Uncrated New Furniture

EXHIBIT "B"

JUSTIFICATION

NATL has determined that it has not been requested to transport this type of traffic; has obtained no revenue from the above-mentioned tariffs for a prolonged period of time; and that there is no prospect of future movement.

Granting of the application will not change rates or provisions presently being applied by any carrier. In the event traffic is offered in the future, class rates will apply.

It is felt that the provisions requested herein are non-controversial and non-objectionable to any carrier, shipper, or other interested party. Authority under Sections 454, 460 and 491, or authority to depart from any other sections of the Public Utilities Code is being sought to allow cancellation of the participation of NATL from the tariffs specified.

RECEIVED  
PUBLIC UTILITIES COMMISSION

MAR 22 1990

TARIFF SECTION

# CALIFORNIA TRUCKING ASSOCIATION

24301 Southland Drive, Suite 309  
Hayward, CA 94545

April 3, 1990

Executive Director  
CALIFORNIA PUBLIC UTILITIES COMMISSION  
State Building, Civic Center  
505 Van Ness Avenue  
San Francisco, CA 94102

Dear Sir:

Attached for filing is the original and three copies of our Special Tariff Docket request for the adoption of NMF 100-Q re-issue of the Governing Classification (NMF100-P).

Copies have been served upon all parties on the attached listing and will be furnished to any other interested party as may be directed by the Commission.

An extra copy of this filing is attached to be stamped with date of filing and document number for return to this office.

Sincerely,

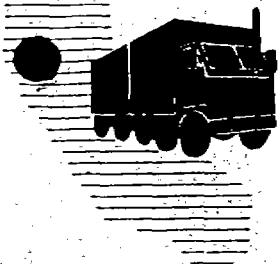


Charles D. Gilbert, Manager  
Regulatory Activities

CDG:mv

attachments

cc: Bill Schulte (w/encl.)  
Luke Sherwood (w/encl.)



SANTA FE SPRINGS, CALIFORNIA 90670  
12631 E. IMPERIAL HWY., BLDG. C, SUITE 109  
(213) 868-9454

GENERAL OFFICE  
WEST SACRAMENTO, CALIFORNIA 95691  
1251 BEACON BOULEVARD  
(916) 373-3500

HAYWARD, CALIFORNIA 94545  
24301 SOUTHLAND DRIVE, SUITE 602  
(415) 783-3870

INTERESTED PARTIES

ASSOCIATED TRAFFIC SERVICES  
858 Oak Park Road, Suite 103  
Covina, CA 91724

HIGLE & LARIMORE  
50 First Street, Suite 520  
San Francisco, CA 94105

CALIFORNIA FARM BUREAU FEDERATION  
1601 Exposition Blvd.  
Sacramento, CA 95814

CALIFORNIA MANUFACTURERS ASSOCIATION  
1121 "L" Street  
Sacramento, CA 95805

CALIFORNIA LEAGUE OF FOOD PROCESSORS  
1112 "I" Street, Suite 100  
Sacramento, CA 95814

CHAMBER OF COMMERCE OF LOS ANGELES  
Transportation Department  
404 South Bixel Street  
Los Angeles, CA 90007

FURNITURE MANUFACTURERS ASSOCIATION OF CALIFORNIA  
12631 E. Imperial Highway, Suite 106-F  
Santa Fe Springs, CA 90670

HIGHWAY CARRIERS ASSOCIATION  
4335 E. Airport Drive #106  
Ontario, CA 91761

WESTERN MOTOR TARIFF BUREAU  
P.O. Box 1907  
South Gate, CA 90280

WESTERN TRAFFIC CONFERENCE, INC.  
c/o Ray E. Shull - Secretary/Treasurer  
9440 Sideview Drive  
Downey, CA 92040

BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA

SPECIAL TARIFF DOCKET REQUEST FOR  
THE ADOPTION OF NMF 100-P REISSUE OF THE  
GOVERNING CLASSIFICATION (NMF-100-Q)

SPECIAL TARIFF DOCKET NO. 9998

The request of CALIFORNIA TRUCKING ASSOCIATION AND NATIONAL MOTOR  
FREIGHT TRAFFIC ASSOCIATION, INC., AGENT, whose post office addresses are:

California Trucking Association  
1251 Beacon Boulevard  
West Sacramento, CA 94691

and

National Motor Freight Traffic Association,  
Inc., Agent  
2200 Mill Road  
Alexandria, Virginia 22314

Communications or correspondence in regard to these filings are to be  
addressed to:

Charles D. Gilbert  
California Trucking Association  
24301 Southland Drive, Suite 309  
Hayward, CA 94545

Respectfully shows:

1

An order is requested for the adoption of the National Motor Freight  
Classification NMF 100-Q and to make such provisions applicable to the tariffs  
of highway common carriers and express corporations, which participate in and

are listed in the classification, under authority of a power of attorney. It is further requested that such authorization be concurrent with the National effective date of May 5, 1990 on one day's notice; that all common carriers be authorized and directed to establish such changes as may be prescribed in class and commodity rates and charges in connection with the transportation of exempt commodities; that common carriers be authorized to depart from Sections 460 and 461.5 of the Public Utilities Code and appropriate long and short haul provisions of the Constitution of the State of California to the extent necessary to carry into effect such changes; that all such changes be approved and adopted for application with the various tariffs; that any related revisions in numbering, referencing or format in the various tariffs, incidental to such changes, be authorized and established; and for such other and further orders as may be deemed reasonable and proper.

## II

The Governing Classification is periodically revised in order to remain responsive to the current conditions and needs of commerce in the transportation of property by highway carriers. The procedures available to shippers and carriers to initiate such revisions and to otherwise protect their interests are known to the Commission and to such parties. Such procedures provide parties with "... fair and full opportunity for public hearings for determination of changes and revisions as required." (Decision 74310 dated June 25, 1968). The Governing Classification is also periodically reissued to minimize the difficulties which accompany excessive supplementation of tariff material. Accordingly, the present classification is being reissued as National Motor Freight Classification NMF100-Q with an issue date of April 4, 1990 and an effective date of May 5, 1990 and applies to tariffs covering areas other than California. The purpose of this filing is to obtain the authority

necessary to make such provisions applicable to tariffs of California Highway Common Carriers. Such authority will continue to promote national uniformity and standardization in billing and collective practices found appropriate and desirable in the Commission's December 74310.

### III

Attached hereto and made a part of this filing is Exhibit A which is a copy of National Motor Freight Classification NMF 100-Q, Cal PUC-32. This publication is required to meet the provisions of Section 6 (d) of the Interstate Commerce Commission's Tariff Circular MF No. 5. National Motor Freight Classification 100-Q is a reissue of National Motor Freight Classification 100-Q, Cal PUC-28 which is now on file with the Commission. This reissue is being published to consolidate the matter now contained in the effective Supplements to NMF 100-P.

### IV

We are informed and believe that National Freight Classification NMF 100-P will become obsolete, and its utilization impractical upon the issuance of National Motor Freight Classification 100-Q and that such classification would be discontinued as the Governing Classification; that National Motor Freight Classification NMF 100-Q be adopted and prescribed as the Governing Classification for tariffs of highway common carriers in California; and that said tariffs be revised as set forth in Exhibit B attached hereto and by this reference made a part hereof.

### V

In addition to the justification of proposed charges set forth herein, Applicant refers to the facts and allegations set forth in Petition 401, Case 5432, and companion filings (Decision 70287 dated January 25, 1966) as though reiterated herein. Said filings set forth the broader purposes and

Justification for the program of classification revisions which will be implemented by approval of this instant filing, subject to the protective restriction suggested in the aforesaid filing.

In addition, the Commission through its Executive Director, has directed that Classification changes be processed under the procedures and format of General Order 109 (see letter dated June 21, 1977). This filing is made in response to such directive.

I hereby certify under penalty of perjury that the foregoing is true and correct.

*Joel D. Anderson*

---

Joel D. Anderson  
Vice President  
California Trucking Association  
Dated at 1251 Beacon Boulevard,  
West Sacramento, CA 95691 this  
3rd day of April, 1990



# CALIFORNIA TRUCKING ASSOCIATION

24301 Southland Drive, Suite 309  
Hayward, CA 94545

April 3, 1990

Executive Director  
CALIFORNIA PUBLIC UTILITIES COMMISSION  
State Building  
505 Van Ness Avenue  
San Francisco, CA 94102

Dear Sir:

Attached for filing is the original and three copies of our Special Tariff Docket request for the adoption of Supplement 1 to the Governing Classification (RMF 100-Q).

Copies have been served upon all parties on the attached listing and will be furnished to any other interested party as may be directed by the Commission.

An extra copy of this filing is attached to be stamped with date of filing and document number for return to this office.

Sincerely,



Charles D. Gilbert, Manager  
Regulatory Activities

CDG:mv

attachments

cc: Bill Schulte (w/encl.)  
Luke Sherwood (w/encl.)



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CHAMBER OF COMMERCE OF LOS ANGELES  
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12631 E. Imperial Highway, Suite 106-F  
Santa Fe Springs, CA 90670

HIGHWAY CARRIERS ASSOCIATION  
4335 E. Airport Drive #106  
Ontario, CA 91761

WESTERN MOTOR TARIFF BUREAU  
P.O. Box 1907  
South Gate, CA 90280

WESTERN TRAFFIC CONFERENCE, INC.  
c/o Ray E. Shull - Secretary/Treasurer  
9440 Sideview Drive  
Downey, CA 92040

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

SPECIAL TARIFF DOCKET REQUEST FOR  
THE ADOPTION OF SUPPLEMENT 1  
THE GOVERNING CLASSIFICATION NMF 100-Q

SPECIAL TARIFF DOCKET NO. 9999

The request of CALIFORNIA TRUCKING ASSOCIATION AND NATIONAL MOTOR FREIGHT TRAFFIC ASSOCIATION, INC., AGENT, whose post office addresses are:

California Trucking Association  
1251 Beacon Boulevard  
West Sacramento, California 95691

and

National Motor Freight Traffic  
Association, Inc., Agent  
2200 Mill Road  
Alexandria, Virginia 22314

Communications and correspondence in regard to this filing are to be addressed to:

Charles D. Gilbert  
California Trucking Association  
24301 Southland Drive, Suite 309  
Hayward, California 94545

I

Respectfully shows:

Highway common carriers and express corporations are operating as common carriers pursuant to the authority of the Commission and in accordance with tariffs filed with this Commission; which tariffs are also subject to and governed by the National Motor Freight Classification NMF 100-Q and supplements thereto.

## II

An order is requested for the adoption of Supplement 1 to the National Motor Freight Classification NMF 100-Q and to make such provisions applicable to the tariffs of highway common carriers and express corporations, which participate in and are listed in its Classification under authority of power of attorney. It is further requested that such authorization be concurrent with the national effective date of May 5, 1990 on one day's notice; that all common carriers be authorized and directed to establish such changes as may be prescribed in class and commodity rates and charges in connection with the transportation of exempt commodities; that common carriers be authorized to depart from Sections 460 and 461.5 of the Public Utilities Code and appropriate long and short haul provisions of the Constitution of the State of California to the extent necessary to carry into effect such changes; that all such changes be approved and adopted for application with the various tariffs; that any related revisions in numbering, referencing or format in the various tariffs, incidental to such changes, be authorized and established; and for such other and further orders as may be deemed reasonable and proper.

## III

The governing classification is periodically revised to correct technical inadvertencies and omissions that have been discovered in the publication of prior supplements and in order to keep the publication responsive to the current conditions and needs of commerce in the transportation of property by highway carriers. The procedures available to shippers and carriers to initiate such revisions and to otherwise protect their interests are known to the Commission and to such parties. Such

procedures provide parties with "...fair and full opportunity for public hearings for determination of changes and revisions as required." (Decision 74310 dated June 25, 1968, and as revised and amended by Decision 87498 dated June 21, 1977). To properly reflect intended results following such processes, the National Motor Freight Traffic Association, Inc., Agent, has authorized revisions which are published in supplemental for set forth in Exhibit A. This supplement is scheduled to take effect May 5, 1990 unless otherwise provided therein, for application to tariffs covering areas other than California. The purpose of this filing is to obtain the authority necessary to make such provisions applicable to tariffs subject to jurisdiction of the California Public Utilities Commission and to promote the national uniformity and standardization in billing and collection practices found appropriate and desirable in the Commission's Decision 74310.

Attached hereto and by this reference made a part of this filing are the following exhibits detailing such revisions:

Exhibit A - Copy of Supplement 1 to National Motor  
Freight Classification NMF 100-Q  
Cal PUC 32

Exhibit B - Summary of changes

Certain changes in rates, ratings rules, regulations or charges will result from the adoption of Supplement 1. A summary of such changes, including an explanation of the reasons for the proposed changes, is set forth in Exhibit B.

In addition to the justification of proposals set forth herein, Applicant refers to the facts and allegations set forth in Petition 401, as though reiterated herein. Said filings set forth the broader purposes and justifications for the program of classification revisions which will be

implemented by approval of this instant filing, subject to the protection restriction suggested in the aforesaid filing.

In addition, the Commission through its Executive Director, has directed that classification changes be processed under the procedure and format of General Order 109 (see letter dated June 21, 1977). This filing is made in response to such directive.

I hereby certify, under penalty of perjury, that the foregoing is true and correct.

*Joel D. Anderson*

JOEL D. ANDERSON, Vice President

Dated at 1251 Beacon Boulevard, West  
Sacramento, California 95691 this 3rd  
day of April 1990.

EXHIBIT A

(Consists of 38 pages)

SUPPLEMENT 1

TO

NATIONAL MOTOR FREIGHT CLASSIFICATION

NMF 100-Q

**SUPPLEMENT 1  
TO  
NMF 100-Q**

**ICC NMF 100-Q  
FMC-F-28**

APSC 30  
ATC 28  
Cal PUC 32  
PUC Colo 27  
Conn PUC-MF 28  
GPSC 27  
IPUC 28  
MF-IL CC 29  
IMCA TR-28

Ia DOT 28  
KCC 29  
KY DOT 28  
LPSC 28  
MDT Man 28  
MF-PSC Md 28  
MDPU No. 5  
MPSC-NMF 100-Q  
MTRB 28

MC 28  
Dir OT Mo 28  
Mont PSC 27  
NPSC 28  
PSCN 28  
NHDS 28  
PUCNJ 28  
SCCNM 28  
DOT-NY-MT 27

NCUC 27  
NOPSC 28  
PUBNS 27  
PUCO-NMF 100-Q  
CC Okla 28  
PUC Ore 27  
Freight Pa PUC 31  
PICB 28  
RIDPU 5

PSCSC 29  
SOPUC 27  
TPSC 28  
RCT 29  
PSCU 30  
MF-VCC 28  
WN T 27  
MF-PSC-W Va 30  
Wyo PSC 27

(Supplement 1 contains all changes)

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**NATIONAL MOTOR FREIGHT TRAFFIC  
ASSOCIATION, INC., AGENT**

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**CLASSES AND RULES**

**APPLYING ON  
FREIGHT TRAFFIC COVERED BY TARIFFS  
GOVERNED BY THIS CLASSIFICATION  
AS SUCH TARIFFS MAY PROVIDE**

---

**NATIONAL MOTOR  
FREIGHT CLASSIFICATION**

---

**ISSUED APRIL 4, 1990**

**EFFECTIVE MAY 5, 1990  
(Except as otherwise provided herein)**

---

**ISSUED BY**

**MARTIN E. FOLEY, Issuing Officer  
2200 Mill Road  
Alexandria, VA 22314**

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All rights reserved. No part of this tariff may be used or reproduced in any manner whatsoever without the written permission of American Trucking Associations. For further information contact the Traffic Department, ATA, 2200 Mill Road, Alexandria, VA 22314.

Inquiries concerning subscriptions to this publication should be addressed to the ATA Traffic Department, 2200 Mill Road, Alexandria, VA 22314 (Subscription price per copy — \$57.55).



**LIST OF SUBJECTS IN THIS SUPPLEMENT WITH EFFECTIVE DATES OTHER THAN SHOWN ON TITLE PAGE**

SUBJECT	PAGE
None.	

**PLAN OF CONTENTS**

*As information to the tariff user, the contents of this supplement are shown below in the order in which they appear in this supplement.*

SUBJECT	PAGE
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**AUTHORITIES FOR DEPARTURE FROM TERMS OF REGULATIONS OF STATE COMMISSIONS**

- (Issued under special permission of the Iowa Department of Transportation, File L-3566, dated June 25, 1962.)
- (Issued under special permission of the Maine Public Utilities Commission, XT-252, of July 5, 1961.)
- (Issued under special permission of the Michigan Public Service Commission, MV 960, as amended June 13, 1961.)
- (Issued on one day's notice under Missouri Division of Transportation Authority 11,775 of June 16, 1961.)
- (Issued under special authority 2013 of the Public Service Commission of Nevada of August 17, 1961.)
- (Issued under authority of Rule 5(e), New York State Department of Transportation, Circular 106.)
- (Issued under special permission of the Public Utilities Commission of Ohio T-4106 of June 15, 1961.)
- (Effective on less than statutory notice by Pennsylvania Public Utility Commission Special Permission 25776 of June 20, 1961.)
- (Issued under special permission of the South Dakota Public Utilities Commission, Authority 625.)
- (Issued under special permission of the Public Service Commission of Wisconsin, MV-4558 of June 15, 1961.)

**CALIFORNIA INTRASTATE ONLY**

Supplement 1 contains all changes.

The provisions of	NMF 100-Q, Cal PUC 32 were authorized by Cal PUC Order No.	Order issued
Supplement 10 to NMF 100-P .....		
Reissue NMF 100-Q .....		
Supplement 1 to NMF 100-Q .....		

SUPPLEMENT I TO NMF 100-Q

**PARTICIPATING INTERSTATE CARRIERS**

*Refer to pages 5 to 29, inclusive, of classification and as heretofore amended, and add (except as noted) the following carriers as participants to this classification under authority of powers of attorney issued to National Motor Freight Traffic Association, Inc., Agent. The participation of each motor carrier named herein is limited, on interstate and foreign commerce, to provisions of this classification applying on the articles and commodities the carrier is authorized to transport.*

Carrier "Alpha" Code	CARRIER	Certif- icate or Docket No. MC
AFOE	ALL 48 FREIGHT LINES, Terry and Mary Burton, d/b/a, Spokane, WA	172758
①AWTH	ALL WAYS TRUCKING, INC., Denver, CO	178676
①BAYG	BAY TRANSPORTATION CO., INC., Forest Park, GA	525
CGEN	CONGRESS ENTERPRISES, INC., Gary, IN	224532
DDSE	DIRECT DELIVERY SERVICE, INC., Los Angeles, CA	146129
①DTSL	DIRECT TRANSPORTATION SYSTEM LIMITED, Winnipeg, MB, CN	37918
DOTT	DOT TRANSPORT, INC., Maspeth, NY	129782
GARO	GARDEN CITY TRANSPORTATION, INC., Hayward, CA	144477
①HYWY	HIGHWAY EXPRESS, INC., Pacific, MO	212093
MSLL	M.S.L. LEASING COMPANY, INC., Bellwood, IL	148848
①PFXT	PFEFFER'S EXPRESS, Henry A. Pfeffer, d/b/a, Elmer, NJ	193
PFRY	POLARIS FREIGHT SYSTEMS, INC., Chicago, IL	⑥
RIAF	RENTON ISSAQUAH FREIGHTLINES, INC., Renton, WA	41522
RINF	RING, FRANK R., TRANSFER, INC., Council Bluffs, IA	62601
①RISS	RISS INTERNATIONAL CORPORATION, Kansas City, MO	200
RORE	ROAD RUNNER EXPRESS, INC., St. Louis, MO	164133
ROGP	ROGERS MOTOR EXPRESS, Fresno, CA	147957
①ROOT	ROOT'S EXPRESS, INC., Binghamton, NY	99281
SHZR	SCHULTZ, R. J., INC., Orland Park, IL	201182
①SHDC	SHEEDY DRAYAGE CO., San Francisco, CA	37771
SNSV	STEWART & STEVENSON TRANSPORTATION, INC., Houston, TX	142662
①TNPD	TRANSPORT DIRECT SYSTEM LIMITEE, Downsview, ON, CN	
①UNIV	UNIVERSAL DELIVERIES, INC., Chicago, IL	148848
VALO	VALDEZ TRANSFER, Phoenix, AZ	96931
WMSF	WILLIAMS FREIGHT SYSTEMS, INC., Sycamore, IL	167205

**PARTICIPATING INTRASTATE CARRIERS**

*Refer to pages 90 to 110, inclusive, of classification and as heretofore amended, and add (except as noted) the following carriers as participants to this classification under authority of powers of attorney issued to National Motor Freight Traffic Association, Inc., Agent, and lawfully on file with the state commission concerned. (Departure from the terms of State Commission regulations to the extent necessary to not publish power of attorney numbers has been authorized by the state commission.) The participation of each motor carrier named herein is limited, on intrastate commerce, to provisions of this classification applying on the articles and commodities the carrier is authorized to transport.*

Carrier "Alpha" Code	ALABAMA CARRIERS (Operating under jurisdiction of Alabama Public Service Commission)
①BAYG	BAY TRANSPORTATION CO., INC., Forest Park, GA

ARIZONA CARRIERS	
VALO	VALDEZ TRANSFER, Phoenix, AZ

CALIFORNIA CARRIERS (Operating under jurisdiction of California Public Utilities Commission)	
ARQA	A R M & ASSOCIATES, Anthony R. Meloyet, d/b/a, Sausalito, CA
ASEA	ALL SEASONS TRANSPORT, Manhattan Beach, CA
AZTN	AMERICAN TRANSPORTATION, Cleo Owens, d/b/a, Norwalk, CA
BSJO	BAUTISTA, JOSE A., South Gate, CA
CKNB	CARLOS TRUCKING, San Bernardino, CA
CAUG	CARRILLO TRUCKING, Fontana, CA
CFDK	CRAWFORD TRUCKING, Carol A. Crawford, d/b/a, Cypress, CA
DMAM	DAMAM ENTERPRISES, INC., Rancho Cucamonga, CA
DEYF	DECOY FREIGHT SYSTEM, INC., Long Beach, CA
DEER	DEE-N-LEE TRANSPORT, Clovis, CA
DVQM	DIVERSIFIED CONSTRUCTION EQUIPMENT, INC., Riverside, CA
ESIR	ESI CARTAGE, Entertainment Services International, Inc., d/b/a, North Hollywood, CA
FOSM	FOSTER-GARDNER, INC., Coachella, CA
GARO	GARDEN CITY TRANSPORTATION, INC., Hayward, CA
GYSN	GRAYSON SERVICE, INC., Bakersfield, CA
HYBB	HAYES, BOB, TRUCKING, Lake Elsinore, CA
①INTP	INTERNATIONAL TRANSPORT, INC., Rochester, MN
KFHD	KFH DELIVERY SERVICE, INC., Los Angeles, CA

**PARTICIPATING INTRASTATE CARRIERS — Continued**

Carrier  
"Alpha"  
Code

**CALIFORNIA CARRIERS — (Continued)**  
(Operating under jurisdiction of California Public Utilities Commission)

MAOP MARTINSON TRANSPORTATION, Clyde Russell Martinson, d/b/a, Ukiah, CA  
 MOKI MONTES TRUCKING, Ontario, CA  
 NART NATIONAL RETAIL TRANSPORTATION, INC., North Bergen, NJ  
 NYTP NEVILLE TRANSPORT CORP., North Hollywood, CA  
 PTAK PARRA TRUCKING, INC., Fontana, CA  
 PWEE POWELL ENTERPRISES, Kay Ward Powell, Sr., d/b/a, Tracy, CA  
 RBWA RAINBOW CARRIERS, INC., Chula Vista, CA  
 @RISS RISS INTERNATIONAL CORPORATION, Kansas City, MO  
 RTKN ROOT TRUCKING, INC., Glendale, CA  
 SSSC SCHNEIDER SPECIALIZED CARRIERS, INC., Rochester, MN  
 @SHDC SHEEDY DRAYAGE CO., San Francisco, CA  
 SARA STRATEGIC AIR CARGO, INC., Rancho Dominguez, CA  
 SFPA SUNSET PACIFIC TRANSPORTATION, La Mirada, CA  
 TZTP TRAILBLAZER TRANSPORTATION, INC., Carrollton, TX  
 UTPI UNITED INDUSTRIAL TRANSPORT, INC., Ontario, CA  
 WRBK WRB TRUCKING, INC., Lodi, CA

**COLORADO CARRIERS**

(Operating under jurisdiction of Public Utilities Commission of Colorado)

@CMAA CMA DELIVERY SERVICE, Charles M. Ask, d/b/a, Denver, CO  
 VWCO VANASK WAREHOUSE CO., Ambry, Inc., d/b/a, Denver, CO

**GEORGIA CARRIERS**

(Operating under jurisdiction of Georgia Public Service Commission)

AYCR ATLANTA SERVICE CARRIERS, INC., Atlanta, GA  
 @BAYG BAY TRANSPORTATION CO., INC., Forest Park, GA

**ILLINOIS CARRIERS**

(Operating under jurisdiction of Illinois Commerce Commission)

AESY ACCELERATED SYSTEMS, INC., Franklin Park, IL  
 @AIDM AMERICAN DELIVERY & SILVER STREAK MESSENGER SERVICE, B & S Transportation Limited, d/b/a, Elk Grove, IL  
 AURC AUTO-RIDE CAB OF ELMHURST, INC., Elmhurst, IL  
 BUFN BULK FEED TRANSPORTS, Roman Weber, d/b/a, Bartleso, IL  
 BUWM BURNS TRUCK SERVICE, INC., Belleville, IL  
 CXSS C & S EXPRESS, INC., Des Plaines, IL  
 CEET CAROUSEL ENTERPRISES, INC., River Grove, IL  
 CTLK CHIEF TRUCK LINES, INC., Lake Station, IL  
 CXIT CXI TRUCKING, D.T. Chicagoland Express, Inc., d/b/a, Carol Stream, IL  
 DLTS DAVIS, LE ROY, TRUCK SERVICE, INC., Sterling Heights, MI  
 DCCH DeCOLA, MICHAEL, INC., Riverside, IL  
 ERCA ERICA EXPRESS, Eddie McCorkle and Robert McCorkle, d/b/a, Evanston, IL  
 ESSF EXPRESS FREIGHT, INC., Bloomingdale, IL  
 EYXC EXPRESSWAY COURIER SERVICE, INC., Westchester, IL  
 @FOOS FOLLRATH DELIVERY SERVICE, INC., Melrose Park, IL  
 GNOK GEANTO'S TRUCKING CO., Carol Stream, IL  
 GISY GERTSEN INTERSTATE SYSTEMS, INC., Melrose Park, IL  
 @GEZT GETZ TRUCKING, Jack D. Getz, Jeff D. Getz and Jody L. Getz, d/b/a, Findlay, IL  
 HWAY HI-WAY DISPATCH, INC., Marion, IN  
 IMUT I.M.U. TRANSPORTATION, INC., Champaign, IL  
 ILTP ILLINI TRANSPORTATION, INC., Galesburg, IL  
 @JAMQ JAMES MOTOR SERVICE, INC., Oak Lawn, IL  
 KDNP K & D TRANSPORTATION, INC., Glenview, IL  
 LZCS LAZER CUSTOM SERVICES, INC., Naperville, IL  
 LHRH LEHN TRUCKING, INC., Decatur, IL  
 LTLG LTL MESSENGER SERVICE, Big Air Freight Company, d/b/a, Chicago, IL  
 MDYM M & M DELIVERY SYSTEMS, INC., Downers Grove, IL  
 MSLI M.S.L. LEASING COMPANY, INC., Bellwood, IL  
 MKNG AMACCHIA TRUCKING, Ronald R. Macchia, d/b/a, Berwyn, IL  
 MQXC MARTIN CARTAGE & EXPRESS, INC., Chicago, IL  
 MYFR MARY'S FREIGHT LINES, Breese, IL  
 MFAR MEAD FARMS, Thomas E. Mead and John E. Mead, d/b/a, Amboy, IL  
 MEKC MELMARK CARTAGE CO., INC., Villa Park, IL  
 @MYEM MYERS MOTOR SERVICE, Jeff M. Myers, d/b/a, Sublette, IL  
 @NPRO NAPIER, RONDELL, Hutsonville, IL  
 PMCC PRIME CONTRACT CARRIER INCORPORATED, Elk Grove Village, IL  
 OMYS QUESSE MOVING & STORAGE, INC., Peru, IL  
 RDGN RED'S GARAGE, INC., East Moline, IL

**PARTICIPATING INTRASTATE CARRIERS — Continued**

@Carrier  
"Alpha"  
Code

**ILLINOIS CARRIERS — (Continued)**  
(Operating under jurisdiction of Illinois Commerce Commission)

ORISS RISS INTERNATIONAL CORPORATION, Kansas City, MO  
 RTEH ROGERS, TERRENCE H., INC., Arlington Heights, IL  
 ROYI ROY'S TRANSFER, INC., Rochelle, IL  
 RYTH RYAN, T. H., CARTAGE COMPANY, Maywood, IL  
 SHGL SCHMIDGALL TRANSFER, INC., Morton, IL  
 SHZR SCHULTZ, R. J., INC., Orland Park, IL  
 OSOHS SCOTT'S DELIVERY SERVICE, Terry L. Scott, d/b/a, Decatur, IL  
 OSOEB SONNEBORN BROTHERS, William P. Sonneborn, d/b/a, Heltick, IL  
 OSUAF STEWART FARMS, Larry E. Stewart, d/b/a, Lexington, IL  
 TPTO T.P.I. AIRFREIGHT, LTD., Libertyville, IL  
 TMBB TRUMBULL BROTHERS, INC., River Grove, IL  
 TTDB 2000 DISTRIBUTION, INCORPORATED, Elk Grove Village, IL  
 UNIV UNIVERSAL DELIVERIES, INC., Chicago, IL  
 VGTB VEETER, HENRY F., Elmhurst, IL  
 VITT VIA, TOM, TRUCKING, INC., Marion, IL  
 WASP WASPI TRUCKING, INCORPORATED, Algonquin, IL  
 WMSF WILLIAMS FREIGHT SYSTEMS, INC., Sycamore, IL

**IOWA CARRIERS**

(Operating under jurisdiction of Iowa Department of Transportation)

MCMK MCCORMACK TRANSPORTATION COMPANY, INCORPORATED, Rock Rapids, IA

**KANSAS CARRIERS**

(Operating under jurisdiction of Kansas Corporation Commission)

ALWS ALL-WAYS FREIGHT LINES, INC., Kansas City, KS  
 ARFW ARKANSAS FREIGHTWAYS, INC., Harrison, AR

**MASSACHUSETTS CARRIERS**

(Operating under jurisdiction of Massachusetts Department of Public Utilities)

AMAP A.M.A. TRANSPORTATION CO., INC., Revere, MA

**MICHIGAN CARRIERS**

(Operating under jurisdiction of Michigan Public Service Commission)

HMES TNT HOLLAND MOTOR EXPRESS, INC., Holland, MI

**MISSOURI CARRIERS**

(Operating under jurisdiction of Missouri Division of Transportation)

OHYWY HIGHWAY EXPRESS, INC., Pacific, MO  
 LDPS L.E.D. ENTERPRISES, INC., St. James, MO  
 SCNN SCHNEIDER NATIONAL CARRIERS, INC., Green Bay, WI

**NEW YORK CARRIERS**

(Operating under jurisdiction of New York State Department of Transportation)

OROOT ROOT'S EXPRESS, INC., Binghamton, NY  
 YFSY YELLOW FREIGHT SYSTEM, INC., Overland Park, KS

**OREGON CARRIERS**

(Operating under jurisdiction of Public Utilities Commission of Oregon)

PTLP PRO TRUCK LINES, INC., Portland, OR

**PENNSYLVANIA CARRIERS**

(Operating under jurisdiction of Pennsylvania Public Utility Commission)

ARCC ARROW CARRIER CORPORATION, North Bergen, NJ

**RHODE ISLAND CARRIERS**

(Operating under jurisdiction of Rhode Island Division of Public Utilities)

NEMF NEW ENGLAND MOTOR FREIGHT, INC., Elizabeth, NJ

PARTICIPATING INTRASTATE CARRIERS — Continued

Carrier  
"Alpha"  
Code

WASHINGTON CARRIERS  
(Operating under jurisdiction of Washington Utilities and Transportation Commission)

RIAF ARENTON ISSAQUAH FREIGHTLINES, INC., Renton, WA

CUMULATIVE LIST OF ITEMS AND NUMBERED PACKAGES IN SUPPLEMENTS

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SUPPLEMENT I TO NMF 100-Q

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<ul style="list-style-type: none"> <li>⊕ Calcium Arsenate..... 102020</li> <li>⊕ Calcium Arsenate, Lead Arsenate, Lime or Paris Green and Sulfur combined, dry..... 102040</li> <li>⊕ Calcium Arsenate..... 102020</li> <li>⊕ Calculators, NOI..... 115760</li> <li>⊕ Camphene, chlorinated..... 45625</li> <li>⊕ Chemicals, agricultural, polychlor..... 45620, 45625</li> <li>⊕ Chemicals, polychlor, agricultural..... 45620</li> <li>⊕ Chlorinated Camphene..... 45625</li> <li>Clippings:</li> <li>⊕ Sponge..... 177320</li> <li>⊕ Sponge..... 177320</li> <li>⊕ Colanders, food preparation, sheet steel..... 174600</li> <li>⊕ Components, electronic telephone switching system..... 116030</li> <li>⊕ Computers, including Personal Computers (PC's), viz.: Data Processing Machines, Systems or Devices..... 116030</li> <li>⊕ Copper Sulfate..... 44150</li> <li>⊕ Copper Sulfate and Lime combined, dry..... 102060</li> <li>⊕ Copper Sulfate and Sulfur combined..... 102060</li> <li>⊕ Corn Poppers..... 61505, 118280</li> <li>⊕ Corn Poppers and Peanut Roasters combined..... 118280</li> <li>⊕ Corn Poppers and Vending Machines combined..... 118280</li> <li>Cups:</li> <li>⊕ Aluminum..... 13374</li> <li>⊕ Aluminum, NOI..... 13374</li> <li>⊕ Latex, aluminum..... 13510</li> <li>⊕ Turpentine, aluminum..... 13510</li> <li>⊕ Turpentine, zinc..... 201000</li> </ul>		<ul style="list-style-type: none"> <li>Filters:</li> <li>⊕ Swimming pool, tank type, plastic..... 69110</li> <li>⊕ Swimming pool, tank type, plastic or stainless steel..... 69110</li> <li>Flakes:</li> <li>⊕ Expanded plastic or rubber..... 157320</li> <li>⊕ Plastic or rubber..... 157320</li> <li>Floats:</li> <li>⊕ Expanded plastic or rubber, NOI..... 157320</li> <li>⊕ Plastic or rubber..... 157320</li> <li>Forms:</li> <li>⊕ Boot, plastic or rubber..... 156600, 157320</li> <li>⊕ Expanded plastic or rubber, NOI..... 157320</li> <li>⊕ Plastic or rubber..... 157320</li> <li>⊕ Shoe, plastic or rubber..... 156600, 157320</li> <li>⊕ Fungicides, agricultural, NOI..... 102100, 102120</li> <li>⊕ Fungicides, NOI, poison, other than Class A Poison..... 102100</li> <li>⊕ Fungicides, other than poison..... 102120</li> <li>⊕ Fungicides, polychlor agricultural..... 10224</li> </ul>		<ul style="list-style-type: none"> <li>Machinery or Machines:</li> <li>⊕ Vending, and corn poppers combined..... 118280</li> <li>Media:</li> <li>⊕ Air filtering, glass fibre or glass wool..... 149265</li> <li>⊕ Air filtering, glass fibre..... 86980</li> <li>⊕ Air filtering, glass wool..... 86980</li> </ul>	
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RULES

ITEM 260-A

SPECIFICATIONS FOR ALUMINUM BARRELS OR DRUMS AND STEEL BARRELS, DRUMS, BUCKETS, FIRKINS, KITS OR PAILS

(a) Barrels, buckets, firkins, drums, kits or pails must comply with the following requirements, except single trip containers as provided in paragraph (b). Regulations of the DOT for the transportation of explosives and other dangerous articles (see HMT) by freight and the specifications of the shipping containers thereof must be observed.

Rated (marked) capacity of steel barrels, drums, buckets, firkins, kits or pails See Note 5	MINIMUM THICKNESS OF STEEL, U.S. STANDARD GAUGE	
	For dry or solid articles other than single trip, Note 1	For other than dry or solid articles Note 1
Under 5 gallons capacity	28 gauge	26 gauge (Note 7)
5 gallons to and including 7 gallons capacity (Note 2), Item 255	26 gauge	26 gauge (Notes 4 and 7)
Over 7 gallons to and including 10 gallons capacity	26 gauge	22 gauge (Note 4)
Over 10 gallons to and including 20 gallons capacity	24 gauge	20 gauge (Note 4)
Over 20 gallons to and including 35 gallons capacity	23 gauge	20 gauge (Note 4)
Over 35 gallons to and including 57 gallons capacity	22 gauge	20/18 gauge (Notes 2, 3, 4 and 6)
Over 57 gallons to and including 75 gallons capacity	20 gauge	18 gauge (Note 8)
Over 75 gallons to and including 110 gallons capacity	20 gauge	14 gauge
Over 110 gallons but not exceeding 165 gallons capacity	18 gauge	12 gauge
All steel drums, buckets, firkins, kits, or pails for other than dry or solid articles must have side seams welded.		

(Continued)

## RULES

## ITEM 260-A—Continued

Capacity of aluminum barrels or drums with or without steel jackets	MINIMUM THICKNESS OF ALUMINUM, B & S GAUGE	
	Sides	Ends
To and including 10 gallons capacity	16 gauge	16 gauge
Over 10 gallons to and including 35 gallons capacity	14 gauge	14 gauge
Over 35 gallons to and including 65 gallons capacity	10 gauge	10 gauge
Over 65 gallons to and including 110 gallons capacity	8 gauge	8 gauge

(b) Single trip aluminum or steel barrels, drums, buckets, firkins, kits or pails, other than as referred to below, may be used as shipping containers only for dry or solid articles (Note 1) for single movement, and when so used, maximum capacity of single containers per paragraph (a) must be observed, but no thickness of metal is prescribed and they must bear the initials 'STC' to signify that they are single trip containers and are not to be used again as shipping containers after contents have been removed following initial shipment, except when containers and closing devices are in such condition that they will afford reasonable and proper protection of contents in further shipment to an ultimate destination.

Single trip containers complying with the specifications for such containers in Hazardous Materials Tariff (HMT) may be used for more than a single movement of liquid, dry or solid articles not subject to the DOT regulations for transportation of explosives and other dangerous articles by freight, provided they comply with the requirements of paragraph (a), and provided they will afford reasonable and proper protection of contents.

(c) Covers, ends, heads or tops of aluminum drums or steel drums, buckets, firkins, kits or pails when of metal must be of same material and not less than same thickness as sidewalls except as otherwise specifically provided. They must be securely fastened, and filled packages must be proof against leakage or sifting.

Top covers may be constructed of injection molded high density polyethylene or polypropylene homopolymer or copolymer and have a minimum thickness of .090 inch. Top covers must have at least two concentric rings of not less than  $\frac{1}{8}$  inch depth. Except when cover is of a minimum thickness of .125 inch cover may have one concentric ring. Closure must be effected by a liquid-tight gasket and a lever locking ring or an endless band rolled to bond sidewall and cover at chime. Ring or band must not be thinner than 22 gauge metal.

Bungs or plugs or bung or plug closure caps, covers or seals may be made of metal, plastic or rubber and must be securely fastened, and must be proof against leakage or sifting. Metal bungs or plugs must be not less than same thickness as sidewall requirements, and metal bung closure caps, covers or seals may be made of metal thinner than that prescribed for container.

(d) All aluminum or steel barrels or drums, manufactured for use as freight containers must bear:

1. The manufacturer's name or an identifying symbol or trademark of manufacturer in lieu of the manufacturer's name and which symbol or trademark must be registered with the National Classification Committee.

2. The U. S. Standard or B & S gauges of metal used, the capacity of the container, and the year of manufacture, abbreviated and shown in the order specified in examples (a) and (b):

A(a) 18-55-90, indicating that the container is made of 18 gauge metal; is 55 gallons capacity; and made in the year 1990.

A(b) 20/18-55-90, indicating that the container body is made of 20 gauge metal; heads made of 18 gauge metal; is 55 gallons capacity; and made in the year 1990.

The inscription must be plainly and durably marked on containers, or on a plate securely bronzed, welded or soldered thereto, in letters that are legible and are not less than one-fourth inch in height. These requirements will not be necessary for steel shipping barrels, drums, kits or pails when manufactured in foreign countries, but shipping orders and bills of lading must bear the following certificate: *The steel shipping barrels, drums, kits or pails used in this shipment are of foreign manufacture and conform to construction requirements of Item 260.*

(e) When a steel drum or barrel has been reconditioned for further use as a shipping container and in the reconditioning process changes are made which alter the original construction, the party making such changes must indicate his name or an identifying symbol or trade mark on such containers, which symbol or trade mark must be registered with the National Classification Committee. The marking must be plainly and durably made by painting, stenciling or similar means or must be on a plate securely brazed, welded or soldered thereto, in letters that are legible and are not less than one-fourth inch in height. Identifying names, symbols or trade marks of manufacturer or previous reconditioner must be removed or obliterated unless such names, symbols or identifying marks are embossed or affixed in such manner that removal or obliteration is not practicable.

Note 1—The term 'dry or solid' is defined as referring only to articles which are dry or solid at a temperature of 100° F (38° C).

Note 2—Steel drums over 30 gallons to and including 67 gallons rated (marked) capacity, see Note 5, other than full open head type, manufactured from steel not less than .0239 inch in thickness may be used providing that contiguous, parallel, geometrically similar, circumferential beads are so expanded in the entire height of the sidewall that the surface length of the steel in the axial direction does not change more than 1 percent. Heads and bottoms must be without corrugation or beading and without convexity. Each chime must be reinforced with an 18 gauge steel band that is an integral part of the double seam, resulting in a chime cross section containing eight layers of steel. The reinforcing band shall follow and support the knuckle radius of the head and bottom with the inside edge upturned so that it does not contact the adjacent portions of the head or bottom.

OR

Steel drums over 30 gallons to and including 67 gallons rated (marked) capacity, see Note 5, other than full open head type, manufactured from steel not less than .0239 inch in thickness for the bodies and not less than .0324 inch in thickness for the top and bottom heads may be used providing that contiguous, parallel, geometrically similar, circumferential beads are so expanded in the entire height of the sidewall that the surface length of the steel in the axial direction does not change more than one percent, and provided that top and bottom heads are seamed to bodies by a process which results in chimes with seven overlapping layers formed from the parent head and body steel.

(Continued)



**RULES**

**ITEM 260-A—Continued**

Note 3— Steel drums over 35 gallons to and including 57 gallons rated (marked) capacity, see Note 5, having 20 gauge sides and 20 gauge ends may be used as shipping containers for other than dry or solid articles, see Note 1. Drums must have two or more expanded rolling hoops in the sidewall. New empty steel drums manufactured after July 1, 1980 over 35 gallons to and including 57 gallons capacity having 18 gauge to 20 gauge ends when used as shipping containers for other than dry or solid articles shall have a center bottom nominal clearance of 1/4 inch from the floor when empty.

Note 4— Steel drums with molded one piece polyethylene inserts for liquids and articles in liquid:

The requirements, limitations and specifications set forth in the table in this section for the numbered types shown therein must be observed. The minimum requirements in the table for steel drum overpack body, bottom, and top head or cover are governed by either the weight of contents in the first column or by the capacity in the second column, whichever limitation calls for the higher minimum requirements. Gallonage capacity are net, but sufficient outage must be provided, and they must bear the initials 'STC' to signify they are single trip containers.

These drums must not be used again for shipments of liquids or articles in liquids after contents have been removed, except when container, closing devices, and required inner protection are in such condition that they will protect contents as efficiently as new containers.

Drums filled to net capacity with water must withstand without leakage a tipover fall on concrete on the cover chime followed by a diagonal drop on the bottom chime sufficient to provide at least 500 foot-pounds impact, except that maximum height of drop shall not exceed two feet, and the minimum height of drop not less than one foot.

**TABLE OF AUTHORIZED TYPES OF CONTAINERS**

TYPE	MAXIMUM LIMIT		MINIMUM REQUIREMENTS—U. S. STANDARD GAUGE			
	Weight of Contents (Pounds)	Capacity (Gallons)	Body	Bottom	Top (Head or Cover)	Required Insert and Method of Closure
4A	105	6 1/2	26	26	26	See Type 4A references below
	245	15	26	24	24	
	350	30	26	24	24	
	450	30	24	22	22	
	600	55	24	22	22	
	700	55	22	20	20	
	800	55	20	18	18	
4B-L	105	6 1/2	26	26	26	See Type 4B-L references below
	245	15	26	24	24	
	350	30	26	24	24	
	450	30	24	22	24	
	600	55	24	22	24	
	700	55	22	20	22	
	800	55	20	18	18	
4B-H	450	30	24	24	24	See Type 4B-H references below
	700	55	24	22	24	
	800	55	20	18	18	

(Continued)

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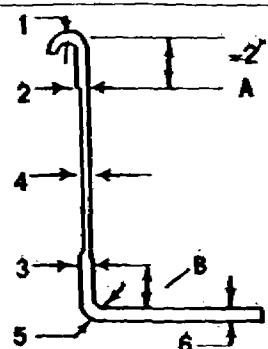
**RULES**

**ITEM 260-A—Continued**

**Type 4A—** Steel drums must have full removable tops (covers) secured by locking devices, with or without metal or plastic plug or cap closures. Not more than two closures no larger than 2.3 inches are permitted. Covers must be equipped with rubber or resilient plastic gasket to effect a liquid tight seal. Drum body must be designed with not less than three rolling hoops with the top hoop positioned not more than five inches from top chime. Steel drum must be equipped with molded full open head semi-rigid polyethylene insert conforming to drum contour. Minimum thickness of insert shall be 0.015 inch or in conformance with the following requirements:

MINIMUM THICKNESS OF POLYETHYLENE INSERT (INCHES)			
LOCATIONS IN INSERT	POLYETHYLENE INSERT MINIMUM THICKNESS		
	See Sketch <sup>a</sup>	Not over 30 gallons	Over 30 gallons not over 55
Top Chime	1	.012	.015
Top and Bottom Sidewall at A and B	2-3	.015	.015
Sidewall	4	.007	.007
Bottom Corner	5	.030	.040
Bottom	6	.018	.025

<sup>a</sup>Explanation of Thickness Measurement Locations in Insert

	CAPACITY	DIMENSION A Inches from Top	DIMENSION B Inches from Bottom
	Not over 15 gallons	2	2½
Over 15, but not over 30 gallons	2	3½	
Over 30, but not over 55 gallons	2	4	

**Type 4B-L and 4B-H.** Steel drums must be of tight head construction or constructed with full removable heads (covers) secured by locking devices, with or without plastic plug or cap closures, or openings, in top heads (covers) to permit polyethylene insert neck(s) or flange(s) to protrude. Not more than two closures not exceeding 2.3 inches, or more than two openings for necks or flanges are permitted in top heads or covers.

Steel drums must be equipped with molded closed head polyethylene insert having not more than two closure openings in top head, no larger than 2.3 inches. Thickness requirements shall meet the following schedule:

Molded Polyethylene Insert Closed-Head Type	MINIMUM THICKNESS—(INCHES)	
	Type 4B-L (Lightweight)	4B-H (Heavyweight)
8½	.010	—
15	.015	—
30	.015	.030
55	.015	.030

**Type 4A, 4B-L, and 4B-H MOLDED POLYETHYLENE INSERTS.** Steel drums equipped with semi-rigid polyethylene insert which shall be molded full open-head construction conforming to requirements of Type 4A, or molded closed-head construction having not more than two openings in top head no larger than 2.3 inches and conforming to requirements of Type 4B-L, or 4B-H inserts shall be made of polyethylene which shall have the following properties:

Melt Index: 2.6 maximum  
 Density: 0.910—0.925  
 Tensile Strength: 1,500 psi minimum  
 Percent Elongation: 400 percent minimum

**Note 5—** The rated (marked) capacity means the capacity stated in gallons in accordance with paragraph (d) plus the following outages (Additional capacity):

Containers for dry or solid articles:

Not less than two percent; nor more than three percent OR two percent plus one quart, whichever is greater.

Containers for other than dry or solid articles:

Not less than four percent; nor more than five percent OR four percent plus one quart, whichever is greater.

(Continued)

## RULES

## ITEM 260-A—Concluded

Note 6— In cold rolled steel tight head (non-removable head) drums not exceeding 55 gallons capacity, having sidewalls welded and constructed of 22 gauge steel (.029 inch minimum thickness), bottoms of 19 gauge steel (.039 inch minimum thickness) inwardly embossed with three circumferential beads, and top heads of 20 gauge steel (.035 inch minimum thickness). Drum body must be designed with not less than two rolling hoops. Drum must comply with the requirements of paragraph (d) except drum must bear the numerals 22/19/20-55-84, indicating that the container body is constructed of 22 gauge metal; bottom constructed of 19 gauge metal; top head constructed of 20 gauge metal; is 55 gallons capacity; and is made in the year 1984, as an example. In addition, top head and bottom, must bear the wording 'Non-Reusable for Liquids' in lettering of not less than 1/8 inch in height to indicate container cannot be used again as a shipping container for liquids or articles in liquid after the initial contents have been removed.

Note 7— Steel pails or drums not exceeding five gallons capacity may be used as shipping containers providing open head (removable head) containers have body and bottom made of steel not thinner than 28 gauge and cover of steel not thinner than 26 gauge having a minimum of 18 lugs spaced not more than 1/2 inch apart. Bottom of open head container must have three inwardly embossed circumferential beads and cover must have two inwardly embossed circumferential beads. Tight head (closed head) containers may be of all 28 gauge steel and need not be embossed with circumferential beads. Pails or drums must have welded side seams. Such containers must bear the initials 'NRC,' meaning non-reusable containers, or 'STC,' meaning single trip containers, to signify that they are not to be used again as a shipping container after contents have been removed.

Note 8— Steel drums over 57 gallons to and including 65 gallons having 18 gauge sides and top heads and 16 gauge bottom heads may be used as a shipping container for other than dry or solid articles.

Note 9— In new 55-gallon steel drums of tight head (non-removable head) construction having sidewalls constructed of 22 gauge steel (.0269 inch minimum thickness), bottoms of 18 gauge steel (.0428 inch minimum thickness) and top head of 20 gauge steel (.0324 inch minimum thickness). Drum body must be designed with not less than two rolling hoops. Top and bottom heads must be seamed to body drum by a process which results in chimes with seven overlapping layers formed from the parent head and body steel. Drum must comply with the requirements of paragraph (d) except drum must bear the numerals 22/18/20-55-84, indicating that the container body is constructed of 22 gauge metal; bottom constructed of 18 gauge metal; top head constructed of 20 gauge metal; 55 gallons capacity; and was made in the year 1984, as an example. In addition, drum must bear the letters 'NRC' symbolizing that the drum is a non-reusable container in lettering of not less than 1/8 inch in height to indicate that container cannot be used again as a shipping container for liquids or articles in liquid after the initial contents have been removed.

## ITEM 265-A

DEFINITION OF PALLETS OR PLATFORMS,  
ELEVATING OR LIFT TRUCK

Pallets or platforms, elevating or lift truck, are low, portable platforms having flat top areas, either round, hexagonal, rectangular or square in actual dimensions, of solid, slatted, intersticed, ribbed or open framework construction providing flat load-bearing top surfaces, supported by legs (blocks) or runners, with or without bodies, enclosures, standards or stacking posts, without wheels or casters. Construction may be of wood, metal, plastic, fibreboard or any combination thereof.

Wooden pallets may be single-faced or double-faced, either of wing or flush box style and of either 2-way or 4-way entry design. Runners (stringers) and deck boards must be of sound lumber securely fastened. Deck boards must be of a sufficient number, dimension and spacing to support a double-tiered load of equal weight and distribution, and to prevent underside damage to article(s) caused by fork lift handling equipment. Knots shall not exceed 1/2 the width of any piece of lumber.

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**RULES**

**ITEM 291-A**

**SPECIFICATIONS FOR FIBRE BARRELS OR DRUMS  
FOR DRY OR SOLID ARTICLES**

Subject to the provisions of Secs. 1(a) and 2 of Item 680 and to the provisions of the Hazardous Materials Tariff, and unless otherwise provided in separate descriptions of articles, when the following requirements and specifications are complied with, classes or rates applying on articles in "barrels," "drums," "pails" or "tubs" will also apply on the same articles in fibre drums, pails or tubs of the styles described in this section, respectively. Fibre barrels or drums and fibre pails and tubs may be used as shipping containers for a single movement of articles that remain dry or solid at 100° Fahrenheit (38° Celsius). After initial shipment they must not be used again for shipment of dry or solid articles after contents have been removed, except when containers and closing devices are in such condition that they will protect contents as efficiently as new containers.

(a) Fibre barrels or drums for dry or solid articles must conform with the following requirements and specifications:

Maximum limit (see Note 5)		Minimum Requirements				
Weight of contents (pounds)	Capacity (gallons) (See Note 6)	Side-walls  Test per square inch (pounds) (See Note 1)	Tops and Bottoms (each)			
			Fibreboard outer ply Waterproofed		Steel (U.S. gauge)	Plastic
			Thickness (Inch)	Test (pounds) (See Note 1)		
60	30	400	.120 or .090	300 or 600	30	See Notes 2 and 7
115	45	500	.160 or .120	400 or 800	28	See Notes 2 and 7
150	55	600	.160 or .120	400 or 800	28	See Note 2
225	65	700	.180 or .120	500 or 1000	26 (See Note 3)	See Note 2
300	75	800	.200 or .160	550 or 1100	26 (See Note 3)	See Note 2
400	75	900	.240 or .200	600 or 1200	24 (See Note 4)	See Note 2
550	75	1000	.220	1300	24 (See Note 4)	See Note 2

(b) Fibre pails and tubs for dry or solid articles must conform with the following requirements and specifications:

Maximum limit (See Note 5)		Side-wall test per square inch (pounds) (See Note 1)	Minimum requirements tops and bottoms fibreboard outer ply waterproofed		
Weight of contents (pounds)	Capacity (gallons)		Thickness (inches)	Test (pounds) (See Note 1)	Steel (U.S. gauge)
			Bottoms		
50	8	400	Bottoms		30
			.100 or .080	300 or 500	
60	8	400	Tops		30
			.190	600	
60	8	400	Bottoms		30
			.120 or .090	300 or 600	
60	8	400	Tops		30
			.190	600	

(Continued)

**RULES**

**ITEM 291-A—Concluded**

(c) Sidewall must be constructed of more than one ply not spirally wound, no single ply to be less than .012 inch in thickness, in the absence of specific waterproof treatment, sized to resist the effect of casual water, and all plies firmly glued together.

OR

Sidewalls may be constructed of fibreboard of single ply meeting the test requirements in paragraph (a) of this rule, with outer face waterproofed and the ends of the fibreboard forming joint or overlap must extend at least two inches beyond beginning of the overlap and must be firmly glued together throughout entire area of overlap and such overlap must be reinforced by metal rivets, staples or stitches not more than six inches apart, or must be fastened by a double row of metal rivets, staples or stitches not more than two inches apart in each row, or secured by a barbed steel strip not less than gauge 22 and not less than one inch wide extending entire length of joint with barbs pressed through fibreboard and clinched on inside.

(d) Tops and bottoms must be so fastened to sidewalls as to provide a tight seal and withstand ordinary handling and shipping without showing signs of sifting or loss of any contents. When tops and bottoms are made of fibreboard having wooden segments reinforcing circumference not less than 1/2 inch thick, and not less than 1 1/2 inches wide at joint between segments, fibreboard may be not less than same test as shell.

Note 1—Cady or Mullen Testing Method for Fibre Components: Either of the following test methods may be used. When more than a single ply, test shall be determined from the summation of the tests of individual plies, or when test is made on a completed drum, the punctures shall be made from the exterior to the interior surface, in which case the average values for sidewall shall be not less than 80 percent of the values in the above table and the values for fibre tops and bottoms shall be not less than the value in the above table. There shall be a minimum of six tests and the average shall be not less than the prescribed minimum requirements.

Note 2—Top covers must be constructed of injection molded high density polyethylene or polypropylene homopolymer or copolymer and have a minimum thickness of .090 inch. Top covers must have at least two concentric rings of not less than 1/4 inch depth, except when cover is of a minimum thickness of .125 inch cover may have one concentric ring. Closure must be effected by a lever locking ring of 22 gauge metal or by method of covers having the ability of securely snap-lock fitting. Alternatively, for net weights not exceeding 225 pounds and capacities not over 20% gallons, top covers with at least one concentric stiffening ring may have a minimum thickness of .060 inch and be closed with a lever locking ring of 24 gauge metal.

Material must meet the following parameters as specified within the referenced American Society for Testing and Materials (ASTM) testing methods:

Injection Molded High Density Polyethylene Homopolymers or Copolymers:		Injection Molded Polypropylene Homopolymers or Copolymers:	
Density, ASTM D 1505	0.948-0.967	Density, ASTM D 1505	0.890-0.915
Melt Index, ASTM D 1238 FR-E	1.0-8.0	Melt Flow, ASTM D 1238	1.0-8.0
Tensile Strength, ASTM D 638	3000 PSI, minimum	Tensile Strength, ASTM D 638	3000 PSI, minimum
Heat Resistance Vicat Soft Point	240-260° F	Izod Impact at 32° F., ASTM D 256, Method A	1.0-18.0
Stress Cracking, ASTM D 1693, Method B, F50	20 hours, minimum	Heat Distortion Temperature at 66 PSI, ASTM D 648	160-275° F

Note 3—Bottom may be constructed of not less than 30 U.S. gauge steel when combined with paperboard having a minimum thickness of .110 inch and Mullen test of not less than 400 pounds.

Note 4—Bottom may be constructed of not less than 30 U.S. gauge steel when combined with paperboard having a minimum thickness of .140 inch and Mullen test of not less than 550 pounds.

Note 5—The minimum requirements in the above table for sidewall, top and bottom are governed by either the weight of contents in first column or by the capacity in second column, whichever limitations call for the higher minimum requirements.

Note 6—Fibre drums, not exceeding 65 gallons capacity, convolutely wound, which are vertically straight-sided and generally cylindrical, with convex side, top and bottom perimeters of radius not over 48 inches and with round corners of a radius not less than 1 1/2 inches, conforming to the requirements of Sec. (a) for dry or solid articles (except that the 80 percent provision for sidewall values in Note 1 on Cady and Mullen test shall not apply in testing the convex sides of these drums) or Item 310 for semi-liquids will be accepted when bearing the certificate of the drum maker as required in Item 297.

Note 7—Fibre drums meeting this rule, not exceeding 20% gallons capacity, may have covers and bottoms constructed of polypropylene or polyethylene when of a minimum of 70 mils in thickness. Cover and bottom must be securely fastened.

**ITEM 296-A**

**FIBRE DRUMS FOR LIQUIDS OR ARTICLES IN LIQUIDS**

Sec. 1. The terms 'liquid' or 'articles in liquid' as used in this rule apply to articles, or that portion of articles present in an amount over 10 percent by weight of a whole, having a viscosity measurement of less than 5000 centipoises. Measurement must be made at temperatures up to 100 degrees Fahrenheit, except as to articles normally shipped under refrigeration, in which case the measurement must be made at shipping temperatures. Measurement shall be determined by a viscometer of the Brookfield type equipped with a No. 4 spindle rotated at 20 revolutions per minute or by any other instrument giving an equivalent measurement.

(Continued)

**RULES**

**ITEM 296-A—Continued**

Sec. 2. The requirements, limitations and specifications set forth in the table in this section for the numbered types shown therein must be observed. The sidewalls of all drums must be convolutely, not spirally, wound and no single ply should be less than .012 inch in thickness, with outer ply, in the absence of specific waterproof treatment, sized to resist the effect of casual water, and all plies firmly glued together. The minimum requirements in the table for sidewall, top and bottom are governed by either the weight of contents in column B or by the capacity in column C, whichever limitation calls for the higher minimum requirements. Gallonage capacities are net, but sufficient outage must be provided.

Drums filled to net capacity with water must withstand without leakage a tipover fall on concrete on the cover chime followed by a diagonal drop on the bottom chime sufficient to provide at least 500 foot-pounds impact, except that a maximum height of drop shall not exceed two feet and the minimum height of drop not less than one foot.

These drums must not be used again for shipments of liquids or articles in liquids after contents have been removed, except when containers, closing devices, and required interior protection are in such condition that they will protect contents as efficiently as new containers.

**TABLE OF AUTHORIZED TYPES OF CONTAINERS**

- A = Type of Fibre Drum
- B = Maximum weight limit of contents, in pounds
- C = Maximum capacity limit of contents, in gallons
- D = Minimum sidewall test requirements in pounds per square inch (see Note 1)
- E = Minimum thickness requirements, in inches, of fibreboard bottoms
- F = Minimum test requirements in pounds, for fibreboard bottoms (see Note 1)
- G = Minimum steel gauge requirements for steel bottoms
- H = Minimum fibreboard test requirements, in pounds, (see Note 1) for bottoms of fibreboard and steel combined
- I = Minimum steel gauge requirements for bottoms of fibreboard and steel combined
- J = Minimum requirements for plastic top covers
- K = Minimum steel gauge requirements for steel top covers
- L = Minimum test requirements, in pounds, for fibreboard top covers (see Note 1)
- M = Minimum required interior protection and method of closure for top covers

A	B	C	D	E	F	G	H	I	J	K	L	M
1A	60	6	850	.170	800	24	800	26	See Note 7	24	See Note 6	See Note 1
	225	20	1000	.200	1200	24	800	26	See Note 7	24	See Note 6	See Note 2
2A	400	35	1100	.220	1300	24	1000	24	See Note 7	24	N.A.	See Note 2
	600	55	1200	.240	1500	24	1000	24	See Note 7	24	N.A.	See Note 2
	245	15	900	.200	1200	24	.110 400‡	30*	See Note 7	24	N.A.	See Note 4
3A	350	30	1100	.220	1300	24	.140 650‡	30*	See Note 7	24	N.A.	See Note 4
	600	55	1200	.240	1500	25	.160 900‡	30*	See Note 7	24	N.A.	See Note 4
	105	6½	600	.120	800	28	N.A.	N.A.	See Note 7	28	.120 800‡	See Note 4
3B-L	245	15	700	.160	1100	26	.110 400‡	30*	See Note 7	26	.160 1100‡	See Note 4
	350	30	900	.200	1200	24	.140 650‡	30*	See Note 7	24	N.A.	See Note 4
	450	40	1000	.220	1300	24	.140 650‡	30*	See Note 7	24	N.A.	See Note 4
3B-H	600	55	1200	.240	1500	24	.160 900‡	30*	See Note 7	24	N.A.	See Note 4
	350	30	800	.160	1100	24	.220 400‡	30*	See Note 7	24	N.A.	See Note 4
	450	30	900	.200	1200	24	.140 650‡	30*	See Note 7	24	N.A.	See Note 4
3C	700	55	1000	.220	1300	24	.140 650‡	30*	N.A.	24	N.A.	See Note 4
	400	35	1100	.220	1300	N.A.	1000	24	See Note 7	24	N.A.	See Note 5
4A	600	55	1000	.240	1500	N.A.	1000	24	See Note 7	24	N.A.	See Note 5
	600	55	1200	.240	1500	N.A.	1000	24	See Note 7	24	N.A.	See Note 5

N.A. — Not Authorized

\* — For combination fibre and steel bottoms, the steel must be locked into the crimp. Flat discs are not acceptable.

‡ — Thickness Inches/Test Pounds.

(Continued)

**RULES**

**ITEM 296-A—Continued**

Note 1—Interior of Type 1A drum must be lined or so treated as to prevent penetration by the material with which the drum is filled for shipping.

Note 2—Interior of sidewall and bottom of Type 2A drum must be provided with an interior lining or barrier so as to form an integral part of the drum to prevent liquid penetration and so joined at the bottom chime as to form a liquid-tight juncture. Tops (covers) may be permanently secured, or, if removable, must be fastened by the ring locking method, and must be equipped with resilient plastic or rubber gaskets to effect a liquid-tight seal and may have metal or plastic bung closures.

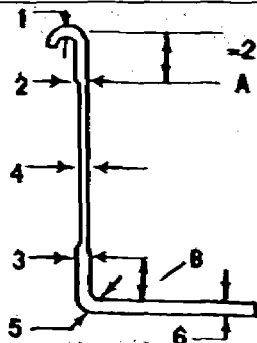
Note 3—Not currently used.

Note 4—Type 3A fibre drums must have full removable tops (covers) secured by locking devices or permanently secured tops (covers) and may have metal or plastic plug or cap closures. Not more than two closures not exceeding 2.3 inches are permitted. Tops must be equipped with rubber or resilient plastic gasket to effect a liquid-tight seal. This drum must be equipped with molded, full open head semi-rigid polyethylene conforming to drum contour and minimum specifications shown at end of this Note. Minimum thickness of insert shall be 0.015 inch or in conformance with the following requirements:

**MINIMUM THICKNESS OF POLYETHYLENE INSERT (INCHES)**

LOCATIONS IN INSERT	INSERT MINIMUM THICKNESS		
	See Sketch*	Not over 30 gallons	Over 30 gallons not over 55
Top Chime	1	.012	.015
Top and Bottom Sidewall at A and B	2-3	.015	.015
Sidewall	4	.007	.007
Bottom Corner	5	.030	.040
Bottom	6	.018	.025

\*Explanation of Thickness Measurement Locations in Insert

	CAPACITY	DIMENSION A Inches from Top	DIMENSION B Inches from Bottom
		Not over 15 gallons	2
	Over 15, but not over 30 gallons	2	3½
	Over 30, but not over 55 gallons	2	4

Type 3B-L and 3B-H fibre drums must have permanently secured tops (covers), or full removable tops (covers) secured by locking devices, with or without plastic plug or cap closures, or openings in tops (covers) to permit polyethylene insert necks or flanges to protrude. Not more than two closures not exceeding 2.3 inches, or not more than two openings for necks or flanges are permitted in tops (covers). These drums must be equipped with molded, closed head polyethylene inserts having not more than two closure openings in top head, not exceeding 2.3 inches which conform to drum contour and minimum specifications shown at the end of this Note. Thickness requirements must conform or exceed the following schedule:

Molded Polyethylene Insert Closed Head Type	Minimum Thickness—(Inches)	
	Type 3B-L (Lightweight)	Type 3B-H (Heavyweight)
Capacity—Gallons—Max.		
6½	.010	—
15	.015	—
30	.015	.030
55	.015	.040

Molded inserts of full open head (Type 3A) or closed head (Types 3B-L and 3B-H) construction must be made of polyethylene which has the following properties:

Melt Index:	2.6 maximum
Density:	0.910—0.925
Tensile Strength:	1,500 psi minimum
Percent Elongation:	400 percent minimum

(Continued)

**RULES**

**ITEM 296-A—Concluded**

Note 5(A)—Type 3C drums equipped with a bag-type liner of flexible plastic not less than four mils in thickness having a circular bottom without gussets or folds may be used for only the following commodities:

Table Sauces	Cleaning, Scouring or Washing Compounds
Cotton softeners	Food curing, preserving or seasoning compounds
Latex	Plastics
Tanning extracts	Sizing, NOI

(B)—Type 3C drums equipped with a bag-type contoured liner of flexible high density polyethylene not less than four mils in thickness having a circular bottom without gussets or folds, are not restricted to Note 5(A) commodities.

These liners (A) and (B) must be protected at the bottom chime by one of the following methods:

1. By interposing a flexible creped Kraft paper liner having a basis weight of not less than 80 pounds between it and the drum bottom and extending not less than four inches up the sidewall.
2. By interposing a flexible five-ply corrugated paper disk between it and the drum bottom.
3. By a plastic cuff not less than .004 inch thick permanently attached to the liner which must extend up the drum sidewall not less than four inches and extend under bottom of liner not less than two inches from the chime.
4. Other methods of protection are authorized as necessary, provided the drum filled to capacity with water can withstand a one hour vibration test (ASTM D 999 A) without failure of the plastic liner. Failure will constitute deformation or evidence of liquid penetration of the outside ply with inspection to be made four hours following vibration test. Drums capable of passing vibration test will not be restricted to commodities listed within paragraph (A).

Closure of liner must be made liquid-tight by tying or sealing or by folding the bag out over the top metal chime of the drum and closing it off with a plastic sealing disk held in position by a rubber or plastic gasketed cover and locking band.

Note 6—5-gallon containers may have tops made of fibreboard providing they meet the minimum requirements specified for fibreboard bottoms. Tops must be of minimum thickness of .170 inch and test not less than 800 pounds.

Note 7—Top covers must be constructed of injection molded high density polyethylene or polypropylene homopolymer or copolymer and have a minimum thickness of .090 inch. Top covers must have at least two concentric rings of not less than 1/8 inch depth. Except when cover is of a minimum thickness of .125 inch cover may have one concentric ring. Closure must be effected by a liquid-tight gasket and a lever locking ring of 22 gauge metal.

Material must meet the following parameters as specified within the referenced American Society for Testing and Materials (ASTM) testing methods:

Injection Molded High Density Polyethylene Homopolymers or Copolymers:		Injection Molded Polypropylene Homopolymers or Copolymers:	
Density, ASTM D1505	0.948-0.967	Density, ASTM D1505	0.890-0.915
Melt Index, ASTM D1238 FR-E	1.0-8.0	Melt Flow, ASTM D1238	1.0-8.0
Tensile Strength, ASTM D638	3000 PSI, minimum	Tensile Strength, ASTM D638	3000 PSI, minimum
Heat Resistance Vicat Soft Point	240-260° F	Izod Impact at 32° F, ASTM D256, Method A	1.0-18.0
Stress Cracking, ASTM D1693, Method B, F50	20 hours, minimum	Heat Distortion Temperature at 66 PSI, ASTM D648	160-275° F

Type 3B-L fibre drums not exceeding 15 gallons capacity may have top covers constructed of injection molded high density polyethylene not less than 75 mils in thickness meeting the above testing requirements, except stress crack resistance test is not required for this application. Cover must be flanged to fit inside top diameter of drum and must be securely metal stitched to drum sidewall.

Note 8—Type 4A drums, integrally lined, of maximum 55-gallon capacity, filled with water to rated capacity, must be capable of withstanding a four-foot drop onto a solid surface on top and a second four-foot drop diagonally on the bottom without failure. Having passed this performance level, construction minimums and weight maximum will not be subject to the above table. The 'Certificate of Maker,' as required of all fibre drums per Item 297, must be amended to show 'TYPE OF FIBRE DRUM — 4A' in lieu of 'SIDEWALL TEST \_\_\_\_\_ POUNDS PER SQUARE INCH' and 'NET WEIGHT LIMIT \_\_\_\_\_ POUNDS.'

**Δ ITEM 535-A**

**EXPIRATION DATES**

Items or other provisions making reference hereto expire with date indicated unless such dates are changed or canceled in accordance with the Rules of Procedure for Changes in the National Motor Freight Classification.

Item or Package	Provisions which expire	Date expiring
Item 79024	Paragraph (29)(a)	September 30, 1990



## RULES

## ITEM 680-A

## PACKING OR PACKAGING—GENERAL

## General

**Sec. 1. (a)** The separate descriptions of articles name the acceptable packing requirements, see Note 1. Numbered packages or other packing provisions (other than "DOT Specification Number" packages, for which, see HMT) are authorized for use only when item descriptions contain reference thereto. The definitions of or specifications for packing requirements are named in (1) Items 200 through 297, (2) Numbered packages and (3) Note references. The material and construction specifications therein are minimum requirements and must be observed. Whether or not interior packing devices are a part of specific requirements, interior packing devices must be provided where such are necessary to afford adequate protection against damage to the contents of a container. Articles or articles and necessary interior packing devices must reasonably occupy the full cubic capacity of the outer shipping container, see Notes 2, 3 and 4.

**Note 1—** The term 'packing requirements' as used in this classification or in tariffs governed thereby means the provisions which specify (1) the kinds or specifications of the containers, packages or other manner in which the articles shall be packed or protected for shipment and (2) how the articles shall be packed or protected by or within such containers, packages or other manner.

**Note 2—** Unless otherwise provided, commodities in shipping containers (not containers within containers) shall be deemed to be in compliance when filled to not less than 65 percent of the capacity of such containers. When filled to less than 65 percent of capacity, the gross weight of container and its contents will be subject to the class applicable to either the container or its contents, whichever is higher.

**Note 3—** Unless otherwise provided, in LTL quantities, reels, spools, or flanged cores used as shipping containers which are not filled to equal or exceed their weight with a product, will be charged for at the class applicable to the empty spool, reel or flanged core. Reels, spools or flanged cores filled with a product equal to or exceeding the weight of the reel, spool or flanged core will be charged for at the class applicable to the commodity wrapped or wound thereon.

Where the net weight of the product is less than the tare or empty weight of the container, the lower charges applicable to the product may be assessed by declaring, at time of shipment, an increased weight for the shipment equal to two times the tare weight of the reel, spool or flanged core. In such instances, the shipper must declare the following on the bill of lading: (1) the tare or empty weight of each reel, spool or flanged core; (2) the actual gross weight of each shipping container with product as tendered for shipment; and (3) the resultant declared gross weight.

**Note 4—** Unless otherwise provided and unless subject to classes based on density, liquid, powdered or granular commodities or materials packaged in rigid or semi-rigid primary containers in an authorized outer shipping container must occupy at least 65 percent of the primary container's cubic capacity. When filled to less than 65 percent of the primary container's cubic capacity, the gross weight of the commodity as packaged for shipment will be subject to the class applicable to either the primary container or its contents, whichever is higher. Does not apply when primary inner containers are in intermediate inner containers and then placed in an outer shipping container.

**Sec. 1. (b)** Unless otherwise provided for in the separate descriptions of articles, where classes are provided for 'loose' or 'in bulk,' such classes will also apply on the same articles when in packages; or if no packing or form of acceptance is mentioned, the classes will also apply on the same articles when loose or in packages.

**Sec. 1. (c)** The numbered packages, containers or other forms of shipment set forth in 'Specifications for Numbered Packages,' in the Classification, and as amended, are authorized for use ONLY when item descriptions contain reference to such specific package numbers. Package numbers, containing no lettered suffix, are in numerical sequence, followed by package numbers containing a lettered suffix ('F' or 'S' series) also in numerical sequence. Where package numbers are missing, no package specifications have been assigned such unused numbers.

Except as specifically provided to the contrary in individual package descriptions, packages or containers referred to as 'boxes' when made of fibreboard must comply with the provisions of Item 222. Where a bursting or puncture test is shown for packages designated as 'cartons,' 'containers,' 'trays,' 'wrappers,' or 'wrapped,' or for package components designated as 'trays,' the fibreboard used must meet the requirements of Sections 2 and 3 and must be certified as required in Item 222-1 for 'boxes.' In lieu of the certificate required under Item 222-1 trays which bear no printing may be embossed with characters not less than 1/8 inch in height showing the Package number, a symbol or code identifying the tray manufacturer and plant, and the bursting strength of the fibreboard, e.g., 1102-AZ 1, 175. When the bursting test shown in the individual package description is not listed in Section 3 of Item 222 under the appropriate column headed 'Bursting Test of Combined Board' the fibreboard must meet the requirements of Secs. 2 and 3 for the next lower test shown in that column and must also meet the minimum bursting test required by the individual package description.

## Carrier's Option to Accept or Refuse

**Sec. 2.** Except as provided in Item 423, whether or not the authorized minimum packing requirements are observed, outer (shipping) containers or packages, inner containers, interior protection devices, method of packing within containers or packages, or other form of shipment authorized must be made of materials of such strength or be of such nature as to afford a reasonable and proper protection of lading and to protect against damage to other freight or equipment, and carriers may for good reason refuse to accept freight the transportation of which, in their judgement, would not be reasonably safe and practicable and so notify the shipper.

## Liquids, or Commodities that will Expand, Liquefy or Vaporize

**Sec. 3. (a)** Liquids, or commodities that will expand, liquefy or vaporize under any conditions during transportation must be secured in containers that will prevent leakage from such containers.

**Sec. 3. (b)** Shipping packages whose sole content is commodities in aerosol (pressurized) inner containers must be clearly and plainly marked indicating contents to be in such inner containers.

(Continued)

## RULES

## ITEM 680-A—Continued

## Recoopering

Sec. 4. Provided that the shipper is notified beforehand, the carrier shall have the right to perform necessary recoopering at owner's or shipper's expense except when necessitated by carrier's negligence.

## Definition of Term 'In Packages'

Sec. 5. When the term 'in packages' is provided in connection with the separate descriptions of articles, such articles will be accepted for transportation in any container or in any other form tendered to carrier which will permit handling into or out of vehicles as units, providing such containers or tendered forms will render the transportation of freight reasonably safe and practicable. The term 'in packages' includes articles securely fastened to elevating truck platforms, lift truck skids, or pallets, or unitized quantities, but does not include articles 'in bulk,' 'loose,' 'on skids' or articles racked or braced in vehicles.

## Inner Containers versus Outer Containers

Sec. 6. (a) The containers or packages provided in individual items are outside shipping containers, and the rates or classes shown in connection therewith apply whether the contents are in bulk, loose or in inner containers; except in those instances where items specifically provide classes when 'in inner containers' in specified containers, and except where items provide classes when 'in bulk' in specified containers.

Sec. 6. (b) Except as otherwise provided, when classes or rates are provided for articles in barrels or boxes, in glass in barrels or boxes, in containers in barrels or boxes, or in inner containers in barrels or boxes, such rates or classes will not apply on articles in glass carboys in barrels or boxes.

Sec. 6. (c) Except as otherwise provided, rates or classes shown for articles in glass inner containers also will apply on the same articles in earthenware or molded plastic inner containers.

Sec. 6. (d) Where in individual items classes or ratings are provided for articles in metal inner containers, such classes or ratings apply only on articles in inner containers constructed of metal and having rigid, self-supporting sides.

## Articles in Authorized Packages Fastened to Skids or to Elevating or Lift Truck Pallets or Platforms or Bundled Together

Sec. 7. (a) Articles in boxes, crates or numbered packages of box or crate construction complying with the construction requirements for such containers will be accepted when on skids (see Item 270) attached to bottom of box or crate. When articles are authorized to move 'on skids' within individual item descriptions, skids must meet the requirements of Item 270.

Sec. 7. (b) Articles in bags, barrels, boxes, crates or numbered packages of box or crate construction complying with the construction requirements for such containers will be accepted when unitized or securely fastened on elevating or lift truck pallets or platforms meeting the requirements of Item 265. When under separate provisions of numbered packages or within individual item descriptions articles are required to move on pallets, such pallets must meet the requirements of Item 265.

Sec. 7. (c) Articles in fibreboard boxes complying with the construction requirements for such containers will be accepted when unitized into bundles with stretch or heat shrinkable plastic film, or the strapping materials named in Item 680, Secs. 9 (a) or (b).

## Packing—Mixed TL or Volume

Sec. 8. Unless otherwise provided in the separate description of articles, the package specifications, conditions and all other requirements governing articles in straight truckloads or straight volume shipments apply on the same articles when in mixed truckload or mixed volume shipments.

## Taping of Articles or Packages

Sec. 9. (a) Unless otherwise provided, where the use of metal straps, rope or wire is specifically authorized or required, or where an article must be 'strapped,' filament reinforced pressure-sensitive or gummed tape complying with the following specifications may be used:

Pressure-sensitive tape not less than  $\frac{1}{2}$  inch in width reinforced with continuous longitudinal woven or unwoven filaments imbedded in an adhesive, or gummed tape not less than  $\frac{1}{2}$  inch in width reinforced with continuous longitudinal unwoven filaments imbedded in an adhesive. Tape must have longitudinal tensile strength of:

(1) Not less than 160 pounds per inch of width and not less than 12 percent stretch at break.

OR

(2) Not less than 240 pounds per inch of width and not less than three percent stretch at break. Such tape must be used as a complete band with a four inch overlap of the tape on itself.

Sec. 9. (b) Unless otherwise provided, where the use of metal straps, rope or wire is specifically authorized or required, or where articles must be 'strapped,' strapping made of the following materials and meeting the following requirements may be used:

(1) Synthetic fibre strapping, consisting of cords or yarns held in parallel position by adhesive or by being bonded to paper. Strapping must have a longitudinal strength of not less than 200 pounds per  $\frac{1}{2}$  inch of width with not less than 12 percent and not more than 20 percent stretch at break-point.

(2) Extruded oriented nylon, polyester or polypropylene strapping must have a tensile strength of not less than 200 pounds per  $\frac{1}{2}$  inch of width, with not less than seven percent and not more than 20 percent stretch at break-point.

## Definition of 'Wrapped'

Sec. 10. When in the separate description of articles the word 'wrapped' is referred to as a form of exterior packaging, such articles must be enclosed or enfolded within packaging material which completely covers the article. Such wrappers must be securely fastened.

(Continued)

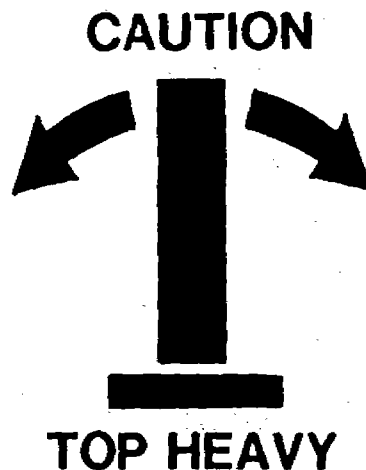
**RULES**

**ITEM 680-A—Concluded**

**Substitution of Fibreboard Boxes for Packages, Bales, Bundles or Wrapped**

Sec. 11. When in the separate description of articles the terms 'in packages,' 'in bales,' 'in bundles,' or 'wrapped' are referred to as a form of exterior packaging, such articles may be enclosed in corrugated fibreboard boxes. When the corrugated boxes used do not meet the requirements of Item 222, they must not bear a box maker's certification as provided for in Item 222-1.

Sec. 12. Articles as tendered for shipment weighing 200 pounds or greater and greater than 48 inches in height which exhibit a high center of gravity in their normal orientation of loading for in-transit movement must be placarded on two opposite sides conspicuously displaying the following symbol as a precautionary warning:



Top-heavy articles are those having a center of gravity higher than 1/2 their standing height and having a height of two times or greater of the shorter base dimensions, as packaged.

Item	ARTICLES	CLASSES		MW 1
		LT	TL	
Δ2082-A	ACIDS: subject to item 2080 NOTE—For classes dependent upon agreed or released value applicable in connection with items making reference to this note, see item 60000.			
Δ4380-A	Oxalic, see Note, item 2082:			
Sub 1	In glass, cans or cartons in barrels or boxes .....	77.6	40	30
Sub 2	In barrels, boxes or steel pails .....	70	37.6	30
4880-A	ADVERTISING GROUP: subject to item 4640 Displays, advertising, store or window, in boxes, etc., §§.....Cancel; see item 57410.			
5020-A	Displays, itinerant, etc., §§.....Cancel; see item 57410.			
Δ11765-A	AIRCRAFT GROUP: subject to item 11760 NOTE—The term 'braced and racked' means secured in or to the vehicle by means of blocking, bulkheads, flooring, lining, racks, standards, stakes or similar fastening or securing devices, bracing, dunnage or supports, not constituting a shipping carrier, container or package.			
Δ11760-A	Aircraft, or Aircraft Parts, viz:			
	Ailerons, wing: Panels, wing;			
	Cowls; Rudders;			
	Edges, leading, wing; Sections, nacelle;			
	Elevators; Sections, wing;			
	Flaps, wing; Stabilizers;			
	Fuselage, with power installed; Tips, wing;			
	Nacelles; Wings;			
Sub 1	In boxes or crates .....	200	100	10
Sub 2	Braced and racked in vehicle, see Note, item 11765 .....		125	10
Δ13374-A	ALUMINUM: subject to item 13100 Cups, Dishes, Pans, Plates or Trays, NO1, foil or sheet, with or without covers, see Note, item 13375:			
Sub 1	Nested or nested solid, in bulk in boxes .....	85	65	20
Sub 2	In nestable inner packages which are nested, in boxes .....	110	70	15
Sub 3	Nested or nested solid, in packages other than nestable inner packages, in boxes .....	200	125	10
Sub 4	Not nested, see Note, item 13376, in inner packages in boxes .....	200	125	10
Δ13375-A	NOTE—Applies when covers are of same or other materials, and whether in same or separate packages.			
Δ13376-A	NOTE—Applies only on disposable or expendable type foil or sheet cups, dishes, pans, plates or trays.			
Δ13510-A	Latex or Turpentine Cups, etc., .....Cancel; obsolete.			

SUPPLEMENT 1 TO NMF 100-0

Item	ARTICLES	CLASSES		MW
		LTL	TL	
	<b>ATHLETIC GOODS GROUP: subject to item 15500</b>			
Δ15770-A	Billiard or Pocket Billiard (Pool) Tables, KD, or Parts thereof, finished, with stone or slate slabs, see Notes, items 15772 and 15773, in boxes, crates or Package 221 .....	85	70	24
Δ15772-A	NOTE—With each table there may be included in same package not more than four cues, one bridge, one triangle, one set of balls and one package of chalk.			
Δ15773-A	NOTE—Applies on articles named, whether or not actuated by coin- or currency-operating mechanism.			
	<b>AUTOMOBILE PARTS GROUP: subject to item 17800</b>			
Δ19300-A	Radio Receiving Sets, in wooden boxes or Packages 809, 829 or 1018 .....	100	65	20
Δ23060-A	Bed Rails, bed display, in packages ..... Cancel; obsolete.			
	<b>BOILERS GROUP: subject to item 25400</b>			
Δ26100-A	Food Cabinets or Counters, gas or electrically heated, in boxes or crates .....	100	60	24
Δ26520-A	Heaters, water, see Notes, items 26521 and 26522, in boxes or Packages 206, 1016, 1206, 1277, 2065 or 2066:			
Sub 1	Other than storage type, without burners or electric heating elements .....	70	40	30
Sub 2	NOI .....	85	70	15
Δ26521-A	NOTE—Does not apply on solar collectors.			
Δ26522-A	NOTE—Does not apply on fireplace grate-type heaters.			
	Stoves or Ranges, iron or steel: subject to item 27340			
	Charcoal, NOI, Coal or Wood: subject to item 27360			
Δ27410-A	Sheet, NOI:			
Sub 1	SU, in boxes, crates or Package 1082 .....	100	70	18
Sub 2	KD; or three or more taken apart, bodies nested, or tops and bases separated, bases in tops; in boxes, crates or Package 1082 .....	85	40	30
Δ31020-A	Briarwood, in bags ..... Cancel; obsolete.			
	<b>BROOMS GROUP: subject to item 32770</b>			
	Brushes, other than floor:			
Sub 1	Wire bristle, other than chimney, in packages .....	70	45	30
Sub 2	Plastic, vegetable fibre or wood fibre bristle, NOI, see Notes, items 33162 and 33163, in boxes:			
Sub 3	Without handles, or with handles less than 10 inches in length; other than card mounted, blister packed or skin packed .....	70	45	30
Sub 4	With handles 10 inches or greater in length, or card mounted, blister packed or skin packed .....	150	100	12
Sub 5	Plastic or hair bristle, with tubular handles with hose connection, with or without high-pressure sprayer attachment or soap dispensers, in boxes or Package 2213 .....	200	125	10
Sub 6	NOI, see Note, item 33162, in boxes or Package 2213 .....	100	70	24
Δ33162-A	NOTE—For released class provisions to apply on toothbrushes, see item 60000.			
Δ33163-A	NOTE—Hair bristle brushes, or hand roller type paint applicators, with or without pans or trays may be packed in same container with plastic, wood fibre or vegetable fibre bristle brushes providing the weight thereof does not exceed 25 percent of the weight of plastic, wood fibre or vegetable fibre bristle brushes.			
	<b>BUILDING MATERIALS, MISCELLANEOUS, GROUP: subject to item 33570</b>			
Δ35440-A	Tracks, window sill, plastic, in boxes .....	85	55	30
	<b>CABINETS, OR PARTS NAMED: subject to item 39200</b>			
Δ39270-A	Cabinets, NOI, metal, wood or metal and wood combined, other than furniture:			
Sub 1	Glazed, in boxes or crates .....	125	85	12
Sub 2	Not glazed:			
Sub 3	Wheeled, wheels attached or detached .....	200	125	10
Sub 4	Other than wheeled, see Note, item 39272:			
Sub 5	Wrapped in paper or burlap .....	125	85	12
Sub 6	In boxes, crates or Package 1078 .....	110	85	12
Δ39272-A	NOTE—Provisions also apply on cabinets equipped with interior electric heaters.			
	<b>CAMERA GROUP: subject to item 39600</b>			
Δ39640-A	Dry Plates or Films, unexposed, NOI, in boxes .....	100	70	30
Δ39650-A	Dry Plates, glass, unexposed, in boxes .....	85	55	30
	<b>CHEMICALS GROUP: subject to item 42600</b>			
Δ42602-A	NOTE—For classes dependent upon agreed or released value applicable in connection with items making reference to this note, see item 60000.			
43980-A	Chloropicrin or Chloropicrin Insecticides, †† see Notes, items 42604 and 43982, in glass in hermetically sealed metal cans in boxes, in drums or steel cylinders .....	77.6	45	40
Δ43982-A	NOTE—Also applies on mixtures of chloropicrin and methyl chloride.			
Δ45620-A	Polychlor Agricultural Chemicals, viz.:			
	Benzene Hexachloride (BHC); Dichloro-diphenyl-dichloroethane (DDD);			
	Chlordane; Dichloro-diphenyl-trichloroethane (DDT);			
Δ45625	In barrels, boxes or Package 354 .....	60	35	36
	Polychlor Agricultural Chemicals, viz.:			
	Chlorinated Camphene (Toxaphene);			
	Diethyl-diphenyl-dichloroethane;			
	In barrels, boxes or Package 354 .....	77.6	45	40
Δ45900-A	Potassium (Potash): subject to item 45640			
	Silicofluoride, in bags or boxes .....	65	35	40

SUPPLEMENT 1 TO NMF 100-Q

Item	ARTICLES	CLASSES		MW 1
		LTL	TL	
	<b>CHEMICALS GROUP, subject to item 42600</b>			
	<b>Sodium (Soda): subject to item 46060</b>			
Δ46180-A	Bisulfite, dry:			
Sub 1	In containers in barrels or boxes .....	70	35	40
Sub 2	In bulk in barrels or boxes or in steel pails .....	65	35	40
Δ46230-A	⊙Caustic (Sodium Hydroxide), see Note, item 42602:			
Sub 1	In carboys .....	100	40	30
Sub 2	In containers in barrels or boxes, or in metal jacketed lead carboys .....	65	35	36
Sub 3	In bulk in barrels or steel drums, in woven polypropylene bags complying with Item 200, having a moisture barrier, in bags complying with Item 203 or in Packages 357, 792, 2242, 2429 or 2468; also TL, in bulk .....	65	35	40
Δ46600-A	Silicofluoride, in bags, barrels or boxes .....	65	35	36
	<b>CLOTH, DRY GOODS OR FABRICS: subject to item 48920</b>			
Δ49208-A	Cloth, screen, woven, glass or synthetic fibre or yarn, coated or not coated, in boxes or wrapped rolls .....	70	40	36
Δ49540-A	Plush; Pile Fabric, NOI, see Note, item 49542; Velour; Velvet; or Velveteen; woven or knitted, see Note, item 49543, on frames, racks, reels or creels in boxes, on cores or tubes suspended in boxes, in wrapped rolls, in bales or in boxes, subject to item 170 and having a density in pounds per cubic foot of:			
Sub 1	Less than 1, see Note, item 49544 .....	400	400	AQ
Sub 2	1 but less than 2, see Note, item 49544 .....	300	300	AQ
Sub 3	2 but less than 4, see Note, item 49544 .....	250	250	AQ
Sub 4	4 but less than 6, see Note, item 49544 .....	150	100	12
Sub 5	6 but less than 8, see Note, item 49544 .....	125	85	15
Sub 6	8 but less than 10, see Note, item 49544 .....	100	70	18
Sub 7	10 but less than 12, see Note, item 49544 .....	92.5	65	20
Sub 8	12 but less than 15, see Note, item 49544 .....	85	65	26
Sub 9	15 or greater .....	70	40	36
Δ49542-A	NOTE—Does not apply on corduroy, napped jersey cloth, terry cloth, Turkish toweling, suede cloth, moleskin, flannel, mohair, lapetry, carpet, brocade, damask, frieze or rep.			
Δ49543-A	NOTE—Also includes woven or knitted fabrics which have been tufted or flocked.			
Δ49544-A	NOTE—The charge for packages or pieces subject to a particular density group may be assessed on the basis of the next lower class provided in connection with the next heavier density group at the weight which would accrue from multiplying the cubage of such packages or pieces by the lowest density named in the density group which provides the next lower class. In each such instance, the actual cube, actual weight, density group embracing the actual density, declared density and resultant weight for billing purposes (declared weight) of the pieces for which density is being declared must be shown by shipper on shipping orders and bills of lading at time of shipment.			
Δ50340-A	Compounds, water clarifying, hardening, purifying or softening, not medicated nor perfumed, NOI:			
Sub 1	Dry, in barrels, boxes, double bags or Packages 248 or 2118 .....	65	35	40
Sub 2	Liquid or paste, in barrels or crates .....	70	35	40
	<b>COOLERS GROUP: subject to item 53000</b>			
53070-A	Cooling Boxes, bottled beverage, other than hand portable, other than coin-operated vending type, with or without cooling or freezing apparatus, in boxes, crates ⊕ or Package 2487 .....	92.5	65	24
53120-A	⊙Cooling or Freezing Rooms, NOI, or Parts thereof, NOI; Cooling or Freezing Boxes, NOI, or Parts thereof, NOI; Refrigerators, NOI, or Parts thereof, NOI; other than household, with or without cooling or freezing apparatus, see Notes, items 53127, 53128 and 53129, in boxes, crates or Packages 1006, 2422 ⊕ or 2487, subject to item 170 and having a density in pounds per cubic foot of:			
Sub 1	Less than 9 .....	110	110	AQ
Sub 2	9 or greater .....	100	100	AQ
Δ53127-A	NOTE—Frozen food shipping containers weighing each 190 pounds or greater may be shipped loose.			
Δ53128-A	NOTE—Shipping refrigerators may be shipped loose.			
Δ53129-A	NOTE—Also applies on Cooling or Freezing Room Panels or Wall Sections.			
	<b>COTTON: subject to item 54100</b>			
Δ54150-A	Carded, in bales or boxes .....	250	250	AQ
	<b>DECORATIONS GROUP: subject to item 55760</b>			
Δ55921-A	Decorations or Ornaments, Christmas tree or holiday, NOI, in barrels, boxes or crates, see Note, item 55922, subject to item 170 and having a density in pounds per cubic foot of:			
Sub 1	Less than 1, see Note, item 55924 .....	400	400	AQ
Sub 2	1 but less than 2, see Note, item 55924 .....	300	300	AQ
Sub 3	2 but less than 4, see Note, item 55924 .....	250	250	AQ
Sub 4	4 but less than 6, see Note, item 55924 .....	150	100	12
Sub 5	6 but less than 8, see Note, item 55924 .....	125	85	15
Sub 6	8 but less than 10, see Note, item 55924 .....	100	70	18
Sub 7	10 but less than 12, see Note, item 55924 .....	92.5	65	20
Sub 8	12 but less than 15, see Note, item 55924 .....	85	65	26
Sub 9	15 or greater .....	70	40	36

SUPPLEMENT I TO NMF 100-Q

Item	ARTICLES	CLASSES		MW
		LTL	TL	
Δ55922-A	NOTE—Ornaments exceeding 2 1/4 inches in diameter, or Christmas tree top ornaments, must be in inner cartons made of fibreboard or paperboard not less than .030 inch thick. Ornaments not exceeding 2 1/4 inches in diameter, other than Christmas tree top ornaments, must be in inner cartons made of fibreboard or paperboard not less than .026 inch thick. Cartons for ornaments other than Christmas tree top ornaments must be equipped with fibreboard or paperboard interlocking honeycomb partitions having extended tips so as to provide not less than 1/8 inch clearance from side walls of carton; or must be equipped with flanged top and bottom trays of fibreboard or paperboard die cut to accommodate each ornament and maintain not less than 1/8 inch clearance from side walls of box. Partition or tray material must be not less than .033 inch thick. Cartons for Christmas tree top ornaments must be equipped with die cut fibreboard or paperboard suspension forms of material not less than .033 inch thick, arranged to maintain not less than 1/8 inch clearance between ornaments and all inside surfaces of carton. Inner cartons must be packed on ends or sides within the outer shipping box.			
Δ55924-A	NOTE—The charge for packages or pieces subject to a particular density group may be assessed on the basis of the next lower class provided in connection with the next heavier density group at the weight which would accrue from multiplying the cubage of such packages or pieces by the lowest density named in the density group which provides the next lower class. In each such instance, the actual cube, actual weight, density group embracing the actual density, declared density and resultant weight for billing purposes (declared weight) of the pieces for which density is being declared must be shown by shipper on shipping orders and bills of lading at time of shipment.			
66530-A	DENTAL OR HOSPITAL SUPPLY GROUP: subject to item 66400 Caps, Hoods, Leggings or Shoe Covers, disposable, equipped with elastic bands or drawstrings, produced from paper or nonwoven cloth, with or without reinforcement of mesh, yarn, strand or plastic film, see Note, item 66714, in boxes	\$200	\$125	\$10
Δ56714-A	NOTE—Applies only on products for surgical, clinical, laboratory, industrial or hospital use, whether sterile or not sterile. DRAWING INSTRUMENTS, OPTICAL GOODS OR SCIENTIFIC INSTRUMENTS: subject to item 57670			
57770-A	Cable, lightguide or lightwave, glass fibre, with plastic or metal sheathing, with or without one or more steel support strands, with or without necessary hardware, on reels, see Note, item 57771, or in boxes, see Notes, items 57772 and 57773	100	85	14
Δ57771-A	NOTE—Last layer of cable wound on reels must be wrapped between flanges with solid fibreboard, .090 inch minimum thickness, backed with 1/8 inch foam plastic sheet, extending full width of wound cable, or reel must be lagged. All reels must be labeled with 2 pressure sensitive labels indicating the proper handling procedure for such reels.			
Δ57772-A	NOTE—The provisions of Item 680, Sec. 1(a), Note 3, do not apply.			
Δ57773-A	NOTE—Provisions also apply on cable connectors, splice kits and necessary optical instruments to install cable when shipped with cable. Accessorial equipment not to exceed 15 percent of the weight upon which charges are assessed.			
Δ60680-A	ELECTRICAL EQUIPMENT GROUP: subject to item 60500 Batteries of Cells, electric, carbon zinc, zinc chloride or manganese dioxide dry cell, in boxes or Package 827; also TL, in trays, see Note, item 60684	60	40	30
Δ60684-A	NOTE—Will also include one incandescent electric lamp (bulb) for each dry cell battery when shipped in same container with the battery.			
61300-A	Circuit Breakers or Switches, NOI, see Notes, items 61301, 61302, 61303 and 61304, or Parts thereof, NOI, ALTL, in barrels, boxes, crates or Packages 1174, 1241, 1273 or 2243, see Note, item 61305; TL, loose or in packages	77.5	45	30
Δ61301-A	NOTE—Does not apply on devices utilizing semi-conductor materials. Classes for such devices are named in item 63025.			
Δ61302-A	NOTE—Operating pipe, rods and shafts made from iron, steel or wood, separate or combined, for operation of switches, and structural iron work may be shipped loose or in bundles.			
Δ61303-A	NOTE—Also applies on switch boxes containing fuses and cable terminals or fuse blocks.			
Δ61304-A	NOTE—Applies also on mechanically-actuated Wavelength Selectors for automobile radios or on Timing Switches, coin or currency operated or other than coin or currency operated.			
*61305	NOTE—Circuit breakers or switches or parts thereof, NOI, weighing each 2,000 pounds or over may be shipped LTL loose or in packages.			
61500-A	Corn Poppers, hand, etc., A.....Cancel; obsolete.			
Δ61505	Corn Poppers, household, in boxes	175	100	12
Δ62420-A	Loudspeakers; without horns; or with or without horns, in cabinets or housings; in boxes or Package 1018	100	60	24
Δ62647-A	Phonographs, NOI, or Dictating Machines, other than tape or wire recorders, in boxes or Packages 809 or 829; Coin- or Currency-Operated Phonographs, see Note, item 62655, in wooden boxes or Package 266; or Phonographs and Still Picture Projecting Machines combined, with or without equipment of radio receiving set, in boxes	125	70	15
Δ62655-A	NOTE—Also applies on mixed TL shipments of Coin- or Currency-Operated Phonographs and Loudspeakers, Coin-Handling Devices or Electrical Appliances or Instruments. The combined weight of the Loudspeakers, Coin-Handling Devices and Electrical Appliances or Instruments must not exceed 15 percent of the gross weight or billed weight of the Coin- or Currency-Operated Phonographs, whichever is greater.			
Δ62802-A	NOTE—Includes necessary equipment of tubes and loudspeakers for each set in same or separate packages.			
Δ62900-A	Rectifiers, NOI; or Battery Eliminators (portable radio, phonograph, or tape recorder power supply units); with or without current testers, in boxes, crates or Package 2373	85	45	30

For explanation of abbreviations and reference marks, see last page of this supplement.

SUPPLEMENT 1 TO NMF 100-Q

Item	ARTICLES	CLASSES		MW 1
		LTL	TL	
Δ63035-A	<b>ELECTRICAL EQUIPMENT GROUP:</b> subject to item 60500 Sets, radio, television and related articles, see Note, item 62802, viz.: Amplifiers, Preamplifiers or Tuners, radio, other than automobile radio tuners (selectors), separate or combined; Monitors, television or video; Players, compact disc, separate or combined with Video Disc Players; Players or Recorders, video cassette or video disc; Radios (Radio Receiving Sets) or Clock Radios, NOI; Radios (Radio Receiving Sets) or Clock Radios and Phonographs or Tape or Wire Recorders or Players combined; Televisions or TV's (Television Receiving Sets) or Vision Receiving Sets, NOI; Televisions or TV's (Television Receiving Sets) or Vision Receiving Sets, and Phonographs, Tape or Wire Recorders or Players, Radios (Radio Receiving Sets) or Clocks combined; In wooden boxes or Packages 231, 809, 829, 979, 2320 or 2396 .....	125	70	15
Δ63260-A	Telegraph Instruments or Parts, NOI, in barrels, boxes, crates or Package 2255 .....	100	60	24
Δ63825-A	Exhibits, museum, Articles of Antiquity, or Antiques, see Note, item 63826 .....	0	0	
Δ63826-A	NOTE—Does not apply on numismatic exhibits as named in item 63830; pictures or paintings subject to items 100240, 100260 or 149420; antique furniture subject to items 100240 or 100260; nor antique china or glassware subject to items 47500, 88140, 100240 or 100260. <b>FARM EQUIPMENT GROUP:</b> subject to item 64600			
Δ64682-A	NOTE—Includes equipment of heating apparatus which when detached must be in barrels, boxes or crates, except that cast iron stoves may be shipped loose.			
Δ65560-A	Incubators, poultry, NOI, see Note, item 64682:			
Sub 1	SU, with legs in place, in boxes or crates .....	100	70	18
Sub 2	SU, without legs or with legs detached or (folded) against body, see Note, item 65562, in boxes or crates .....	85	70	18
Sub 3	KD, LTL, in boxes or crates; TL, loose or in packages .....	85	65	24
Δ65562-A	NOTE—Will also apply on incubators with legs extending not more than 6 inches below body of incubator.			
Δ67070-A	<b>FEED GROUP:</b> subject to item 66700 Feed Supplements; or Condimental or Medicinal Feeding Compounds or Preparations; animal, fish or poultry, not frozen; released to a value not exceeding 50 cents per pound, see Note, item 67072, in containers in barrels or boxes or in bulk in bags, barrels, boxes or pails .....	50	35	36
Δ67072-A	NOTE—The released value must be entered on the shipping order and bill of lading in the following manner: <i>'The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding 50 cents per pound.'</i> When the foregoing statements are properly executed, the rates subject hereto will take precedence over all other rates not subject to released value, provided the released rates result in lower freight charges. If lower freight charges do not result, the release will be deemed not to have been executed and the rates subject hereto will have no application. If the shipper fails or declines to execute the above statements, or designates a value exceeding 50 cents per pound, shipments will not be accepted for transportation at the rates subject hereto. Rates based on other classes in this classification, or in other tariffs lawfully filed with the Interstate Commerce Commission will apply in such a case. Classes herein based on released value have been authorized by the Interstate Commerce Commission in Released Rates Order No. MC-827 of April 7, 1972, as amended May 28, 1980, subject to complaint or suspension. (See page 3 of classification for state authorities.)			
Δ67075-A	Feed Supplements; or Condimental or Medicinal Feeding Compounds or Preparations; animal, fish or poultry, not frozen, not released as to value, in containers in barrels or boxes, or in bulk in bags, barrels, boxes, pails or Package 2440 .....	85	45	30
Δ67720-A	Rice Hulls, ground, in bags; TL, in bulk in packages .....	65	35	50
Δ69110-A	Filters, swimming pool, tank type; or Skimmers, swimming pool, plastic or stainless steel, with or without fillings or pumps, in boxes, subject to Item 170 and having a density in pounds per cubic foot of:			
Sub 1	Less than 1, see Note, item 69111 .....	400	400	AQ
Sub 2	1 but less than 2, see Note, item 69111 .....	300	300	AQ
Sub 3	2 but less than 4, see Note, item 69111 .....	250	250	AQ
Sub 4	4 but less than 6, see Note, item 69111 .....	150	100	12
Sub 5	6 but less than 8, see Note, item 69111 .....	125	85	15
Sub 6	8 but less than 10, see Note, item 69111 .....	100	70	18
Sub 7	10 but less than 12, see Note, item 69111 .....	92.5	65	20
Sub 8	12 but less than 15, see Note, item 69111 .....	85	55	26
Sub 9	15 or greater .....	70	40	36
*69111	NOTE—The charge for packages or pieces subject to a particular density group may be assessed on the basis of the next lower class provided in connection with the next heavier density group at the weight which would accrue from multiplying the cubage of such packages or pieces by the lowest density named in the density group which provides the next lower class. In each such instance, the actual cube, actual weight, density group embracing the actual density, declared density and resultant weight for billing purposes (declared weight) of the pieces for which density is being declared must be shown by shipper on shipping orders and bills of lading at time of shipment.			

SUPPLEMENT 1 TO NMF 100-Q

Item	ARTICLES	CLASSES		MW 1
		LTL	TL	
Δ72502-A Δ72760-A  Sub 1 Sub 2 Δ72762-A Δ72932-A Δ73227-A	<b>FOODSTUFFS GROUP: subject to item 72000</b> NOTE—Applies on compounds designed as a base or flavoring for alcoholic mixed drinks. <b>Dessert Preparations</b> , such as ice cream, jelly, pie or pudding preparations, other than frozen, NOI, see Note, item 72762, in barrels, boxes, pails, five-ply multiple-wall paper bags or Package 2387: Sweetened, other than with sugar ..... Unsweetened; or sweetened with sugar ..... NOTE—Inner containers may contain a small quantity of dry or liquid flavoring. NOTE—Not applicable on fresh fish smoked for flavoring only. <b>Foodstuffs</b> , other than frozen, Group I, viz.: <b>Bean Dip (Bean Paste)</b> , with or without flavoring or seasoning ingredients; <b>Bread, Roll or Cake</b> , other than fruitcake, in metal cans in boxes; <b>Cider Syrup (Boiled Cider)</b> ; <b>Cocktail Mix</b> , liquid, nonalcoholic, other than beverages, see Note, item 72502; <b>Cocconut</b> , prepared, also in five-ply paper bags or Package 775; <b>Compounds</b> , food coating (Pre-breading Mix), milk and egg combined, dry; <b>Dressing, salad</b> , other than dry, also in Packages 392, 1204, 1429, 2000, 2078, 2145, 2316, 2332 or 2375; <b>Extender</b> , milk powder, blended, see Note, item 73229, also in bags; <b>Fish or Shellfish</b> , cooked, pickled, preserved, dried, dry salted or smoked, NOI, see Note, item 72932; <b>Fish Balls</b> ; <b>Fish Roe</b> , other than caviar; cooked, pickled or preserved; <b>Food</b> , baby, canned or preserved, see Note, item 73230, also in Packages 1000, 2093 or 2368; <b>Fruit</b> , canned or preserved, NOI, other than dried or dehydrated or other than in alcoholic liquor, also in Packages 1000, 1264 or 2288; also TL, in Package 600; <b>Fruit Butter or Pulp</b> , also in Packages 1000, 1264 or 2288; also TL, in Package 600; <b>Fruit or Fruit Peel</b> , drained, or Citrus Fruit Peel, in brine, in glass or in metal cans, in boxes or crates, or in kits, pails or tubs, or in Package 1264 or in metal cans of not less than 3½ gallon capacity, tops securely fastened, loose; <b>Honey</b> , comb, granulated, strained, creamed or flavored; <b>Ingredients</b> , dinner or soup, NOI, see Note, item 73228, also in Packages 128, 610, 1000, 2421 or 2425; also TL, in Package 600; <b>Jams, Jellies or Preserves</b> , edible, NOI, also in Packages 1000, 1264, 2288, 2375 or 2430; also TL, in Package 600; <b>Juice</b> , clam or oyster; <b>Juice</b> , fruit, artificial or natural, NOI, or Cider, also in pails or Packages 592, 1000, 1264, 2278, 2288, 2297, 2332, 2375, 2400, 2437, 2438 or 2467; also TL, in Package 600; <b>Macaroni, Noodles, Spaghetti or Vermicelli</b> , dry, not cooked, NOI, also in double bags or in containers in paper bags; also TL, in Package 2231; or cooked, NOI, with or without cheese, meat, vegetables or other ingredients, in containers in boxes or crates or in Packages 128, 1000, 2330 or 2375; also TL, in Package 600; <b>Meats</b> , cooked, cured or preserved, with or without vegetable, milk, egg or fruit ingredients, NOI, in glass or metal cans in barrels or boxes, also in Packages 1400, 1500, 2330 or 2448; also TL, in Package 600; <b>Milk</b> , condensed or evaporated, liquid or paste, with or without vegetable fats, also in Package 1000; also TL, in Package 600; see Note, item 73231; <b>Milk, Cream, Buttermilk or Dry Milk Solids</b> , powdered or flaked, with or without vegetable fats not exceeding one percent by weight, also in multiple-wall paper bags; <b>Milk or Cream Substitutes</b> , other than milk, cream or milk solids, NOI, also in multiple-wall paper bags or Packages 2308 or 2332; <b>Milk or Cream</b> , sterilized, in inner containers in boxes or in Package 2308; <b>Minced meat</b> ; <b>Molasses</b> , NOI, or Syrup, not medicated, NOI, see Note, item 73232, in containers in barrels or boxes, in bulk in barrels; also TL, in Package 600; <b>Peanut Butter or Peanut Spread</b> ; <b>Pectin</b> , fruit or vegetable; <b>Pickles</b> , NOI, see Note, item 73233, also in Packages 679, 1361 or 2467; <b>Pizza Pie Mix</b> , consisting of flour, sauce and yeast, with or without other ingredients; <b>Popcorn</b> , shelled, not popped, NOI, in bulk or in inner containers other than popping containers, also in Packages 2330 or 2448; <b>Powder</b> , baking, also in five-ply multiple-wall paper bags; <b>Puddings</b> , in containers in boxes; <b>Rice</b> , cleaned, whole or broken, also in double bags, five-ply multiple-wall paper bags; or also TL, in Packages 65, 60, 2231 or 2382; <b>Salads</b> , fish, macaroni, meat or vegetable, in glass or metal containers in boxes or in Package 2303; <b>Sandwich Spreads</b> , NOI, including Cheese Spreads, also in Packages 1204, 1400, 1429, 2462 or 2474; <b>Sauces or Toppings</b> , ice cream or dessert, NOI, including Marshmallow Creme; or Nuts (Nutmeats) in syrup or liquor, not pickled; in other than pressurized inner containers; also in Package 2288; <b>Sauces</b> , table, NOI, other than dry, or Gravy, see Note, item 73234, also in Packages 392, 1204, 1429, 2000, 2078, 2093, 2140, 2288, 2303, 2330, 2332, 2375, 2430, 2438, 2449 or 2467;	    92.6 60	    65 35	    24 40

For explanation of abbreviations and reference marks, see last page of this supplement.



SUPPLEMENT 1 TO NMF 100-Q

Item	ARTICLES	CLASSES		MW
		LT	TL	
Δ73227-A (Cont'd)	<b>FOODSTUFFS GROUP: subject to item 72000</b> Soups, including Broths or Chowders, also in Packages 505, 1000, 1500 or 2330; also TL, in Package 500; see Note, item 73236; Syrup, brewers' malt yeast; Syrup, flavoring or fruit, also in Packages 1000, 2035, 2288, 2402 or 2467; also TL, in Package 500; Tortillas, not baked nor toasted; Vegetables, canned or preserved, NOI, other than dried or evaporated, see Note, item 73235, also in Packages 1000, 1264, 2288, 2303, 2330, 2423 or 2438; also TL, in Packages 500, 1168 or 2450; Vinegar, also in Package 2332: In barrels, boxes, crates or Package 2463 .....	60	35	40
Δ73228-A	NOTE—Applies only on mixtures of dry ingredients, cooked or not cooked; or on dry ingredients, cooked or not cooked, and ingredients other than dry in separate inner containers from the dry ingredients.			
Δ73229-A	NOTE—Applies on mixtures of dried whey, wheat flour, soya protein concentrate and nonfat dried milk powder.			
Δ73230-A	NOTE—Applies only on foodstuffs and juices specially prepared and represented as baby foods.			
Δ73231-A	NOTE—Does not apply on material represented as vitamins or vitamin concentrates.			
Δ73232-A	NOTE—When in bulk in barrels or kits, bungs must be secured by metal fasteners; when in friction top cans or pails in boxes, the cans or pails must fit tightly within the box.			
Δ73233-A	NOTE—Applies on nuts or vegetables, NOI, pickled in brine or vinegar, and on fruits, NOI, pickled in vinegar.			
Δ73234-A	NOTE—Also applies on Catsup (Ketchup); Horseradish, prepared; Mayonnaise; Mustard, prepared; Sauce, pepper; and Basic Food Sauces, such as Marinara, Pizza, Spaghetti or Spanish Sauce.			
Δ73235-A	NOTE—Also applies on: Hominy; Pimientos; Juice, pimiento; Pork and Beans; Juice, tomato; Potatoes and Cheese, in sauce; Juice, vegetable, NOI; Pulp, tomato; Mush; Puree, tomato; Mushrooms, other than Truffles; Rice; Oats; Scrapple; Olives; Tomatoes; Paste, tomato; Wheat.			
Δ73236-A	NOTE—When commodities are hot packed, Package 1500 may be modified to include trays of 150 pound test when flange height is two inches and the heat shrinkable film is of 3 mil thickness. Film enclosure of completed package may have end openings.			
Δ73860-A	Milk, malted, in barrels or boxes or in cans in crates .....	65	40	30
Δ77140-A	<b>FRUITS OR VEGETABLES, DRIED, GROUP: subject to item 77000</b> Fruits, dried or evaporated, NOI, not candied, crystallized, glazed nor stuffed, in bags, barrels, boxes, mats, shipping baskets or hampers, or Packages 1264 or 2445 .....	65	35	36
Δ83980-A	<b>GAMES OR TOYS GROUP: subject to item 83900</b> Billiard or Pocket Billiard (Pool) Tables, with other than stone or slate slabs (beds), KD, or with legs (folded) to underside of table top, see Notes, items 83982 and 83984, in boxes, crates or Package 1317 .....	100	See item	85000
Δ83982-A	NOTE—With each table there may be included not more than four cues and the equipment necessary for playing.			
Δ83984-A	NOTE—Also applies on tables of the construction described when of a nature suitable for adult recreation.			
Δ84260-A	Games or Toys, NOI, in boxes or Packages 841, 2213, 2249 or 2296, subject to Item 170 and having a density in pounds per cubic foot of: Sub 1 Less than 1, see Note, item 84263 .....	400	400	AQ
Sub 2	1 but less than 2, see Note, item 84263 .....	300	300	AQ
Sub 3	2 but less than 4, see Note, item 84263 .....	250	250	AQ
Sub 4	4 but less than 6, see Note, item 84263 .....	150	100	12
Sub 6	6 but less than 8, see Note, item 84263 .....	125	85	15
Sub 8	8 but less than 10, see Note, item 84263 .....	100	70	18
Sub 7	10 but less than 12, see Note, item 84263 .....	92.5	65	20
Sub 8	12 but less than 15, see Note, item 84263 .....	85	65	28
Sub 9	15 or greater .....	70	40	38
Δ84261-A	NOTE—.....Cancel; no further application.			
Δ84263-A	NOTE—The charge for packages or pieces subject to a particular density group may be assessed on the basis of the next lower class provided in connection with the next heavier density group at the weight which would accrue from multiplying the cubage of such packages or pieces by the lowest density named in the density group which provides the next lower class. In each such instance, the actual cube, actual weight, density group embracing the actual density, declared density and resultant weight for billing purposes (declared weight) of the pieces for which density is being declared must be shown by shipper on shipping orders and bills of lading at time of shipment.			
Δ86830-A	<b>GLASS: subject to item 86500</b> Glass, rolled, overlaid with aluminum strips with metal terminals attached, in boxes, crates or Package 1339 .....	77.5	45	30
Δ86840-A	Glass, rolled, overlaid with aluminum strips, NOI, in boxes, crates or Package 1339 .....	70	37.5	36
Δ86980-A	Mats or Matting, glass fibre or glass wool, not woven, with or without binder, other than insulating mats or matting and other than air filtering media, in packages .....	85	65	24

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Item	ARTICLES	CLASSES		MW
		LTl	TL	
△66982-A	NOTE—.....Cancel; no further application.			
△88120-A	GLASSWARE GROUP: subject to item 87500 Glassware, laboratory, including Beakers, Bulbs, Evaporators, Pipettes, NOI, Test Tubes or Worms, in barrels or boxes .....	100	70	18
△93125-A	HARDWARE GROUP: subject to item 92900 Bars, gas meter hanging or supporting, cast iron, with or without brass valves, in boxes .....	65	37.5	40
△94500-A	Door Checks, automatic, metal, in boxes .....	70	45	30
102000-A	INSECTICIDES GROUP: Articles consist of Insecticides, Fungicides, Insect or Animal Repellents, or Vermin Exterminators, other than Class A Poisons, as described in items subject to this grouping, see Note, item 102002.			
△102002-A	NOTE—Commodities listed under this generic heading when tendered for shipment in Package 2452 are to be classified under the same provisions that apply when tendered to the carrier in boxes.			
102020-A	○Calcium Arsenate or Calcium Arsenite, see Note, item 102022, in bags or barrels .....	77.5	45	40
△102022-A	NOTE—Applies only when containing not to exceed 10 percent by weight of Paris green.			
102040-A	○Calcium Arsenate, Lead Arsenate, Lime or Paris Green and Sulfur Combined, dry, in bags, barrels, boxes or kits, see Note, item 102042 .....	77.5	45	40
△102042-A	NOTE—Applies only when Paris green content does not exceed 15 percent by weight.			
△102060-A	Copper Sulfate and Lime combined, with or without calcium arsenate or lead arsenate, dry, in double bags, in multiple-wall paper bags, or in barrels, boxes or kits .....	60	35	40
△102080-A	Copper Sulfate and Sulfur combined, in bulk in multiple-wall paper bags, or in bulk in barrels .....	60	35	40
102090-A	○Grain, poisoned, in bags, barrels or boxes .....	77.5	45	40
★102100-A	○Insecticides or Fungicides, Insect or Animal Repellents, NOI, or Vermin Exterminators; or Dip, animal or poultry, NOI; poison, other than Class A Poison, see Note, item 102101; in bags, barrels, boxes, cylinders, drums or pails .....	77.5	45	40
★102101	NOTE—Also applies on materials which are not identified under DOT regulations as being a hazard class "Poison" but which are required by such regulations to bear a secondary or subsidiary POISON label. To ensure the assessment of the correct class, bills of lading and shipping orders must clearly indicate the secondary or subsidiary nature of the POISON label.			
★102120-A	○Insecticides, Fungicides, Insect or Animal Repellents; or Vermin Exterminators; or Dip, animal or poultry, NOI; other than poison; see Notes, items 102132, 102134 or 102135; in bags, barrels, boxes, steel drums, pails or Packages 46, 602 or 2341 .....	60	35	40
102130-A	○Insecticides or Insect Repellents, etc., see Note, item 102100 and 102120.			
△102132-A	NOTE—Dry nonpoisonous insecticides may be shipped in burlap bags so lined with moisture-proof paper as to effectually prevent sifting.			
△102134-A	NOTE—One hand sprayer, other than plastic, or plastic having a liquid capacity of one quart or less, may be included in the same shipping container for each inner container, at the provisions applicable herein.			
102135-A	NOTE—Insecticides or fungicides, other than those identified as Apoisons, may be shipped in pails as provided for in Item 258 except that the gross weight may be increased to 62 pounds in 5-gallon size.			
102140-A	○Lead Arsenate; dry, in bags, barrels or boxes; or paste, in containers in barrels, boxes, kits or pails .....	77.5	45	40
△102170-A	Lime and Sulfur combined, dry, in double bags, barrels or boxes .....	60	35	40
△102180-A	Lime and Sulfur Solution, in barrels or boxes .....	60	35	40
△102200-A	Oil Emulsion, liquid, in bulk in barrels .....	60	35	40
102220-A	○Paris Green or London Purple, in barrels, boxes, kits or pails .....	77.5	45	40
102240-A	○Polychlor Agricultural Insecticides or Fungicides, see Note, item 102242, in bags, barrels or boxes see Note, item 102100 and 102120.			
102242-A	NOTE—A.....Cancel; no further application.			
△102260-A	Soda Ash and Sulfur, fused, in bulk in barrels, or in metal cans in barrels, boxes or crates ..	60	35	40
102280-A	○Sulfur, Zinc Sulfate and Lead Arsenate combined, in containers in barrels or boxes .....	77.5	45	40
★104880	IRON OR STEEL: subject to item 104000 Clothes Posts, with or without equipment of steel fittings; or Sign Posts, channel iron; loose or in packages .....	50	35	40
105080-A	Clothes Posts, with or without equipment of steel fittings; or Sign Posts, channel iron; loose or in packages A.....Cancel; see item 104880.			
△105450-A	Grit; or Chilled Shot, not ammunition; in bags, barrels, boxes or steel pails .....	50	35	40
△109600-A	LAMPS OR LIGHTING GROUP: subject to item 109000 Lamps (Bulbs or Tubes), electric, fluorescent, other than neon, see Note, item 109604, in wooden boxes or Packages 256, 257 or 1161 .....	100	55	22
△109604-A	NOTE—Applies only on the articles named which, when installed in lamps, lighting fixtures or other apparatus, function as sources of light or heat.			
△111470-A	LIQUORS, BEVERAGE: subject to item 111400 Liquors, Malt: Ale, Beers, Beer Tonic, Porter, Stout or Nonintoxicating Cereal Beverage, in glass in bottle carriers with tops securely fastened, see Note, item 111473, in containers in barrels or boxes, in metal dispensing containers less than 5 gallons capacity in carriers made of 500 pound test solid fibreboard, in boxes enclosed in crates, or in bulk in barrels; also TL, in open top carriers, or in metal cans in fibre boxes, not sealed, or in Packages 174, 186, 238, 788, 1145, 1155, 1162, 1257, 1360, 1376, 1447 or 2297 .....	65	35	50
△111473-A	NOTE—Bottle carrier containers made of fibreboard need not meet the certificate requirements of Item 222, but must be equipped with partitions full shoulder height of the bottles loaded therein. Such partitions must touch all four sides of the carrier. Inner packaging must comply with item 222-2 or Package 174.			

SUPPLEMENT 1 TO NMF 100-Q

Item	ARTICLES	CLASSES		MW 1
		LTL	TL	
Δ111800-A	Loofes, etc., .....Cancel; see item 177320. MACHINERY GROUP: subject to item 114000 Business or Office: subject to item 115700			
Δ115840-A	Cash Registers or Parts, NOI, see Note, item 115841, in boxes, locked shipping cases or Package 2132	100	70	24
Δ115841-A	NOTE—Does not apply on programmable point of sale terminals which constitute data processing machines, systems or devices or which are components of data processing machines, systems or devices. Such point of sale terminals are classified per item 116030.			
Δ118250-A	Copying, Duplicating or Reproducing, NOI, see Note, item 118252, in boxes, crates or Packages 1168, 2254 or 2373	92.6	45	24
Δ118252-A	NOTE—Applies only on machines which produce copies, duplicates or reproductions from original letters, drawings, documents or printed matter of any kind, or from master sheets.			
118260-A	Corn Poppers, automatic, etc., A.....Cancel; see item 118260.			
118270-A	Corn Poppers, factory type, etc., A.....Cancel; see item 118260.			
Δ118280-A	Corn Poppers, commercial; Corn Poppers, factory type; Corn Poppers or Peanut Roasters, separate or combined, sidewalk, store display or street, hand drawn; or Corn Poppers, automatic, and Vending Machines combined, coin or currency operated; in boxes or crates	125	77.5	16
Δ119540-A	Dishwashing Machines (Dishwashers), NOI, or Dishwashing Machines (Dishwashers) and Sink Cabinets, with or without sinks, combined, household, in boxes, crates or Packages 107, 216, 1019, 1082 or 1254; also TL, on skids	100	60	16
121265-A	Filters or Purifiers, water, tank type, Δ+NOI; or Water Softeners, NOI; with fittings, wooden, KD, or iron or steel, loose or in packages, detached fittings must be in barrels, boxes or crates:			
Sub 1	Empty, see Note, item 121266	100	45	30
Sub 2	Containing all filtering material necessary for operation	77.5	40	40
Δ121266-A	NOTE—TL provisions also include purifying or softening material, in separate packages necessary to equip the tanks or water softeners.			
Δ124420-A	Lawn Mowers, power (Lawn Mowers with Engines or Motors), LTL, in boxes, crates or Packages 239, 2179, 2181 or 2359; TL, loose or in packages	92.6	60	20
Δ125750-A	Mixing Machines, food, NOI, other than household, in boxes, crates or Package 214	85	45	24
Δ139160-A	MUSICAL INSTRUMENTS, OR PARTS NAMED: subject to item 138800 Organs, NOI, including one bench or stool in same box, see Notes, items 139162, 139164 and 139166, in boxes, crates or Packages 1135, 1225, 2001, 2214, 2229 or 2252	125	77.5	16
Δ139162-A	NOTE—Reed organs, not in boxes or crates, may be accepted for shipment in TL quantities provided the following requirements are complied with: Strips to be laid on floor of vehicle to raise organs off casters. Braces running crosswise of vehicle and lengthwise of vehicle with pads of excelsior or other suitable material between the organs and the braces and between the organs and sides of vehicle to prevent chafing, the braces to be so placed and fastened as to securely hold the organs in position in the vehicle, and form a framework extending full length and width of vehicle.			
Δ139164-A	NOTE—Also applies on one empty box for return of wrappings, rubber covers and harness with TL shipments of pianos and organs.			
Δ139166-A	NOTE—Iron weights and boards or paneling used in construction of swell boxes for pipe organs may be shipped loose if securely braced in vehicle.			
Δ149265-A	PADS, PADDING, CUSHIONS OR PILLOWS: subject to item 149100 Pads, Padding, Cushions or Pillows, see Note, item 149268, viz.: Air Filtering Media, glass fibre or glass wool; Cushions, NOI; Futons; Pads or Padding, NOI; Pillows or Pillow Forms (Unfinished Pillows), NOI; In packages, subject to item 170 and having a density in pounds per cubic foot of:			
Sub 1	Less than 1, see Note, item 149268	400	400	AQ
Sub 2	1 but less than 2, see Note, item 149268	300	300	AQ
Sub 3	2 but less than 4, see Note, item 149268	250	250	AQ
Sub 4	4 but less than 6, see Note, item 149268	150	100	12
Sub 5	6 but less than 8, see Note, item 149268	125	85	15
Sub 6	8 but less than 10, see Note, item 149268	100	70	18
Sub 7	10 but less than 12, see Note, item 149268	92.6	65	20
Sub 8	12 but less than 15, see Note, item 149268	85	55	26
Sub 9	15 or greater	70	40	36
Δ149268-A	NOTE—The charge for packages or pieces subject to a particular density group may be assessed on the basis of the next lower class provided in connection with the next heavier density group at the weight which would accrue from multiplying the cubage of such packages or pieces by the lowest density named in the density group which provides the next lower class. In each such instance, the actual cube, actual weight, density group embracing the actual density, declared density and resultant weight for billing purposes (declared weight) of the pieces for which density is being declared must be shown by shipper on shipping orders and bills of lading at time of shipment.			
Δ149268-A	NOTE—Does not apply on electric vibrating or massage pads, padding, cushions or pillows. Classes for those products are provided in item 61820, sub 4, naming 'Electric Exercising Apparatus, vibratory, other than chair or lounge type.'			

SUPPLEMENT 1 TO NMF 100-0

Item	ARTICLES	CLASSES		MW
		LTL	TL	
150650-A	PAPER: subject to item 150600 Autographic Register, Cash Register, Computing Machine, Data Processing Machine or Ticket Issuing Machine, other than forms, cards, checks or tickets, see Note, item 150652, plain, or ruled, not otherwise printed, see Note, item 150654, in boxes, in wrapped rolls secured to wooden pallets or in Package 2488	65	35	36
Δ150652-A	NOTE—Also applies when interleaved with carbon paper or backed with carbon.			
Δ150654-A	NOTE—Also applies when the articles bear marginal lettering or numbering for identification purposes.			
Δ155126-A	PETROLEUM PRODUCTS GROUP: subject to item 155100 NOTE—Petroleum oil, NOI, petrolatum or petrolatum preparations, prepared and represented as a remedy, medicine or lubricant for the human body, will be classed under the specification for medicines, NOI.			
Δ155128-A	NOTE—The term 'blended gasolines' as used in this item covers motor fuels containing 60 percent or more of gasoline.			
Δ155250-A	⊙Petroleum Oils, Greases and Related Products, viz.: Acid, naphthenic; Oil: Concluded, Adhesive or Coating, air filtering element Gas; dust arresting; Lubricating, also in Packages 210, 448, Alcohols, inedible fatty, NOI, also 500, see Note, item 155257, solidified in bags; 589, 602, 1000, 1235, Benzine; 1500, see Note, item 155255, 2096, Distillate, naphtha; 2342, 2445 or 2454; NOI, see Fatty Acid, petroleum; Note, item 155126; Gasoline, casing head; Refined, illuminating or burning, also Gasoline, natural; in Package 448; Gasoline, NOI; Transformer; Gasoline, blended, see Note, item Paraffin, chlorinated, melting point 155128; higher than 120° Fahrenheit, Grease, axle, also in Packages 602 also in bags or Package or 1235; 591; Grease, lubricating, other than axle Pentane; grease, also in Packages 689, Petrolatum, see Note, item 155126, also 926 or 1235; in Package 602; Grease, NOI, also in Package 602; Petrolatum Preparations, see Note, item Iso-pentane; 155126, also in Package 602; Naphtha; Petroleum Jelly, see Note, item 155126, Oil: also in Package 602; Absorption; Wax, paraffin, also in bags or Package Crude; 591; Fuel, residual; Wax, petroleum, also in bags or Package Fuel, distillate, not suitable for 591; illuminating purposes; In barrels, boxes, Packages 1109, 2440, 2452 or 2473, or packages shown in above specific descriptions	65	35	30
Δ155255-A	NOTE—When palletized, lubricating oil may be shipped in Package 1500 modified so that the film enclosure of the completed package may have end openings. End openings must not exceed 1/4 the exposed height of the inner containers.			
Δ155257-A	NOTE—Lubricating oil may be shipped in Package 500 in LTL quantities when tendered unitized and secured on pallets of sound construction by girth wrapping with not less than two wraps of plastic stretch film of .09 mil thickness so as to maintain a stable load.			
Δ156600-A	PLASTIC OR RUBBER ARTICLES, OTHER THAN EXPANDED, GROUP: subject to item 156500 Articles, viz.: Articles, NOI; Boot or Shoe Forms or Trees, other than display forms or trees; Garbage or Refuse Cans; Pipe Fittings; In barrels, boxes, crates or Packages 870, 1078, 1241, 1273, 1456, 2195, 2212, 2213, 2230 or 2459, see Note, item 156602, subject to item 170 and having a density in pounds per cubic foot of: Less than 1, see Note, item 156608 1 but less than 2, see Note, item 156608 2 but less than 4, see Note, item 156608 4 but less than 6, see Note, item 156608 6 but less than 8, see Note, item 156608 8 but less than 10, see Note, item 156608 10 but less than 12, see Note, item 156608 12 but less than 15, see Note, item 156608 15 or greater	400 300 250 150 125 100 92.6 85 70	400 300 250 100 85 70 65 55 40	AQ AQ AQ 12 15 18 20 26 36
Sub 1	Less than 1, see Note, item 156608	400	400	AQ
Sub 2	1 but less than 2, see Note, item 156608	300	300	AQ
Sub 3	2 but less than 4, see Note, item 156608	250	250	AQ
Sub 4	4 but less than 6, see Note, item 156608	150	100	12
Sub 6	6 but less than 8, see Note, item 156608	125	85	15
Sub 8	8 but less than 10, see Note, item 156608	100	70	18
Sub 7	10 but less than 12, see Note, item 156608	92.6	65	20
Sub 8	12 but less than 15, see Note, item 156608	85	55	26
Sub 9	15 or greater	70	40	36

For explanation of abbreviations and reference marks, see last page of this supplement.

**SUPPLEMENT 1 TO NMF 100-0**

Item	ARTICLES	CLASSES		MW
		LTL	TL	
Δ156602-A	<p><b>NOTE</b>—The following departures from packing requirements are permitted:</p> <ol style="list-style-type: none"> <li>1. Necks of empty carboys may project from barrels, boxes or crates.</li> <li>2. Plastic shipping containers or plastic bottles may be shipped TL in packages; or plastic outer shipping containers having a capacity of 15 gallons or more may be shipped loose, LTL or TL.</li> <li>3. Plastic bottle carrying boxes or crates may be loose or in packages.</li> <li>4. Extruded shapes in lengths of 10 feet or greater, having a density of 15 pounds or greater per cubic foot may be in packages.</li> <li>5. Plastic roof gutters, downspouts and/or fittings for gutters or downspouts may be shipped in Package 2060.</li> <li>6. Plastic pipe or tubing, or tubes other than containers, in straight lengths may be shipped in packages or bundles with threaded ends protected. Plastic pipe or tubing, or tubes other than containers, greater than 6 inches in inside diameter, in straight lengths of 10 or more feet each may be shipped loose with threaded or belled ends protected.</li> <li>7. Plastic pipe or tubes, smallest cross-sectional inside dimension greater than 6 inches may be shipped in packages or in bundles with threaded or belled ends protected. Plastic pipe fittings may be shipped in packages with threaded or belled ends protected, or loose with threaded or belled ends protected when weighing each 15 pounds or over.</li> <li>8. Plastic chairs may be shipped in Package 31F.</li> <li>9. Plate or Sheet, rolled, having a density of 15 pounds or greater per cubic foot may be shipped strapped on pallets.</li> <li>10. Molded plastic trays for shipping tube yarn may be shipped in packages.</li> <li>11. Molded road traffic delineator devices of barrel-like construction may be shipped loose or in packages.</li> <li>12. Flexible plastic fencing or mesh, produced by a stretching and extruding process, may be shipped in bundles or rolls.</li> <li>13. Plate or sheet with formed interior cells, cavities or flutes may be shipped strapped on pallets or skids.</li> <li>14. Garbage or refuse cans may be shipped in packages.</li> </ol>			
Δ156608-A	<p><b>NOTE</b>—The charge for packages or pieces subject to a particular density group may be assessed on the basis of the next lower class provided in connection with the next heavier density group at the weight which would accrue from multiplying the cubage of such packages or pieces by the lowest density named in the density group which provides the next lower class. In each such instance, the actual cube, actual weight, density group embracing the actual density, declared density and resultant weight for billing purposes (declared weight) of the pieces for which density is being declared must be shown by shipper on shipping orders and bills of lading at time of shipment.</p>			
Δ157320-A	<p><b>PLASTIC OR RUBBER ARTICLES OR MATERIALS, EXPANDED, GROUP: subject to item 157300</b></p> <p>Articles, Forms or Materials, viz.:</p> <ul style="list-style-type: none"> <li>Articles, NOI, see Note, item 157344;</li> <li>Beads;</li> <li>Blocks, NOI, see Note, item 157344;</li> <li>Boot or Shoe Forms or Trees, other than display forms or trees;</li> <li>Cushions or Pillows, NOI, see Note, item 157347;</li> <li>Flakes or Granules;</li> <li>Floats, NOI;</li> <li>Forms or Shapes, NOI, see Note, item 157344;</li> <li>Ground;</li> <li>Insulation, NOI, see Notes, items 157344 and 157346;</li> <li>Pads or Padding, NOI, see Notes, items 157344, 157346 and 157347;</li> <li>Plates, see Note, item 157344;</li> <li>Rods;</li> <li>Sheets, NOI, see Notes, items 157344 and 157346;</li> <li>Shredded;</li> <li>Slabs, see Note, item 157344;</li> <li>Tubes or Tubing, NOI;</li> </ul> <p>In bags, barrels, boxes or Package 2373, see Note, item 157342, subject to item 170 and having a density in pounds per cubic foot of:</p>			
Sub 1	Less than 1, see Note, item 157352 .....	400	400	AO
Sub 2	1 but less than 2, see Note, item 157352 .....	300	300	AO
Sub 3	2 but less than 4, see Note, item 157352 .....	250	250	AO
Sub 4	4 but less than 6, see Note, item 157352 .....	150	100	12
Sub 5	6 but less than 8, see Note, item 157352 .....	125	85	15
Sub 6	8 but less than 10, see Note, item 157352 .....	100	70	18
Sub 7	10 but less than 12, see Note, item 157352 .....	92.6	65	20
Sub 8	12 but less than 15, see Note, item 157352 .....	85	55	28
Sub 9	15 or greater .....	70	40	36

SUPPLEMENT 1 TO NMF 100-Q

Item	ARTICLES	CLASSES		MW
		LTL	TL	
Δ157342-A	NOTE—The following departures from packing requirements are permitted: 1. Blocks; plates, other than tableware; rods; tubes; or other shapes may be shipped in bales. 2. Boards; logs; planks; plates, other than tableware; sheets; or slabs constituting a shipment of 1,300 cubic feet or greater may be shipped loose. 3. Logs or slabs constituting a shipment of 600 cubic feet or greater may be shipped loose when each piece is at least 18 cubic feet. 4. Expanded plastic having a density not exceeding one pound per cubic foot or expanded plastic carpet pads or padding may be shipped in two-mil plastic bags securely closed or Package 2198. 5. Dishes, plates or trays may be shipped in Packages 911 or 2176. 6. Mattress forms or cores may be shipped in: bales wrapped in paper in outer covering of burlap weighing not less than 19 ounces per square yard; or Packages 5F, 10F, 11F, 12F, 30F or 90F. They may be shipped TL in Package 9F, except bags or wrappers may be glued, as provided in Package 12F, in lieu of tying, and such bags or wrappers must be marked, "Not Acceptable for LTL Shipments."			
Δ157343-A	NOTE—.....Cancel; see item 157342.			
Δ157344-A	NOTE—Also applies when faced one or both sides with other materials but does not apply on combinations of flexible cellular, expanded or foam plastic or rubber and cloth or fabric.			
Δ157346-A	NOTE—Will not apply on polypropylene in sheet form, polyethylene in sheet form or polystyrene in sheet form when the packaged density as shipped is less than one pound per cubic foot.			
Δ157347-A	NOTE—Does not apply on electric vibrating or massage pads, padding, cushions or pillows. Classes for those products are provided in item 61820, sub 4, naming "Electric Exercising Apparatus, vibratory, other than chair or lounge type."			
Δ157352-A	NOTE—The charge for packages or pieces subject to a particular density group may be assessed on the basis of the next lower class provided in connection with the next heavier density group at the weight which would accrue from multiplying the cubage of such packages or pieces by the lowest density named in the density group which provides the next lower class. In each such instance, the actual cube, actual weight, density group embracing the actual density, declared density and resultant weight for billing purposes (declared weight) of the pieces for which density is being declared must be shown by shipper on shipping orders and bills of lading at time of shipment.			
	<b>PLUMBERS' GOODS GROUP: subject to item 158000</b> Baths, Bathtubs, Pools, Pool Shells or Spas, therapeutic bathing: subject to item 158030			
Δ158032-A	Metal, other than cast iron or other than enameled plate or sheet steel, see Note, item 158036, in boxes, crates or wrapped in fibreboard testing not less than 275 pounds, see Note, item 158042:			
Sub 1	150 united inches or greater .....	300	300	AQ
Sub 2	90 but less than 150 united inches .....	125	85	15
Sub 3	Less than 90 united inches .....	92.5	55	24
Δ158036-A	NOTE—Applies only on articles having a tank and one or more water agitators, ejectors or aerators, with or without accompanying water mixing valve assemblies, tank fixtures or fittings, head rests, hammocks, body plinths, hand grips, arm rests, hoists or trolleys, slings or support fixtures.			
Δ158042-A	NOTE—The term "united inches" refers to the sum of the outer dimensions (the length, width and depth added) of the baths, bathtubs, pools, pool shells or spas as packaged for shipment.			
	<b>POST OFFICE EQUIPMENT GROUP: subject to item 160800</b>			
Δ160805-A	Boxes, call or lock, in boxes or crates:			
Sub 1	With fronts, also in Package 1179, see Note, item 160806 .....	100	60	20
Sub 2	Without fronts .....	85	60	20
Δ160806-A	NOTE—Used but not reconditioned call or lock boxes may be shipped loose.			
	<b>SHEET STEEL ARTICLES GROUP: subject to item 174300</b>			
Δ174600	Colanders, food preparation, in boxes:			
Sub 1	Not nested .....	250	250	AQ
Sub 2	Nested .....	150	100	12
174620-A	Corn Poppers, hand, etc., A.....Cancel; obsolete.			
176960-A	Softeners, fabric or textile:			
Sub 1	In tablet, granular or powdered form, contained in dispensing pads or packets, in boxes .....	200	125	10
Sub 2	Contained or impregnated in cloth or paper sheets, in boxes .....	100	55	24
Sub 3	Contained or impregnated in foam, cellular or expanded plastic sheets or sheeting:			
Sub 4	In inner retail containers, in boxes .....	125	70	18
Sub 5	TL, in rolls in plastic bags of not less than 2 mil thickness .....		100	12
Sub 6	NOI, in boxes, in bulk in bags or barrels or in Packages 1403, 2412, 2440 or 2473 .....	55	35	36
Δ177300-A	Sponge Clippings, etc., .....Cancel; see item 177320.			
Δ177310-A	Sponge Cloths, etc., .....Cancel; see item 177320.			
Δ177320-A	Sponges, NOI, whether or not impregnated with soap, cleaning compound or disinfectant; Loofahs; or Clippings, Cloths or Waste, sponge; in boxes, subject to item 170 and having a density in pounds per cubic foot of:			
Sub 1	Less than 1, see Note, item 177321 .....	400	400	AQ
Sub 2	1 but less than 2, see Note, item 177321 .....	300	300	AQ
Sub 3	2 but less than 4, see Note, item 177321 .....	250	250	AQ
Sub 4	4 but less than 6, see Note, item 177321 .....	150	100	12
Sub 5	6 but less than 8, see Note, item 177321 .....	125	85	15
Sub 6	8 but less than 10, see Note, item 177321 .....	100	70	18
Sub 7	10 but less than 12, see Note, item 177321 .....	92.5	65	20
Sub 8	12 but less than 15, see Note, item 177321 .....	85	55	26
Sub 9	15 or greater .....	70	40	36

For explanation of abbreviations and reference marks, see last page of this supplement.

**SUPPLEMENT I TO NMF 100 Q**

Item	ARTICLES	CLASSES		MW 1
		LTL	TL	
Δ177321	NOTE—The charge for packages or pieces subject to a particular density group may be assessed on the basis of the next lower class provided in connection with the next heavier density group at the weight which would accrue from multiplying the cubage of such packages or pieces by the lowest density named in the density group which provides the next lower class. In each such instance, the actual cube, actual weight, density group embracing the actual density, declared density and resultant weight for billing purposes (declared weight) of the pieces for which density is being declared must be shown by shipper on shipping orders and bills of lading at time of shipment.			
Δ177340-A	Sponges, impregnated with soap, cleaning compound or disinfectant, etc., .....Cancel; see item 177320.			
Δ177350-A	Sponges, sponge rubber, etc., .....Cancel; see item 177320.			
Δ177350-A	Sponges or Sponge Waste, natural, NOI, etc., .....Cancel; see item 177320.			
181870-A	Tape of Wire, magnetic, other than Audio (sound) or video recording, in boxes or Package 2373:			
ΔSub 1	New or reconditioned .....	100	70	30
ΔSub 2	Used, having value only for reconditioning .....	70	40	36
Δ186970-A	Totem Poles, prepaid, in boxes or crates .....Cancel; obsolete.			
	VEHICLE PARTS: subject to item 190500			
190860-A	Bicycle, Motorcycle or Tricycle: subject to item 190760			
	Handle Bar Grips, in barrels or boxes ΔΔ .....Cancel; see items 156600 and 157320.			
197910-A	WIRE GOODS GROUP: subject to item 197760			
	Corn Poppers, hand, etc., Δ .....Cancel; obsolete.			
Δ200430-A	YARN: subject to item 200280			
Sub 1	Synthetic fibre, NOI: Other than in skeins, balls, hanks or on cards; in bags, boxes or Packages 691, 2010, 2012, 2015, 2017, 2018, 2120, 2123, 2151, 2152, 2153, 2154, 2155, 2156, 2186, 2208 or 2295 or on wrapped beams, see Note, item 200432, loose or in crates, cradles or racks, subject to item 170 and having a density in pounds per cubic foot of:			
Sub 2	Less than 12 .....	100	70	20
Sub 3	12 or greater .....	70	40	30
Δ200432-A	NOTE—Wrapped beams or jack spools may be shipped loose only in truckload quantities and only when loaded on rails or racks in vehicles so equipped.			
Δ201000-A	ZINC OR ZINC ALLOYS: subject to item 200480			
	Turpentine Cups, etc., .....Cancel; obsolete.			

**SPECIFICATIONS FOR NUMBERED PACKAGES**

**Package 32**

ΔCancels 'Package 32' from page 667 of the classification.)  
Cancel; no further application.

**Package 82**

ΔCancels 'Package 82' from page 668 of the classification.)  
Cancel; no further application.

**Package 1141**

ΔCancels 'Package 1141' from page 707 of the classification.)  
Cancel; no further application.

**Package 1149**

ΔCancels 'Package 1149' from page 707 of the classification.)  
Cancel; no further application.

**Package 1170**

ΔCancels 'Package 1170' from page 703 of the classification.)  
Cancel; no further application.

**Package 1177**

ΔCancels 'Package 1177' from page 709 of the classification.)  
Cancel; no further application.

## SPECIFICATIONS FOR NUMBERED PACKAGES

## Package 1187

ΔCancels 'Package 1187' from page 710 of the classification.)  
Cancel; no further application.

## Package 1198

ΔCancels 'Package 1198' from page 710 of the classification.)  
Cancel; no further application.

## Package 1201

ΔCancels 'Package 1201' from page 710 of the classification.)  
Cancel; no further application.

## Package 1221

ΔCancels 'Package 1221' from page 711 of the classification.)  
Cancel; no further application.

## Package 1223

ΔCancels 'Package 1223' from page 711 of the classification.)  
Cancel; no further application.

## Package 1224

ΔCancels 'Package 1224' from page 711 of the classification.)  
Cancel; no further application.

## Package 1229

ΔCancels 'Package 1229' from page 712 of the classification.)  
Cancel; no further application.

## Package 1230

ΔCancels 'Package 1230' from page 712 of the classification.)  
Cancel; no further application.

## Package 1231

ΔCancels 'Package 1231' from page 712 of the classification.)  
Cancel; no further application.

## Package 1233

ΔCancels 'Package 1233' from page 712 of the classification.)  
Cancel; no further application.

## Package 1237

ΔCancels 'Package 1237' from page 712 of the classification.)  
Cancel; no further application.

## Package 1239

ΔCancels 'Package 1239' from page 712 of the classification.)  
Cancel; no further application.



## SPECIFICATIONS FOR NUMBERED PACKAGES

## Package 1243

*ΔCancels 'Package 1243' from page 713 of the classification.)*  
 Cancel; no further application.

## Package 1250

*ΔCancels 'Package 1250' from page 713 of the classification.)*  
 Cancel; no further application.

## Package 1261

*ΔCancels 'Package 1261' from page 714 of the classification.)*  
 Cancel; no further application.

## Package 1279

*ΔCancels 'Package 1279' from page 716 of the classification.)*  
 Cancel; no further application.

## Package 1280

*ΔCancels 'Package 1280' from page 716 of the classification.)*  
 Cancel; no further application.

## Package 1282

*ΔCancels 'Package 1282' from page 716 of the classification.)*  
 Cancel; no further application.

## Package 1283

*ΔCancels 'Package 1283' from page 716 of the classification.)*  
 Cancel; no further application.

## Package 1284

*ΔCancels 'Package 1284' from page 716 of the classification.)*  
 Cancel; no further application.

## Package 1308

*ΔCancels 'Package 1308' from page 718 of the classification.)*  
 Cancel; no further application.

## Package 1309

*ΔCancels 'Package 1309' from page 718 of the classification.)*  
 Cancel; no further application.

## Package 1311

*ΔCancels 'Package 1311' from page 718 of the classification.)*  
 Cancel; no further application.

## Package 1321

*ΔCancels 'Package 1321' from page 719 of the classification.)*  
 Cancel; no further application.

## SPECIFICATIONS FOR NUMBERED PACKAGES

## Package 1322

ΔCancels 'Package 1322' from page 719 of the classification.)  
Cancel; no further application.

## Package 1326

ΔCancels 'Package 1326' from page 719 of the classification.)  
Cancel; no further application.

## Package 1344

ΔCancels 'Package 1344' from page 720 of the classification.)  
Cancel; no further application.

## Package 1347

ΔCancels 'Package 1347' from page 721 of the classification.)  
Cancel; no further application.

## Package 1356

ΔCancels 'Package 1356' from page 721 of the classification.)  
Cancel; no further application.

## Package 1371

ΔCancels 'Package 1371' from page 722 of the classification.)  
Cancel; no further application.

## Package 1373

ΔCancels 'Package 1373' from page 722 of the classification.)  
Cancel; no further application.

## Package 1377

ΔCancels 'Package 1377' from page 722 of the classification.)  
Cancel; no further application.

## Package 1379

ΔCancels 'Package 1379' from page 723 of the classification.)  
Cancel; no further application.

## Package 1384

ΔCancels 'Package 1384' from page 723 of the classification.)  
Cancel; no further application.

## Package 1393

ΔCancels 'Package 1393' from page 724 of the classification.)  
Cancel; no further application.

## Package 1394

ΔCancels 'Package 1394' from page 724 of the classification.)  
Cancel; no further application.

## Package 1402

ΔCancels 'Package 1402' from page 724 of the classification.)  
Cancel; no further application.

## SPECIFICATIONS FOR NUMBERED PACKAGES

## Package 1409

*ΔCancels 'Package 1409' from page 725 of the classification.)*  
 Cancel; no further application.

## Package 1410

*ΔCancels 'Package 1410' from page 725 of the classification.)*  
 Cancel; no further application.

## Package 1413

*ΔCancels 'Package 1413' from page 725 of the classification.)*  
 Cancel; no further application.

## Package 1414

*ΔCancels 'Package 1414' from page 725 of the classification.)*  
 Cancel; no further application.

## Package 1415

*ΔCancels 'Package 1415' from page 725 of the classification.)*  
 Cancel; no further application.

## Package 1416

*ΔCancels 'Package 1416' from pages 725-726 of the classification.)*  
 Cancel; no further application.

## Package 1417

*ΔCancels 'Package 1417' from page 726 of the classification.)*  
 Cancel; no further application.

## Package 1418

*ΔCancels 'Package 1418' from page 726 of the classification.)*  
 Cancel; no further application.

## Package 1420

*ΔCancels 'Package 1420' from page 726 of the classification.)*  
 Cancel; no further application.

## Package 1421

*ΔCancels 'Package 1421' from page 726 of the classification.)*  
 Cancel; no further application.

## Package 1430

*ΔCancels 'Package 1430' from page 727 of the classification.)*  
 Cancel; no further application.

## Package 1431

*ΔCancels 'Package 1431' from page 728 of the classification.)*  
 Cancel; no further application.

## Package 1433

*ΔCancels 'Package 1433' from page 728 of the classification.)*  
 Cancel; no further application.

## SPECIFICATIONS FOR NUMBERED PACKAGES

## Package 1435

*(Cancels 'Package 1435' from page 728 of the classification.)*  
Cancel; no further application.

## Package 1438

*(Cancels 'Package 1438' from page 728 of the classification.)*  
Cancel; no further application.

## Package 1442

*(Cancels 'Package 1442' from page 729 of the classification.)*  
Cancel; no further application.

## Package 1446

*(Cancels 'Package 1446' from page 729 of the classification.)*  
Cancel; no further application.

## Package 1448

*(Cancels 'Package 1448' from page 729 of the classification.)*  
Cancel; no further application.

## Package 1449

*(Cancels 'Package 1449' from page 729 of the classification.)*  
Cancel; no further application.

## Package 1453

*(Cancels 'Package 1453' from page 729 of the classification.)*  
Cancel; no further application.

## Package 1454

*(Cancels 'Package 1454' from page 729 of the classification.)*  
Cancel; no further application.

## Package 1458

*(Cancels 'Package 1458' from page 729 of the classification.)*  
Cancel; no further application.

## ☐ Package 2487

*(Add 'Package 2487' to page 795 of the classification.)*

**SHIPPING CONTAINER:** Article mounted on a wooden base having a fibreboard top cap and plastic foam corner posts, stretch wrapped.

**Top Cap—** Design style corrugated fibreboard testing 175 pounds having not less than a 3-inch flange depth.

**Corner Posts and Pads—** An inner clearance of 1½ inches must be provided for by use of full-height corner posts and vertical pads constructed of 1 pound density expanded polystyrene plastic foam. L-shaped corner posts must have a minimum outside leg-width of 2½ inches. Vertical pads must have a width of six inches and be positioned so that no aperture will exceed 24 inches in width.

**Base—** Article must be through-bolted to a single face pallet suitable to provide mechanical handling.

**Film Wrap—** Components must be secured in place by stretch wrapping with not less than 4 plies of film, each ply having a thickness of not less than .8 mil.

## ☐ Package 2488

*(Add 'Package 2488' to page 795 of the classification.)*

In corrugated fibreboard boxes testing not less than 150 pounds complying with Item 222, except gross weight may be increased to not exceed 55 pounds.

EXPLANATION OF ABBREVIATIONS AND REFERENCE MARKS

Abbreviation or Reference Mark	EXPLANATION	Abbreviation or Reference Mark	EXPLANATION
AQ	Any quantity	1/d/b/a	Trading and doing business as
ASTM	American Society for Testing and Materials	U.S.	United States
Avdp.	Avoirdupois	U.S.S.G.	United States Standard Gauge
B&S	Brown & Sharpe gauge	viz.	namely
BWG	Birmingham wire gauge	vol.	volume
°C	degree Centigrade (Celsius)	vs.	versus
cm	centimeter, centimeters	&	and
COD	Collect on Delivery	°	degree
Con't.	Continued	%	Indicates percent
cu	cubic	⊙	Indicates commodity or commodities may be subject to special federal regulations concerning the shipping of hazardous materials. See Item 540 herein.
cu. ft.	cubic foot, cubic feet	↓	Indicates reduction
DOT	Department of Transportation	↑	Indicates increase
d/b/a	doing business as	▲	Indicates change in wording which results in neither increases nor reductions
etc.	et cetera (and other things, or the rest; and so forth)	⊠	Indicates change in packaging.
°F	degree Fahrenheit	△	Matter in this item is brought forward without change in application from item being canceled
FMC	Federal Maritime Commission	*	Indicates new item
g	gram	v	Indicates mixed articles entry in Index to Articles
HMT	Hazardous Materials Tariff as defined in Item 540 herein	⊕	Addition to index to articles
ICC	Interstate Commerce Commission	⊖	Eliminate from index to articles
incl.	inclusive	⊗	Change in index to articles
KD	knocked down	⊘	Subject to expiration date shown in Item 535
kg	kilogram	Ⓜ	Indicates water carrier operating under ICC jurisdiction
L	liter	Ⓝ	Indicates railroad
LTL	Less than truckload. Does not apply to classes designated in MW column as AQ	Ⓞ	Carrier's participation canceled; no further application.
m	meter	Ⓟ	Indicates freight forwarder
ml	milliliter	Ⓠ	Under postponement
mm	millimeter	Ⓡ	Under suspension or suspension supplement
MW	Minimum weight factor, see Item 997	Ⓢ	Contains only portion under suspension.
min. wt.	Minimum weight	Ⓣ	Except portions under suspension
NMFC	National Motor Freight Classification	Ⓤ	Indicates correction of printing error.
NOI	Not more specifically described herein	Ⓥ	Except as noted. The carrier 'alpha' codes listed herein represent only those carriers participating in the National Motor Freight Classification. For a complete listing of all assigned alpha codes, see the Directory of Standard Multi-Modal Carrier and Tariff Agents Codes, ICC NMF 101, published by the National Motor Freight Traffic Association, Inc., 2200 Mill Road, Alexandria, VA 22314.
o/a	operating as	Ⓦ	See 'Notice of General Application on Interstate Shipments,' appearing on page 3 of tariff.
oz.	ounces		
psi	pounds per square inch		
qt.	quart		
RSort.	Classed the same or lower		
r.p.m.	revolutions per minute		
Sec.	Section		
sq.	square		
sq. ft.	square foot, square feet		
sq. in.	square inch		
SU	Set up		
1/a	trading as		
TL	Truckload. Does not apply to classes designated in MW column as AQ		

—finis—

**EXHIBIT B**

**(Consists of 6 pages)**

**SUMMARY OF CHANGES**

**IN**

**NATIONAL MOTOR FREIGHT CLASSIFICATION**

**NMF 100-Q**

**AS SET FORTH**

**IN SUPPLEMENT 1**

**(Exhibit A Hereof)**

APPENDIX TO SUPPLEMENT 1 TO NMF 100-Q

ISSUED: April 4, 1990

EFFECTIVE: May 5, 1990

A numeric directory of changes being published in this Supplement is listed below. Explanations of each change and the National Classification Committee's justifications for the amendments, additions or deletions are provided herein. The following abbreviations are utilized: LTL (Less Than Truckload); TL (Truckload); MW (Minimum Weight Factor); AQ (Any Quantity); PCF (Pounds Per Cubic Foot); \* indicates a new item or new package.

260	53120	102000	102135	105080	190860
291	54150	102020	102140	118260	197910
296	56530	102040	102170	118270	PACKAGES
680	57770	102060	102180	118280	*2487
4880	61300	102080	102220	121265	*2488
5020	*61305	102090	102240	150650	
43980	61500	102100	102242	158032	
45620	*61505	*102101	102260	174620	
*45625	69110	102120	102280	176960	
53070	*69111	102130	*104880	181870	

Items 260, 291 and 296, Specifications for Steel Drums, Fibre Drums for Dry Articles and Fibre Drums for Liquids, respectively, have been amended to allow for plastic molded covers of .125 inch in thickness, having an integral molded concentric ring for strength purposes. This amendment to the drum specifications changes the current requirements for plastic covers by increasing their thickness while reducing the number of concentric rings from two to one. Drums outfitted with covers of this construction have successfully passed performance tests required by the DOT for the shipment of hazardous materials.

These changes are the result of Docket 902, Subject 24.

Item 680, Sec. 1(a), Packing or Packaging - General, is being amended to make reference to new Note 4. Note 4 provides a definitive means of dealing with liquid, granular or powdered materials which are shipped slack-filled in rigid or semi-rigid primary containers in an outer shipping container. The Note provides that such primary containers must be filled to at least 65% of their capacity. When not filled to at least 65% of capacity the material will be subject to the class applicable to either the empty container or its contents, whichever is higher.

This change results from handling accorded Subject 20 of Docket 902.

Item 4880, naming store or window advertising displays constructed of cellular or expanded plastic or cellular or expanded plastic combined with other materials is being cancelled with reference to item 57410, which now provides density-based classes for other types of store or window advertising displays. This change will simplify and clarify the determination of the applicable provisions for advertising displays.

This change results from handling accorded Subject 12 of Docket 902.

Item 5020, naming itinerant advertising displays, is being cancelled with reference to item 57410, which provides density-based classes for other types of store or window advertising displays. This change will promote tariff simplification and clarification by grouping commodities with similar transportation characteristics.

This change results from handling accorded Subject 12 of Docket 902.

Item 43980 - See justification for item 102020

Items 45620 and 45625 - see justification for item 102020.

Items 53070 and 53120, describing refrigerated coolers, other than household, have been amended to allow for shipment in a new Package (2487) as an alternate method of shipment. Package 2487 describes a shipping container of plastic foam corner posts, fibreboard top cap and a wooden base, enveloped within 4 plies of plastic stretch film. Successful experience was gained through shipments conducted under the provisions of Test Shipment Permit T-891-1. Action was resultant of Docket 902, Subject 21.

Item 54150, naming "Cotton, carded, dyed or not dyed," with classes dependent upon the form of shipment, is amended to read "Cotton, carded, in bales or boxes," at class 250 AQ. Information on file shows that carded cotton is no longer shipped in paper bags, and the item now names the known form of shipment of this commodity. Further, this commodity has an average density of 3.82 pcf. The handling and stowability characteristics are similar to those of other boxed freight, and there are no unusual liability characteristics. These changes are the result of action taken on Docket 902, Subject 9.

Item 56530, "Caps, Hoods, Leggings or Shoe Covers, disposable...", listed under the Dental or Hospital Supply Group, is amended by changing the classes from LTL 150, TL 100, MW 12 to LTL 200, TL 125, MW 10.

A review of the known transportation characteristics indicates a density range of 2.60 to 5.26 pcf, averaging 4.07 pcf. The remaining characteristics of handling, stowability and liability reveal no negative factors. This amendment results from Subject 8, Docket 902.

Item 57770 is amended to read, "Cable, lightguide or lightwave, glass fibre, with plastic or metal sheathing, with or without one or more steel support strands, with or without necessary hardware, on reels or in boxes." There is no change in class or minimum weight.

This cable is used in the telecommunications industry. When originally produced, the cable had numerous steel support strands and other end hardware used in pulling the cable through conduct. Due to technological innovations the cable now only has one steel support strand and it may not have hardware. Therefore, the wording in item 57770 is amended to reflect these changes.

This is the result of carrier action on Docket 902, Subject 11.

Sub 2 of item 61300, naming circuit breakers or switches, is cancelled and concurrently, a new note, item 61305, is established, subject to item 61300, clarifying that the commodities may be shipped loose or in packages when they weigh each 2,000 pounds or over. These amendments are in keeping with NCC policies and guidelines with respect to tariff simplification and clarification.

These changes are the result of action on Docket 902, Subject 5.

The provisions of items 61500, 174620 and 197910, naming various corn poppers, are cancelled as obsolete, and removed from the NMEC. Items 118260, 118270 and 118280, naming various machine type corn poppers, are combined into one item in the interest of tariff simplification, with items 118260 and 118270 being cancelled with reference to item 118280. Concurrently, new item 61505 is established in the Classification to provide for a small and lightweight household corn poppers with a density range from 2.72 to 8.66 pcf, and an average density of 5.36 pcf, at class 175 LTL, 100 TL and 12 MW.

These changes are the result of action taken on Docket 902, Subject 6.



Item 69110, naming "Filters, swimming pool, tank type; or Skimmers, swimming pool; plastic, etc.," is amended to also apply on these products when made of stainless steel. In addition, the classes are amended to provide a full scale of density ratings. Concurrently, new Note, item 69111, which outlines the bumping provision, is added to the Classification.

Swimming pool filters or skimmers range in density from 2.32 to 10.51 pcf. They are packaged in fibreboard boxes which exhibit no unusual handling or stowing characteristics. With respect to liability, no unusual characteristics were indicated and their value was found to range from \$2.27 to \$3.06 per pound.

To avoid a conflict with the amended item 69110, item 121265 was amended in part to read, "Filters or Purifiers, water, tank type, NOI," with no other changes to the rest of the item. These changes are the result of action taken on Docket 902, Subject 13.

Item 102000 - See justification for item 102020.

Items 102020, 102040, 102090, 102100, 102140, 102220 102280 and 43980, providing for various poisonous insecticides, are amended by establishing class 77.5 LTL, 45 TL and 40 MW for these commodities. New item 45625 is established to provide for polychlor agricultural chemicals, namely chlorinated camphene (toxaphene) and diethyl - diphenyl - dichloroethane, at class 77.5 LTL, 45 TL and 40 MW. Items 102130 and 102240 are cancelled with reference to items 102100 and 102120. The distinction between agricultural and other than agricultural insecticides is eliminated.

While the densities of the involved poisonous insecticides range from 19.8 to 91.0 pounds per cubic foot, the density of these products -- from a classification standpoint -- is not the controlling transportation characteristic.

Handling, stowability and liability are all controlling characteristics when transporting poisonous insecticides. Some of the involved insecticides are regulated by the U.S. Department of Transportation (D.O.T.) under its hazardous materials regulations, while some of the involved products are not regulated. Handling nonregulated insecticides is similar to that of like packaged freight and, therefore, poses no unusual problems.

The following factors are a few of the problems associated with handling regulated insecticides: Motor carriers must exercise more care in handling regulated products to prevent a hazardous materials incident; motor carriers are required to fill out additional paperwork to prevent violation of the DOT's regulations; motor carriers must comply with marking and placarding requirements associated with transporting hazardous materials; and motor carriers must not coload poisonous insecticides with foodstuffs or feedstuffs.

Stowing nonregulated poisonous insecticides is comparable to that of similarly packaged freight while stowing regulated insecticides poses additional hardship. An example of this hardship is the coload prohibition of foodstuffs or feedstuffs with poisons.

Of the factors which comprise the characteristic of liability, the ability to damage other freight is extremely high in comparison to similarly packaged freight. Any leak or spill of a poisonous insecticide can and often does cause damage to other freight in the vehicle in which it is being transported. This would expose the carrier to substantial additional liability for the loss of these products.

These changes are the result of action taken on Docket 902, Subject 17.

The provisions for item 105080, clothes or sign posts are cancelled and reestablished in proper alphabetical sequence under the Iron or Steel Group as item 104880 in keeping with policies and guidelines with respect to tariff uniformity.

This change is the result of action on Docket 902, Subject 4.

Item 118250 - See justification for item 61500.

Item 118270 - See justification for item 61500.

Item 118280 - See justification for item 61500.

Item 121265 - See justification for item 69110.

Item 150650, naming computing machine paper, is amended to authorize shipment in new Package 2488. Concurrently, Package 2488 is established describing a corrugated fibreboard box testing not less than 150 pounds complying with Item 222, except that the gross weight may be increased to not exceed 55 pounds. Computing machine paper has moved successfully in this package under test shipment permit in the LTL transportation environment.

These changes are the result of action taken on Docket 902, Subject 22.

Item 158032 is amended to read, "Baths, Bathtubs, Pools, Pool Shells or Spas, therapeutic bathing; Metal, other than cast iron or other than enameled plate or sheet steel." These subs are established with distinctions based on united inches. Sub 1 applies on such units of "150 united inches or greater" and is subject to classes of 300 Any Quantity (AQ). Sub 2 applies on such units of "90 but less than 150 united inches" and is subject to classes of 125 Less Than Truckload (LTL) and 85 Truckload (TL). The minimum weight is 15,000 lbs. Sub 3 applies on such units of "Less than 90 united inches" and is subject to classes of 92.5 (LTL) and 55. The minimum weight is 24,000 lbs.

The approved classes in Sub 1 are reflective of the carriers' evaluation of the following transportation characteristics. These commodities have an average density of 2.78 pounds per cubic foot (PCF) with a range of 1.48 to 4.45 pcf. The products are shipped in crates or wrapped in fibreboard testing not less than 275 lbs. Generally handling and stowability are adversely affected by these larger units. Claims have not been found to be a problem.

The approved classes in Sub 2 are reflective of the carriers' evaluation of the following transportation characteristics. These commodities have been an average density of 6.86 pcf with a range of 4.02 to 9.94 pcf. The products are shipped in boxes, crates or wrapped in fibreboard testing not less than 275 lbs. Handling and stowability on these smaller units is not adversely impacted. Claims have not been shown to be a problem.

Finally, Sub 3 is reflective of the following transportation characteristics. The average density is 13.37 pcf with a range of 8.48 to 18.66 pcf. The products are shipped in boxes or crates and there are no unusual handling or stowability considerations. Claims have not been shown to be a problem.

This is the result of Docket 902, Subject 16.

Item 174620 - See justification for item 61500.

Item 176960, Sub 6, Liquid Fabric Softener, is amended to allow for shipment in Package 2440. Since 1986, Package 2440 has proven to be an acceptable container for the shipment of liquids which exhibit transportation characteristics similar to those of liquid fabric softener. Also, liquid fabric softener has been moving successfully under test shipment permit since February, 1988.

This change is the result of action taken on Docket 902, Subject 23.

Item 181870, naming "Tape or Wire, magnetic, other than video or sound or video recording," at classes 100 LTL and 70 TL, with a minimum weight of 30,000 pounds, is being amended by establishing two subprovisions. Sub 1 will embrace new or reconditioned tape or wire at the present classes and minimum weight. Sub 2 will embrace used tape or wire having value only for reconditioning at classes 70 LTL and 40 TL, with a minimum weight of 36,000 pounds. This results in a reduction in the classes and an increase in the minimum weight applicable to the tape or wire having value only for reconditioning from the present levels.

Information of record shows that used tape having value only for reconditioning is packaged for shipment in fibreboard boxes which are then strapped or shrink wrapped onto pallets. The pallet loads cannot be tiered for shipment. This may adversely affect stowability, as optimal utilization of vehicle cube may not be achieved. The pallet loads require the use of mechanical handling equipment, but no unusual handling problems are indicated.

As to liability, this used tape is not unusually susceptible to theft and is unlikely to damage other freight. It is not unusually prone to damage, although, to avoid crushing, heavy freight should not be loaded on top. There is no indication of a claims problem. Value per pound is approximately \$.07 or less.

The densities of the tape having value only for reconditioning are stated as being comparable to those of reconditioned tape. In this connection, the weighted average density of the reconditioned tape is 28.65 pcf.

Additionally, the description of Item 181870 is being amended in the interest of tariff clarification, by more clearly identifying the products classified in the item. As amended, the description will read, "Tape or Wire, magnetic, other than audio (sound) or video recording."

These changes are the result of action taken on Docket 901, Subject 10.

Item 190860, naming "Bicycle, Motorcycle or Tricycle: Handle Bar Grips, in barrels or boxes," is cancelled with reference to the density-based provision of items 156600 and 157320, "Plastic Articles NOI," and "Expanded Plastic Articles, NOI," respectively. This change will clarify the classification for related grips which are not for use on bicycles, motorcycles or tricycles.

Overall, handle bar grips range in density from 4.00 to 34.82 pcf, with no unusual handling, stowing or liability characteristics.

This change is the result of action taken on Docket 902, Subject 14.

Item 197910 - See justification for item 61500.

Package 2487 - See justification for item 53070.

Package 2488 - See justification for item 150650.

Respectfully submitted,

NATIONAL MOTOR FREIGHT TRAFFIC ASSOCIATION, INC.

*Martin E. Foley*

Martin E. Foley, Issuing Officer  
National Motor Freight Classification

MEE/gml

BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA

SPECIAL TARIFF DOCKET REQUEST FOR THE ADOPTION OF SUPPLEMENT 1  
TO ATA HAZARDOUS MATERIALS TARIFF 111-J

SPECIAL TARIFF DOCKET NO. 10000

The request of CALIFORNIA TRUCKING ASSOCIATION AND AMERICAN TRUCKING ASSOCIATIONS, INC., AGENT, whose post office addresses are:

CALIFORNIA TRUCKING ASSOCIATION  
1251 Beacon Boulevard  
West Sacramento, CA 95691

and

AMERICAN TRUCKING ASSOCIATIONS, INC.  
Agent  
2200 Hill Road  
Alexandria, Virginia 22314

Communications or correspondence in regard to these filings are to be addressed to:

Charles D. Gilbert  
California Trucking Association  
24301 Southland Drive, Suite 309  
Hayward, CA 94545

Respectfully shows:

I

An order is requested for the adoption of Supplement 1 to the ATA Hazardous Materials Tariff ATA 111-J Cal PUC 20 and to make such provisions applicable to the tariffs of highway common carriers and express corporations, which participate in and are listed in the HMT under authority of a power of attorney. It is further requested that such authorization be concurrent with the National effective date of May 17, 1990 and that it be granted on one day's notice; that all common carriers be authorized and directed to establish in their respective tariffs all such charges as may be prescribed and all orders made herein; that common carriers be authorized to establish such changes as may be prescribed in class and commodity rates and charges in connection with the transportation of exempt commodities; that common carriers

be authorized to depart from Sections 460 and 461.5 of the Public Utilities Code and appropriate long and short haul provisions of the Constitution of the State of California to the extent necessary to carry into effect such changes; that any related revisions in numbering, referencing or format in the various tariffs, incidental to such changes, be authorized and established, and for such other and further orders as may be deemed reasonable and proper.

II

Highway common carriers and express corporations are operating as common carriers pursuant to the authority of this Commission and in accordance with tariffs filed with this Commission, which tariffs are subject to and governed by the ATA Hazardous Materials Tariff ATA 111-J, Cal PUC 20 and supplements thereto.

III

The Hazardous Materials Tariff is periodically revised in order to remain responsive to the current conditions and needs of commerce in the transportation of hazardous materials by highway carriers. The Hazardous Materials Tariff is also periodically re-issued to minimize the difficulties which accompany excessive supplementation of tariff material.

Supplement 1, attached hereto as Exhibit A, and by this reference made a part hereof, proposes changes in the list of participating carriers and changes in the Hazardous Materials Regulations as ordered by the Department of Transportation and published in the Federal Register.

Supplement 1 to Hazardous Materials Tariff ATA 111-J with an issue date of April 16, 1990 and an effective date of May 17, 1990 also applies to tariffs covering areas other than California. The purpose of this filing is to obtain the authority necessary to make such provisions applicable to the tariffs of highway common carriers under jurisdiction of the Commission. Such authority will continue to promote national uniformity of regulations between interstate and intrastate traffic as well as between the states.

I hereby certify under penalty of perjury that the foregoing is true and correct.



---

Joel D. Anderson  
Vice President  
California Trucking Association

Dated at 1251 Beacon Boulevard  
W. Sacramento, CA 95691

This 12th day of April 1990.

EXHIBIT A

(Consists of 69 pages)

SUPPLEMENT 1

TO

ATA HAZARDOUS MATERIALS TARIFF ATA 111-J

**SUPPLEMENT 1  
TO  
ATA 111-J**

**ICC ATA 111-J  
FMC F-1-24**

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(Supplement 1 contains all changes)

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**AMERICAN TRUCKING ASSOCIATIONS,  
INC., AGENT**

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**DEPARTMENT OF TRANSPORTATION REGULATIONS**

**GOVERNING**

**TRANSPORTATION OF HAZARDOUS MATERIALS**

**BY AIR, MOTOR, RAIL AND WATER**

**INCLUDING SPECIFICATIONS FOR SHIPPING CONTAINERS**

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**ATA HAZARDOUS MATERIALS TARIFF**

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Applicable within the limits of the jurisdiction of the United States and binding upon participating carriers shown herein, and in effective supplements, and upon all shippers using these participating carriers for the transportation of hazardous materials.  
Published under authority of Federal Maritime Commission Special Permission No. 6192.

**ISSUED APRIL 16, 1990**

**EFFECTIVE MAY 17, 1990**  
(Except as otherwise provided herein)

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ISSUED BY

**MARTIN E. FOLEY, Issuing Officer**  
2200 Mill Road  
Alexandria, VA 22314

Inquiries concerning subscriptions to this publication should be addressed to the ATA Traffic Department, 2200 Mill Road, Alexandria, VA 22314 (Subscription price per copy — \$39.25).



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<b>PART 107—HAZARDOUS MATERIALS PROGRAM PROCEDURES</b>			
Appendix A, to Subpart B	revised in Supp. 1	107.502	added in Supp. 1
107 Subpart F	added in Supp. 1	107.503	added in Supp. 1
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171.7(c)(33), (d)(29)	added in Supp. 1	171.8	revised in Supp. 1
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173.249a(d)(1)	revised in Supp. 1	173.314(c)	revised in Supp. 1
173.249a(d)(3)	revised in Supp. 1	173.315(a), Note 4, Note 17, par. 5;	
173.249a(d)(6)	added in Supp. 1	(h)(4), (h)(1), (h)(5)	revised in Supp. 1
173.250a(a)(1), (a)(2)	revised in Supp. 1	173.315(a)(1) Table	revised in Supp. 1
173.250(b)	revised in Supp. 1	173.315(n), (o)	added in Supp. 1
173.252(a)(4)	revised in Supp. 1	173.318(a)(2)(a)	revised in Supp. 1
173.253(a)(6)	revised in Supp. 1	173.318(b)(2)(i)(C), (g)(3)	added in Supp. 1
173.254(a)(5)	revised in Supp. 1	173.336	corrected in Supp. 1
173.255(a)(5)	revised in Supp. 1	173.346(a)(12)	revised in Supp. 1
173.257(a)(4)	revised in Supp. 1	173.347(a)(3)	revised in Supp. 1
173.262(a)(11), (b)(4)	revised in Supp. 1	173.352(a)(5)	revised in Supp. 1
173.262(b)(1), (b)(2), (b)(3)	revised in Supp. 1	173.353a	revised in Supp. 1
173.263(a)(10)	revised in Supp. 1	173.353(e)	revised in Supp. 1
173.264(a)(14) Note 1	removed in Supp. 1	173.354, Note 1, and Footnote 1	removed in Supp. 1
173.264(a)(14), (b)(3)	revised in Supp. 1	173.354(a)(5)	revised in Supp. 1
173.264(b)(1)	revised in Supp. 1	173.358(a)(14)	revised in Supp. 1
173.265(b)(4)	revised in Supp. 1	173.359(a)(16)	revised in Supp. 1
173.266(f)(2)	revised in Supp. 1	173.369(a)(14)	revised in Supp. 1
173.267(a)(7)	revised in Supp. 1	173.373	revised in Supp. 1
173.268(b)(3)	revised in Supp. 1	173.373(a)(6)	revised in Supp. 1
173.271(a)(8)	revised in Supp. 1	173.374(a)(4)	revised in Supp. 1
173.272(f)	revised in Supp. 1	173.417(b)(1) Table 4	revised in Supp. 1
173.272(b)	reserved in Supp. 1	173.420	revised in Supp. 1
173.272(c), (d), (e), (f), (g), (h), (i)(21)	revised in Supp. 1	173.425(b)(8)	revised in Supp. 1
<b>PART 174—CARRIAGE BY RAIL</b>			
174.104(f)	corrected in Supp. 1	174.510	revised in Supp. 1
174.104(c), (d), (f)	revised in Supp. 1		
<b>PART 175—CARRIAGE BY AIRCRAFT</b>			
175.10(a)(5), (a)(7)	revised in Supp. 1	175.45(a), (b), (c)	revised in Supp. 1
175.10(a)(21)	revised in BOE-6000-1		
<b>PART 176—CARRIAGE BY VESSEL</b>			
176.11(a)	revised in Supp. 1	176.340(a)(2)	revised in Supp. 1
176.30(a)(3)(f)	added in Supp. 1	176.905(n)	revised in Supp. 1
176.76(b)	revised in Supp. 1		
<b>PART 177—CARRIAGE BY PUBLIC HIGHWAY</b>			
177.800	revised in Supp. 1	177.822(b)	revised in Supp. 1
177.801	revised in Supp. 1	177.824	revised in Supp. 1
177.802	revised in Supp. 1	177.835	revised in Supp. 1
177.814	revised in Supp. 1	177.840 heading & (f)	revised in Supp. 1
<b>PART 178—SHIPPING CONTAINER SPECIFICATIONS</b>			
178.39-5(a)	revised in Supp. 1	178.337-14(b)	revised in Supp. 1
178.51(b)	revised in Supp. 1	178.337-15	revised in Supp. 1
178.224-1 Table	revised in Supp. 1	178.337-18(a)	revised in Supp. 1
178.224-2 Table	revised in Supp. 1	178.338-3	revised in Supp. 1
178.251-7(a)	revised in Supp. 1	178.338-8(b)	revised in Supp. 1
178.320	added in Supp. 1	178.338-17	revised in Supp. 1
178.337 heading	revised in Supp. 1	178.340-8(b)	revised in Supp. 1
178.337-1(e)	revised in Supp. 1	178.340	removed in Supp. 1
178.337-2(c)	revised in Supp. 1	178.341	removed in Supp. 1
178.337-3	revised in Supp. 1	178.342	removed in Supp. 1
178.337-4(b)	revised in Supp. 1	178.343	removed in Supp. 1
178.337-6(a)	revised in Supp. 1	178.345	added in Supp. 1
178.337-8(a)(2), (b)	revised in Supp. 1	178.346	added in Supp. 1
178.337-9 heading, (a), (b), (d)(1)	revised in Supp. 1	178.347	added in Supp. 1
178.337-11	revised in Supp. 1	178.348	added in Supp. 1

**SUPPLEMENT I TO ATA III-J**

**LIST OF SECTIONS ADDED OR CHANGED IN THIS SUPPLEMENT**

*Sections in the tariff which have been amended, and new sections which have been added in this supplement, are listed below.*

SECTION	CHANGE	SECTION	CHANGE
<b>PART 179—SPECIFICATIONS FOR TANK CARS</b>			
179.14	revised in Supp. 1	179.106-2(a)	revised in Supp. 1
179.100-13(d)	revised in Supp. 1	179.106-2(b)(1), (c)(1)	revised in Supp. 1
179.100-15(c)	revised in Supp. 1	179.106-3(a), (b)(1), (c)(1)	revised in Supp. 1
179.100-23(c)	added in Supp. 1	179.106-4(a), (b)	revised in Supp. 1
179.105-1(c)(1)	revised in Supp. 1	179.200-18(b)	revised in Supp. 1
179.105-2(a)	revised in Supp. 1	179.200-18(c)	added in Supp. 1
179.105-2(b)(1)	revised in Supp. 1	179.201-1(a) Table	revised in Supp. 1
179.105-2(c)(1)	revised in Supp. 1	179.203-1(c)	revised in Supp. 1
179.105-3(a)	revised in Supp. 1	179.203-1(d)	revised in Supp. 1
179.105-6	reserved in Supp. 1	179.203-2(a)(1)	revised in Supp. 1
179.105-9	removed in Supp. 1	179.300-7(a)	revised in Supp. 1
179.106-1(c)	revised in Supp. 1		
<b>PART 180—CONTINUING QUALIFICATION AND MAINTENANCE OF PACKAGINGS</b>			
180.1	added in Supp. 1	180.407	added in Supp. 1
180.2	added in Supp. 1	180.409	added in Supp. 1
180.3	added in Supp. 1	180.411	added in Supp. 1
180.401	added in Supp. 1	180.413	added in Supp. 1
180.403	added in Supp. 1	180.415	added in Supp. 1
180.405	added in Supp. 1	180.417	added in Supp. 1

**PARTICIPATING INTERSTATE CARRIERS**

*Refer to pages 17 to 43 of tariff and as heretofore amended and add, except as noted, the following carriers as participants to this tariff under authority of powers of attorney issued to American Trucking Associations, Inc., Agent.*

Carrier "Alpha" Code	CARRIER	Certif- icate or Docket No. MC
⊙BKND	BAKER & DAUGHTERS, Bruce Baker, d/b/a, Grangeville, ID	224473
⊙BCLT	▲BULK CARRIERS COMPANY LIMITED, Mississauga, ON, CN	114939
⊙BKXC	BULK EXPRESS INCORPORATED, Hammond, IN	158495
⊙CTMK	CAPITOL MARKETING, INC., Boise, ID	218051
⊙CBEK	COBLE TRUCKING CO., A Division of Midwest Waste Disposal, Inc., Arkansas City, KS	228025
⊙CCAO	CORE CARRIER CORPORATION, Kansas City, KS	223776
⊙DTSB	DTS, Diversified Transfer & Storage, Inc., d/b/a, Billings, MT	215020
ETAN	▲EAGLE TRANSPORTATION, Kip Gardner, Inc., d/b/a, Blackfoot, ID	207427
⊙EKTT	ECKART TRUCKING, INC., Miles City, MT	226179
⊙FBLG	FABRIQUE, BILL, TRUCKING, William Fabrique, d/b/a, Lewiston, ID	223948
⊙FNOC	FETCH 'N' CARRY TRUCKING, Robert G. or Joan M. Derrick, d/b/a, Pollock, ID	223713
GARO	▲GARDEN CITY TRANSPORTATION, INC., Hayward, CA	144447
⊙GENN	GENPRO, INC., Matawan, NJ	219754
⊙HMMN	HAMMON SERVICES CORPORATION, Idaho Falls, ID	226759
⊙INTP	INTERNATIONAL TRANSPORT, INC., Rochester, MN	113855
⊙LTRB	LEITCH, ROBERT, Robert and Colleen Leitch, d/b/a, Buhi, ID	224697
⊙LPPR	LIPPERT HEAVY EQUIPMENT, Stefani C. Lippert and Norman E. Lippert, d/b/a, Sandpoint, ID	225597
⊙MNAT	MINATTA TRANSPORTATION COMPANY, Colton, CA	138837
⊙MYEA	MYERS TRANSPORTATION, INC., Stockbridge, GA	175630
⊙NMMS	NICHOLAS MOVING & STORAGE, INC., Pocatello, ID	129319
⊙PRGO	PUREGRO COMPANY, Pasco, WA	223784
⊙RVIG	R VI TRUCKING CO., INC., Billings, MT	225966
RIAF	▲RENTON ISSAQUAH FREIGHTLINES, INC., Renton, WA	41522
RIMS	ARIMES, GEORGE, TRUCKING COMPANY, INC., Chardon, OH	153525
⊙SSYC	SCHNEIDER SPECIALIZED CARRIERS, INC., Rochester, MN	113855
⊙SKFS	SKYWAY FREIGHT SYSTEMS, INC., Santa Cruz, CA	176906
⊙VBCG	VAN BAREN CARTAGE, INC., Lynwood, IL	194132
⊙WYHI	WHITELEY DISTRIBUTING, INC., Moscow, ID	227779

SUPPLEMENT I TO ATA (111-J)

**PARTICIPATING INTERSTATE CONTRACT CARRIERS**

*Refer to pages 49 to 45 of tariff and as heretofore amended and add, except as noted, the following contract carriers as participants to this tariff under authority of powers of attorney issued to American Trucking Associations, Inc., Agent.*

@Carrier "Alpha" Code	CARRIER	Certif- icate or Docket No. MC
①INTP	INTERNATIONAL TRANSPORT, INC., Rochester, MN.....	113855
SSYC	SCHNEIDER SPECIALIZED CARRIERS, INC., Rochester, MN .....	113855

**PARTICIPATING INTRASTATE CARRIERS**

*Refer to pages 45 to 114 of tariff and as heretofore amended and add, except as noted, the following carriers as intrastate participants to this tariff under authority of powers of attorney issued to American Trucking Associations, Inc., Agent, and lawfully on file with the state commission concerned. (Departure from the terms of State Commission regulations to the extent necessary to not publish power of attorney numbers has been authorized by the state commission.)*

@Carrier "Alpha" Code	CALIFORNIA CARRIERS (Operating under jurisdiction of California Public Utilities Commission)
BNAP	BUELNA, PAUL, TRUCKING, Santa Rosa, CA
FCRL	FLEET-CAR CARRIERS, Fleet-Car Lease, Inc., d/b/a, Brighton, CO
FOSM	▲FOSTER-GARDNER, INC., Coachella, CA
GAR0	▲GARDEN CITY TRANSPORTATION, INC., Hayward, CA
GCMT	GCM TRUCK LINES, George C. Mansur, d/b/a, Union City, CA
①GMCL	GMO TRUCK LINES, George C. Mansur, d/b/a, Union City, CA
GSFO	GOLDEN STATE FAST FREIGHT, Lakewood, CA
①INTP	INTERNATIONAL TRANSPORT, INC., Rochester, MN
PWEE	POWELL ENTERPRISES, Kay Ward Powell, Sr., d/b/a, Tracy, CA
SSYC	SCHNEIDER SPECIALIZED CARRIERS, INC., Rochester, MN
TZTP	TRAILBLAZER TRANSPORTATION, INC., Carrollton, TX
WSNP	WESTERN REFRIGERATED TRANSPORT, Alec Albert Stein, d/b/a, San Jose, CA

**COLORADO CARRIERS**

(Operating under jurisdiction of Public Utilities Commission of Colorado)

①CMAA	CMA DELIVERY SERVICE, Charles M. Ask, d/b/a, Denver, CO
CFCM	COLORADO REFINING COMPANY, Denver, CO
PBFR	PINE BLUFFS FEED & GRAIN TRUCKING, INC., Pine Bluffs, WY
VWCO	VANASK WAREHOUSE CO., Ambry, Inc., d/b/a, Denver, CO
VARA	VARRA COMPANIES, INC., Broomfield, CO
WRDD	WARD, DON, & CO., Don Ward, Inc., d/b/a, Denver, CO

**ILLINOIS CARRIERS**

(Operating under jurisdiction of Illinois Commerce Commission)

BKXC	BULK EXPRESS INCORPORATED, Hammond, IN
BTHB	▲BURNS TRUCK SERVICE, INC., Belleville, IL
COCH	▲CONQUEST CARRIERS, INC., Eureka, IL
LHNT	▲LEHN TRUCKING, INC., Decatur, IL
MTUI	▲MATHESUS, LESLIE K., Earlville, IL
MDFR	▲MCLEOD FARMS, INC., Assumption, IL
MFAR	MEAD FARMS, Thomas E. Mead and John E. Mead, d/b/a, Amboy, IL
①MYEM	MYERS MOTOR SERVICE, Jeff M. Myers, d/b/a, Sublette, IL
①OMHT	OMH TRUCKING COMPANY, Hammond, IN
PREB	▲PRESNELL BROS., INC., Pana, IL
RNK0	▲RINKER, GARY, TRUCKING, INC., Grand Ridge, IL
SOHS	SCOTT'S DELIVERY SERVICE, Terry L. Scott, d/b/a, Decatur, IL
SIIN	SMITH, RON, CHEMICAL LINES, INC., Arcola, IL
SPXJ	SPARTAN EXPRESS, INC., Greer, SC
USMD	U.S. MESSENGER & DELIVERY SERVICE, INC., Chicago, IL
VITI	VIA, TOM, TRUCKING, INC., Marion, IL

**PARTICIPATING INTRASTATE CARRIERS — Continued**

Carrier  
"Alpha"  
Code

**INDIANA CARRIERS**

(Operating under jurisdiction of Indiana Department of Revenue)

G NRM G & R TRANSPORT, Brunk Corp., d/b/a, Goshen, IN  
I NKT INTANK TRUCKING, INC., LaGrange, IL

**MISSOURI CARRIERS**

(Operating under jurisdiction of Missouri Division of Transportation)

V G T N V. G. TANK LINES, INC., Schererville, IN

**OHIO CARRIERS**

(Operating under jurisdiction of Public Utilities Commission of Ohio)

R I M S ARIMES, GEORGE, TRUCKING COMPANY, INC., Chardon, OH

**PENNSYLVANIA CARRIERS**

(Operating under jurisdiction of Pennsylvania Public Utility Commission)

G O O I GRUNSTRA, D & D, INC., Allentown, PA  
R N F W RENFREW, R. D., INC., Lémartine, PA  
Z B C A ZUBER, CHARLES A., INC., Fleetwood, PA

**WASHINGTON CARRIERS**

(Operating under jurisdiction of Washington Utilities and Transportation Commission)

R I A F ARENTON ISSAQUAH FREIGHTLINES, INC., Renton, WA

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## PART 107—HAZARDOUS MATERIALS PROGRAM PROCEDURES

### Appendix to Subpart B of Part 107

The title of the contact, name of the office, and daytime telephone number for "Motor Carriers" is changed to read: "Chief, Hazardous Materials Division, Office of Motor Carrier Field Operations, Federal Highway Administration, Department of Transportation, Washington, DC 20590. Day (202) 366-4415 and Night (202) 267-2100."

The Table of Contents of Part 107 is amended by adding a new Subpart F consisting of § 107.501, 107.502, 107.503, and 107.504 to read as follows:

### Subpart F—Registration of Cargo Tank and Cargo Tank Motor Vehicle Manufacturers and Repairers and Cargo Tank Motor Vehicle Assemblers

Sec.	
107.501	Scope.
107.502	General registration requirements.
107.503	Registration statement.
107.504	Period of Registration, updates, and record retention.

A new Subpart F is added to read as follows:

### Subpart F—Registration of Cargo Tank and Cargo Tank Motor Vehicle Manufacturers and Repairers and Cargo Tank Motor Vehicle Assemblers

**§ 107.501 Scope.** This subpart establishes registration procedures for persons who are engaged in the manufacture, certification, inspection or repair of a cargo tank or a cargo tank motor vehicle manufactured in accordance with a DOT specification under subchapter C of this chapter or under the terms of an exemption issued under this part.

**§ 107.502 General registration requirements.** (a) No person may engage in the manufacture, assembly, certification, inspection or repair of a cargo tank or cargo tank motor vehicle manufactured under the terms of a DOT specification under subchapter C of this chapter or an exemption issued under this part unless the person is registered with the Department in accordance with the provisions of this subpart. A person employed as an inspector or design certifying engineer is considered to be registered if the person's employer is registered.

(b) A person who performs functions which are subject to the provisions of this subpart may perform only those functions which have been identified to the Department in accordance with the procedures of this subpart.

(c) Registration statements must be in English, contain all of the information required by this subpart, and be submitted to: Approvals Branch, Office of Hazardous Materials Transportation, Attn: DHM-32, Research and Special Programs Administration, Department of Transportation, Washington, DC 20590.

(d) Upon determination that a registration statement contains all the information required by this subpart, the Department will send the registrant a letter confirming receipt of the registration application and assigning a registration number to that person. A separate registration number will be assigned for each cargo tank manufacturing, assembly, repair facility or other place of business identified by the registrant.

(e) **Definitions.** Definitions for the terms "Authorized Inspector," "cargo tank," "cargo tank motor vehicle," "design certifying engineer," "person," and "Registered Inspector" are set forth in § 171.8 of this chapter. Definitions for the terms "design type" and "manufacturer" are set forth in § 178.320, and the term "repair" in § 180.403 of this chapter.

**§ 107.503 Registration statement.** (a) Each registration statement must contain the following:

(1) Name;  
(2) Street address, mailing address and telephone number for each facility or place of business;

(3) A statement signed by the person responsible for compliance with the applicable requirements of this chapter, certifying knowledge of those requirements and that each employee who is an inspector or design certifying engineer meets the minimal qualification requirements set forth in § 171.8 of this chapter for "registered inspector" or "design certifying engineer", respectively. For an organization, the certification must be signed by an official;

(4) A description of the specific functions to be performed, e.g., manufacture or repair of cargo tanks, assembly of cargo tanks to cargo tank motor vehicles, inspection and testing, design or cargo tank certification, etc. For inspection and testing, identify the specific types of inspections and tests;

(5) An identification of the types of DOT specification and exemption cargo tanks or cargo tank motor vehicles which the registrant intends to manufacture, assemble, repair, inspect, test or certify;

(6) A statement indicating whether the registrant employs inspectors or design certifying engineers to conduct certification, inspection or testing functions addressed by this subpart. If a disinterested party is used, the name, address and registration number of that party; and

(7) If the registrant is not a resident of the United States, the name and address of a permanent resident of the United States designated in accordance with § 107.7 to serve as agent for service of process.

(b) In addition to the information required under paragraph (a) of this section, each person who manufactures or assembles a cargo tank or cargo tank motor vehicle must submit a copy of the manufacturer's current ASME Certificate of Authorization for the use of the ASME "U" stamp. This requirement does not apply to an assembler who performs no welding on a cargo tank wall.

(c) In addition to the information required under paragraph (a) of this section, each person who repairs a cargo tank or cargo tank motor vehicle must submit a copy of the repair facility's current National Board Certificate of Authorization for the use of the "R" stamp or ASME Certificate of Authorization for the use of the ASME "U" stamp.

**§ 107.504 Period of registration, updates, and record retention.** (a) Registration will be for a maximum of three years from the date of the original submission.

(b) Any correspondence with the Department must contain the registrant's name and registration number.

(c) A registration must be renewed every three years or within thirty days of reissuance of an ASME or National Board Certification, whichever occurs first, by submitting an up-to-date registration statement containing the information prescribed by § 107.503.

(d) A registrant shall provide written notification to the Department within thirty days of any of the following occurrences:

(1) Any change in the registration information submitted under § 107.503;

(2) Replacement of the person responsible for compliance with the requirements in § 107.503(a)(3). If this occurs, the registrant shall resubmit the required certification;

(3) Loss of ASME or National Board Certificate of Authorization; or  
(4) A change in function, such as, from assembly to manufacture, an addition of a function, or a change to the types of inspections, tests, or certifications of cargo tanks or cargo tank motor vehicles.

(e) Each registrant shall maintain a current copy of the registration information submitted to the Department and a current copy of the registration number identification received from the Department at the location identified in § 107.503(a)(2) during such time the person is registered with the Department and for two years thereafter.

## PART 171—GENERAL INFORMATION, REGULATIONS, AND DEFINITIONS

In § 171.2, paragraph (e) is added to read as follows:

### § 171.2 General requirements.

(e) When a person performs a function covered by or having an effect on a specification prescribed in Part 178, 179 or 180 of this subchapter, an approval issued under this subchapter, or an exemption issued under Subpart B of this chapter, that person must perform the function in accordance with that specification, approval, or exemption, as appropriate.

**§ 171.3 (Amended)**  
In paragraph (b)(1) of § 171.3, the citation "§ 397.21" is changed to read "§ 390.21".

In § 171.7, paragraphs (c)(33) and (d)(29) are added to read as follows:

### § 171.7 Matter incorporated by reference.

(c) (33) APA: American Pyrotechnics Association, P.O. Box 213, Chestertown, Maryland 21620.

(d) \*\*\*  
 (29) APA Standard 87-1 is titled, "Standard for Construction and Approval for Transportation of Fireworks and Novelties", September 1987 edition.

\*\*\*  
 In § 171.7, paragraphs (c)(33), (c)(34), (d)(29) and (d)(30) are added to read as follows:

§ 171.7 Matter incorporated by reference.

\*\*\*  
 (c) \*\*\*  
 (33) TTMA: Truck Trailer Manufacturers Association, 1020 Princess Street, Alexandria, Virginia 22314.

(34) National Board: National Board of Boiler and Pressure Vessel Inspectors, 1055 Crupper Avenue, Columbus, Ohio 43229.

(d) \*\*\*  
 (29) National Board Inspection Code is titled "National Board Inspection Code, A Manual for Boiler and Pressure Vessel Inspectors" NB-23, Rev. 4, 1983 edition.

(30) Truck Trailer Manufacturers Association:  
 (i) TTMA RP No. 81 is titled "Performance of Spring Loaded Pressure Relief Valves on MC 306, MC 307, and MC 312 Tanks," May 24, 1969 edition.  
 (ii) TTMA TB No. 107 is titled "Procedure for Testing Inservice, Unmarked, and/or Uncertified MC 306 Type Cargo Tank Manhole Covers," May 24, 1989 edition.

\*\*\*  
 In § 171.7, paragraph (d)(31) is added, and paragraphs (c)(4), (c)(5), (c)(19), (d)(2), (d)(7)(iv), and (d)(17) are revised to read as follows:

§ 171.7 Matter incorporated by reference.

\*\*\*  
 (c) \*\*\*  
 (4) Bureau of Explosives: Hazardous Materials Systems (Bureau of Explosives) Association of American Railroads, American Railroads Building, 50 F Street, NW, Washington, DC 20001.  
 (5) AAR: Association of American Railroads, American Railroads Building, 50 F Street NW, Washington, DC 20001.

\*\*\*  
 (19) TFI: The Fertilizer Institute, 501 Second Street NE., Washington, DC, 20002.

\*\*\*  
 (d) \*\*\*  
 (2) AAR's publication, "Specifications for Tank Cars", Specification M-1002, 1988 edition.

(7) \*\*\*  
 (iv) Bureau of Explosives publication, "Emergency Handling of Hazardous Materials in Surface Transportation", dated February 1987.

\*\*\*  
 (17) International Maritime Organization's publication, "International Maritime Dangerous Goods Code" (IMDG Code), 1988 Consolidated Edition.

\*\*\*  
 (31) The Fertilizer Institute's publication, "Definition and Test Procedures for Ammonium Nitrate Fertilizer", dated August 1984.

\*\*\*  
 In § 171.7(d)(4), a new paragraph (iv) is added to read as follows:

§ 171.7 Matter incorporated by reference.

\*\*\*  
 (d) \*\*\*  
 (iv) For purposes of § 173.420(a)(2) of this subchapter, previous editions of American National Standard N14.1 which are also incorporated are titled "Standard for Packaging of Uranium Hexafluoride for Transport," 1971 and 1982 editions.

\*\*\*  
 In § 171.8, the definition of "cargo tank" is revised and definitions for "Authorized Inspector," "Authorized Inspection Agency," "Cargo tank motor vehicle," "Design certifying engineer," "Maximum Allowable Working Pressure or MAWP," and "Registered Inspector" are added in alphabetical sequence to read as follows:

§ 171.8 Definitions and abbreviations.

\*\*\*  
 "Authorized Inspector" means an Inspector who is currently commissioned by the National Board of Boiler and Pressure Vessel Inspectors and employed as an Inspector by an Authorized Inspection Agency.

"Authorized Inspection Agency" means: (1) A jurisdiction which has adopted and administers one or more sections of the ASME Boiler and Pressure Vessel Code as a legal requirement and has a representative serving as a member of the ASME Conference Committee; or (2) an insurance company which has been licensed or registered by the appropriate authority of a State of the United States or a Province of Canada to underwrite boiler and pressure vessel insurance in such State or Province.

\*\*\*  
 "Cargo tank" means a bulk packaging which—(1) is a tank (including the appurtenances, reinforcements, fittings and closures) intended for the carriage of liquids or gases (For "tank", see §§ 178.345-1(c), 178.337-1, or 178.338-1), as applicable;

(2) is permanently attached to or forms a part of a motor vehicle, or is not permanently attached to a motor vehicle but which by reason of its size, construction or attachment to a motor vehicle is loaded or unloaded without being removed from the motor vehicle; and

(3) is not fabricated under a specification for cylinders, portable tanks, tank cars or multi-unit tank car tanks.

\*\*\*  
 "Cargo tank motor vehicle" means a motor vehicle with one or more cargo tanks permanently attached to or forming an integral part of the motor vehicle.

\*\*\*  
 "Design certifying engineer" means a person registered with the Department in accordance with Part 107, Subpart F of this chapter who is an Authorized Inspector and has the knowledge and ability to determine if a cargo tank design meets the applicable DOT specification, or a person other than an Authorized Inspector who has this ability, at least one year of work experience in structural or mechanical design and an engineering degree (such as a professional engineer registered by the appropriate authority of a State of the United States or a Province of Canada).

\*\*\*  
 "Maximum Allowable Working Pressure" or "MAWP" For DOT specification cargo tanks used to transport liquid hazardous materials, see § 178.345-1(k).

\*\*\*  
 "Registered Inspector" means a person registered with the Department in accordance with Part 107, Subpart F of this chapter who is an Authorized Inspector who has the knowledge and ability to determine if a cargo tank conforms with the applicable DOT specification, or a person other than an Authorized Inspector who has this ability and, at a minimum, the following work experience, in cargo tank construction or repair, and education: one year of work experience and an engineering degree, two years of work experience and an associate degree in engineering, or three years of work experience and a high school diploma.

§ 171.8 [Amended]  
 In the entry for "Organic Peroxide" in § 171.8, the cite "§ 173.151" is changed to read "§ 173.151a".

\*\*\*  
 In § 171.8 the definition for "Atmospheric gases" is revised to read as follows:

§ 171.8 Definitions and abbreviations.

\*\*\*  
 "Atmospheric gases" means air, nitrogen, oxygen, argon, krypton, neon and xenon.

§ 171.8 [Amended]  
 In § 171.8, the definition of "technical name" is revised to read as follows:

§ 171.8 Definitions and abbreviations.

\*\*\*  
 "Technical name" means the scientific designation of a chemical in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS) rules of nomenclature, or a name currently recognized in the Registry of Toxic Effects of Chemical Substances (RTECS). The term does not include trade names.



In § 171.8, for the definition of "Hazardous substance", the introductory text in paragraph (3) preceding the table is revised to read as follows:

§ 171.8 Definitions and abbreviations.

\*\*\*  
"Hazardous substances"

- \*\*\*  
(3) When in a mixture or solution—  
(i) For radionuclides, conforms to paragraph 6 of the Appendix to § 172.101.  
(ii) For other than radionuclides, is in a concentration by weight which equals or exceeds the concentration corresponding to the RQ of the material, as shown in the following table:

\*\*\*  
In § 171.8, a definition for "EX number" is added, in alphabetical sequence, to read as follows:

§ 171.8 Definitions and abbreviations.

\*\*\*  
EX number means a number, preceded by the prefix "EX-" which is assigned by the Director, OHTM, to identify a new explosive.

\*\*\*  
In § 171.11, a new paragraph (d)(10) is added to read as follows:

§ 171.11 Use of ICAO Technical Instructions.

- (d) \*\*\*  
(10) Shipments of hazardous materials under this section must conform to the requirements for emergency response information as prescribed in Subpart G of Part 172 of this subchapter.

\*\*\*  
In § 171.12, in paragraph (b), the words "in addition—" are added to the end of the current paragraph, new paragraphs (b)(1) and (b)(2) are added, and paragraph (d), is revised to read as follows:

§ 171.12 Import and export shipments.

- \*\*\*  
(b) \*\*\* In addition—  
(1) An appropriate shipping name specified for a material in § 172.102 of this subchapter may be substituted for its proper shipping name in § 172.101 of this subchapter (subject to the conditions and limitations of this paragraph and § 172.102 of this subchapter) if all or a portion of the transportation of the material is by vessel; and  
(2) A hazardous material may be stowed and segregated in freight containers in conformance with the IMDG Code, when transported by motor vehicle or rail car, if a portion of the transportation of the material is by vessel.

\*\*\*  
(d) Section 171.2 notwithstanding, a hazardous material (other than Class A or B explosives or radioactive materials) being imported into or exported from the United States or passing through the United States in the course of being shipped between places outside the United States may be offered and accepted for transportation and transported by motor vehicle within a single port area (including contiguous harbors) when packaged, marked, classed, labeled, stowed and segregated in accordance with the IMDG Code, if the hazardous material is offered and accepted in accordance with the requirements of Subparts C and F of part 172 of this subchapter pertaining to shipping papers and placarding (See § 178.11 of this subchapter for exceptions applicable to vessels.)

\*\*\*  
In § 171.12a, a new paragraph (a)(7) is added to read as follows:

§ 171.12a Canadian shipments and packagings.

- (a) \*\*\*  
(7) Shipments of hazardous materials subject to the requirements of this section must conform to the requirements for emergency response information as prescribed in Subpart G of Part 172 of this subchapter.

\*\*\*  
In § 171.15, paragraph (a) is revised to read as follows:

- § 171.15 Immediate notice of certain hazardous materials incidents. (a) At the earliest practicable moment, each carrier who transports hazardous materials (including hazardous wastes) shall give notice in accordance with paragraph (b) of this section after each incident that occurs during the course of transportation (including loading, unloading and temporary storage) in which—  
(1) As a direct result of hazardous materials—  
(i) A person is killed; or  
(ii) A person receives injuries; requiring his or her hospitalization; or  
(iii) Estimated carrier or other property damage exceeds \$50,000; or  
(iv) An evacuation of the general public occurs lasting one or more hours; or  
(v) One or more major transportation arteries or facilities are closed or shut down for one hour or more; or  
(vi) The operational flight pattern or routine of an aircraft is altered; or  
(2) Fire, breakage, spillage, or suspected radioactive contamination occurs involving shipment of radioactive material (see also §§ 174.45, 175.45, 176.48, and 177.807 of this subchapter); or  
(3) Fire, breakage, spillage, or suspected contamination occurs involving shipment of etiologic agents; or  
(4) A situation exists of such a nature (e.g., a continuing danger to life exists at the scene of the incident) that, in the judgment of the carrier, it should be reported to the Department even though it does not meet the criteria of paragraph (a)(1), (2) or (3) of this section.

\*\*\*  
In § 171.16, paragraphs (a) and (b) are revised, and a "Note" is added at the end of the section to read as follows:

- § 171.16 Detailed hazardous materials incident reports. (a) Each carrier who transports hazardous materials shall report in writing, in duplicate, on DOT Form F 5800.1 (Rev. 6-89) to the Department within 30 days of the date of discovery, each incident that occurs during the course of transportation (including loading, unloading, and temporary storage) in which any of the circumstances set forth in § 171.15(a) occurs or there has been an unintentional release of hazardous materials from a package (including a tank) or any quantity of hazardous waste has been discharged during transportation. If a report pertains to a hazardous waste discharge:  
(1) A copy of the hazardous waste manifest for the waste must be attached to the report; and  
(2) An estimate of the quantity of the waste removed from the scene, the name and address of the facility to which it was taken, and the manner of disposition of any removed waste must be entered in Section IX of the report form (Form F 5800.1) (Rev. 6-89).  
(b) Each carrier making a report under this section shall send the report to the Information Systems Manager, DHM-63, Research and Special Programs Administration, Department of Transportation, Washington, DC 20590; a copy of the report shall be retained, for a period of two years, at the carrier's principal place of business, or at other places as authorized and approved in writing by an agency of the Department of Transportation.

\*\*\*  
Note: A guideline document for assisting in the completion of DOT Form F 5800.1 (Rev. 6-89) may be obtained from the Office of Hazardous Materials Transportation, DHM-51, U.S. Department of Transportation, Washington, DC 20590.

\*\*\*  
In Part 171, a new § 171.21 is added to read as follows:

- § 171.21 Assistance in investigations and special studies. (a) A carrier who is responsible for reporting an incident under the provisions of § 171.16 shall make all records and information pertaining to the incident available to an authorized representative or special agent of the Department of Transportation upon request. The carrier shall give an authorized representative or special agent of the Department of Transportation reasonable assistance in the investigation of the incident.  
(b) If the Department of Transportation makes an inquiry to a carrier of hazardous materials in connection with a study of incidents, the carrier shall—  
(1) Respond to the inquiry within 30 days after its receipt or within such other time as the inquiry may specify; and  
(2) Provide full, true, and correct answers to any questions included in the inquiry.

The heading of Part 172 is revised to read as follows:

**PART 172—HAZARDOUS MATERIALS TABLES, HAZARDOUS MATERIALS COMMUNICATIONS REQUIREMENTS AND EMERGENCY RESPONSE INFORMATION REQUIREMENTS**

In § 172.101, the Hazardous Materials Table is amended by revising, in appropriate alphabetical sequence, the entries listed below:

§ 172.101 Hazardous Materials Table

(1) A W	(2) Hazardous materials descriptions and proper shipping names	(3) Hazard class	(3A) Identification number	(4) Label(s) required (if not excepted)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
					(a) Exceptions	(b) Specific requirements	(a) Passenger-carrying aircraft or roller	(b) Cargo aircraft only	(4) Cargo vessel	(5) Passenger vessel	(6) Other requirements
	REVISED Ethyl phenyl dichlorostilbene	Corrosive material	UN2435	Corrosive	None	173 280	Forbidden	10 gallons	1	5	
	Ethyl phosphonothioic dichloride, anhydrous	Corrosive material	NA1760	Corrosive	173 244	173 245 173 245a	1 quart	1 quart	1	4	
	Isopropyl mercaptan	Flammable liquid	NA2402	Flammable liquid	None	173 141	Forbidden	10 gallons	1.3	5	
	mono-(trichloro) tetra-(monopotassium dichloro) penta-s-triazinetrione, dry (containing over 30% available chlorine)	Oxidizer	NA2468	Oxidizer	173 153	173 217	50 pounds	100 pounds	1.3	1.3	
	Poisonous liquid or gas, flammable, A.B.S.	Poison A	NA1953	Poison gas and flammable gas	None	173 328	Forbidden	Forbidden	1	5	Segregation same as for flammable gas.
	Propyl mercaptan	Flammable liquid	NA2402	Flammable liquid	None	173 141	Forbidden	10 gallons	1.2	5	
	Sulfur, molten	ORM-C	NA2448	None	173 505	173 1080	Forbidden	Forbidden	1	1	Store away from oxidizers and living quarters
	REVISE Thinner for rust prevention. See Part 172.101 materials.										
	REMOVE Empty cartridge cases, primed	Class C explosive		Explosive C	None	173 107	50 pounds	150 pounds	1.3	1.3	
	Tetraethylammonium perchlorate (dry)	Forbidden									
A	ADO 1,1-Difluoroethylene (R-1132A)	Flammable gas	UN1958	Flammable gas	173 306	173 304	Forbidden	300 pounds	1.2	5	Store away from living quarters
	Life-saving appliances, self-inflating	ORM-C	UN2990	None	None	173 306	1 per inaccessible cargo compartment	No limit	1.2	1.2	
	Perchloroethylene See Tetrachloroethylene.		NA1897								
	Tetraethylammonium perchlorate (dry)	Flammable solid	UN1325	Flammable solid	173 153	173 154	25 pounds	25 pounds	1.2	1.2	

In the appendix to § 172.101, the table heading "LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES" is revised to read "TABLE 1—HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES".

In the appendix to § 172.101, in newly designated Table 1, the Reportable Quantity (RQ) entry for "RADIONUCLIDES" is revised to read "see TABLE 2".

In the appendix to § 172.101, following the newly designated "TABLE 1—HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES" a new table, entitled "TABLE 2—RADIONUCLIDES", is added to read as follows:

**Appendix to § 172.101—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES**

1. This Appendix lists materials and their corresponding reportable quantities (RQs) which are listed or designated as "hazardous substances" under section 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA; Pub. L. 96-510). This Appendix is divided into 2 TABLES which are entitled "TABLE 1—HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES" and "TABLE 2—RADIONUCLIDES". A material listed in this Appendix is regulated as a hazardous material and a hazardous substance under this subchapter if it meets the definition of a hazardous substance in § 171.8 of this subchapter.

2. The procedure for selecting a proper shipping name for a hazardous substance is set forth in § 172.101(c)(9).

3. Column 1 of TABLE 1, entitled "Hazardous substance", contains the names of those elements and compounds which are hazardous substances. Following the listing of elements and compounds is a listing of waste streams. These waste streams appear on the list in numerical sequence and are referenced by the appropriate "F" or "K" numbers. Column 2 of TABLE 1, entitled "Synonyms", contains the names of synonyms for certain elements and compounds listed in Column 1. No synonyms are listed for waste streams. Synonyms are useful in identifying hazardous substances and in identifying proper shipping names. Column 3 of TABLE 1, entitled "Reportable quantity (RQ)", contains the reportable quantity (RQ), in pounds and kilograms, for each hazardous substance listed in Column 1 of TABLE 1.

4. A series of notes is used throughout TABLE 1 and TABLE 2 to provide additional information concerning certain hazardous substances. These notes are explained at the end of each TABLE.

5. TABLE 2 lists radionuclides which are hazardous substances and their corresponding RQs. The RQs in Table 2 for radionuclides are expressed in units of curies and terabecquerels, whereas those in Table 1 are expressed in units of pounds. If a material is listed in both Table 1 and Table 2, the lowest RQ shall apply. Radionuclides are listed in alphabetical order. The RQs for radionuclides are given in the radiological unit of measure of curie, abbreviated, "Ci", followed, in parentheses, by an equivalent unit measured in terabecquerels, abbreviated "TBq".

6. For mixtures of radionuclides, the following determinations shall be used in determining if a package contains an RQ of a hazardous substance: (i) if the identity and quantity (in curies or terabecquerels) of each radionuclide in a mixture or solution is known, the ratio between the quantity per package (in curies or terabecquerels) and the RQ for the radionuclide must be determined for each radionuclide. A package contains an RQ of a hazardous substance when the sum of the ratios for the radionuclides in the mixture or solution is equal to or greater than one; (ii) if the identity of each radionuclide in a mixture or solution is known but the quantity per package (in curies or terabecquerels) of one or more of the radionuclides is unknown, an RQ of a hazardous substance is present in a package when the total quantity (in curies or terabecquerels) of the mixture or solution is equal to or greater than the lowest RQ of any individual radionuclide in the mixture or solution; and (iii) if the identity of one or more radionuclides in a mixture or solution is unknown (or if the identity of a radionuclide by itself is unknown), an RQ of a hazardous substance is present when the total quantity (in curies or terabecquerels) in a package is equal to or greater than either one curie or the lowest RQ of any known individual radionuclide in the mixture or solution, whichever is lower.

TABLE 1—HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES

Hazardous Substance	Synonyms	Reportable Quantity (RQ) Pounds (Kilograms)
Acephenone		100 (45.4)
Acephenone		5000 (2270)
Acetaldehyde	Ethanal	1000 (454)
Acetaldehyde, chloro	Chloroacetaldehyde	1000 (454)
Acetaldehyde, iodo	Iodoacetaldehyde	5000 (2270)
Acetamide, N-(aminobenzoyl)	Acetanilide	1000 (454)
Acetamide, N-(4-ethoxyphenyl)	Phenacetin	100 (45.4)
Acetamide, N-fluorenyl	2-Acetylfluorene	1 (0.454)
Acetamide, 2-fluoro	Fluoroacetamide	100 (45.4)
Acetic acid		5000 (2270)
Acetic acid, ethyl ester	Ethyl acetate	5000 (2270)
Acetic acid, fluoro, sodium salt	Fluoroacetic acid, sodium salt	10 (4.54)
Acetic acid, lead salt	Lead acetate	5000 (2270)
Acetic acid, thallium salt	Thallium acetate	100 (45.4)
Acetic anhydride		5000 (2270)
Acetoacetic acid, N-(methylcarbamoyl)oxy-methyl ester	Methylol	100 (45.4)
Acetone	2-Propanone	5000 (2270)
Acetone cyanohydrin	Propanenitrile, 2-hydroxy-2-methyl	10 (4.54)
	2-Methylcyanohydrin	
Acetonitrile	Ethanenitrile	5000 (2270)
3-(alpha-Acetoxybenzyl)-4-hydroxycoumarin and salts	Warfarin	100 (45.4)
Acetophenone	Ethanone, 1-phenyl	5000 (2270)
2-Acetylfluorene	Acetanilide, N-fluorenyl	1 (0.454)
Acetyl bromide		5000 (2270)
Acetyl chloride	Ethanyl chloride	5000 (2270)
1-Acetyl-2-fluorene	Acetamide, N-(aminobenzoyl)	1000 (454)
Acrylonitrile	2-Propenal	1 (0.454)
Arylamide	2-Propenamide	5000 (2270)
Arylic acid	2-Propenoic acid	5000 (2270)
Arylonitrile	2-Propenenitrile	100 (45.4)
Aspic acid		5000 (2270)
Aniline, 3-[p-bis(2-chloroethyl)amino]phenyl, 1-	Melphalan	1 (0.454)
Adca 5	Propanal, 2-methyl-2-(methylthio)-	1 (0.454)
	O-[(methylamino)carbonyl]ouine	
Adin	1,2,3,4,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4,5,8-endo-tetra-methanonaphthalene	1 (0.454)
	2-Propen-1-ol	100 (45.4)
Allyl alcohol		1000 (454)
Allyl chloride		100 (45.4)
Aluminum phosphide		100 (45.4)
Aluminum sulfate		5000 (2270)
2-Amino-1-methyl benzene	o-Toluidine	100 (45.4)
4-Amino-1-methyl benzene	p-Toluidine	100 (45.4)
5-(Aminomethyl)-3-isoxazolol	3-(2H)-Iscazalone, 5-(aminomethyl)-	1000 (454)
4-Aminopyridine	4-Pyridinamine	1000 (454)
Anzole	1H-1,2,4-Triazol-3-amine	10 (4.54)
Ammonia		100 (45.4)
Ammonium acetate		5000 (2270)
Ammonium benzoate		5000 (2270)
Ammonium bicarbonate		5000 (2270)
Ammonium bichromate	Ammonium dichromate (6)	10 (4.54)
Ammonium bifluoride		100 (45.4)
Ammonium bisulfite		5000 (2270)
Ammonium carbamate		5000 (2270)

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TABLE 1—HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES—Continued

Hazardous Substance	Synonyms	Reportable Quantity (RQ) Pounds (Kilograms)
Ammonium carbonate *		5000 (2270)
Ammonium chloride		5000 (2270)
Ammonium chromate		10 (4.54)
Ammonium citrate, dibasic		5000 (2270)
Ammonium dichromate #	Ammonium bichromate	10 (4.54)
Ammonium fluoroborate		5000 (2270)
Ammonium fluoride *		100 (45.4)
Ammonium hydroxide *		1000 (454)
Ammonium oxalate *		5000 (2270)
Ammonium picrate *		10 (4.54)
Ammonium silicofluoride *		1000 (454)
Ammonium sulfate		5000 (2270)
Ammonium sulfide *		100 (45.4)
Ammonium sulfite		5000 (2270)
Ammonium tartrate		5000 (2270)
Ammonium thiocyanate		5000 (2270)
Ammonium vanadate	Vanadic acid, ammonium salt	1000 (454)
Amyl acetate *		5000 (2270)
iso-Amyl acetate		
sec-Amyl acetate		
tert-Amyl acetate		
Aniline *	Benzenamine	5000 (2270)
Anthracene		5000 (2270)
Antimony *		5000 (2270)
Antimony pentachloride *		1000 (454)
Antimony potassium tartrate *		100 (45.4)
Antimony tribromide *		1000 (454)
Antimony trichloride *		1000 (454)
Antimony trifluoride *		1000 (454)
Antimony trisulfide		1000 (454)
Aroclor 1016	POLYCHLORINATED BIPHENYLS (PCBs)	1 (0.454)
Aroclor 1221	POLYCHLORINATED BIPHENYLS (PCBs)	1 (0.454)
Aroclor 1232	POLYCHLORINATED BIPHENYLS (PCBs)	1 (0.454)
Aroclor 1242	POLYCHLORINATED BIPHENYLS (PCBs)	1 (0.454)
Aroclor 1248	POLYCHLORINATED BIPHENYLS (PCBs)	1 (0.454)
Aroclor 1254	POLYCHLORINATED BIPHENYLS (PCBs)	1 (0.454)
Aroclor 1260	POLYCHLORINATED BIPHENYLS (PCBs)	1 (0.454)
Arsenic *		1 (0.454)
Arsenic acid *		1 (0.454)
Arsenic disulfide *		1 (0.454)
Arsenic(III) oxide		1 (0.454)
Arsenic(V) oxide		1 (0.454)
Arsenic pentoxide	Arsenic trioxide *	1 (0.454)
Arsenic trichloride *	Arsenic pentoxide *	1 (0.454)
Arsenic trichloride *	Arsenic(V) oxide	1 (0.454)
Arsenic trisulfide *		1 (0.454)
Arsine, diethyl	Arsenic(III) oxide	1 (0.454)
Asbestos **		1 (0.454)
Auramine	Diethylarsine	1 (0.454)
Azaserine	Benzenamine, 4-(1-carboximidoyl)bis (N,N-dimethyl- L-Serine, diazoacetate (ester))	100 (45.4)
Azaphos methyl #	Gulfion *	1 (0.454)
Azidine	Ethylenimine	1 (0.454)
Azino(2,3,3,1)pyrrolo(1,2-a)indole-4,7-dione,6- amino-8-[[[(aminocarbonyl)oxy)methyl]-1,1a,2,8,8a,8b-hexahydro-8a- methyl-5-methyl-	Mitomycin C	10 (4.54)
Barium cyanide *		10 (4.54)
Benz[a]acanthrylene, 1,2-dihydro-3-methyl-	3-Methylcholanthrene	10 (4.54)
Benz[c]acridine	3,4-Benzacridine	100 (45.4)
3,4-Benzacridine	Benz[c]acridine	100 (45.4)
Benzal chloride	Benzene, dichloromethyl-	5000 (2270)
Benz[a]anthracene	Benz[a]anthracene	10 (4.54)
1,2-Benzanthracene	1,2-Benzanthracene	
	Benz[a]anthracene	
	Benz[a]anthracene	
	7,12-Dimethylbenz[a]anthracene	1 (0.454)
1,2-Benzanthracene, 7,12-dimethyl-	Aniline *	5000 (2270)
Benzenamine	Auramine	100 (45.4)
Benzenamine, 4-(1-carboximidoyl)bis (N,N-dimethyl-	p-Chloroaniline	1000 (454)
Benzenamine, 4-chloro	4-Chloro-o-toluidine, hydrochloride	100 (45.4)
Benzenamine, 4-chloro-2-methyl-, hydrochloride	Dimethylaminoazobenzene	10 (4.54)
Benzenamine, N,N-dimethyl-4-phenylazo-	4-(4-Methylenebis(2-chloroaniline))	10 (4.54)
Benzenamine, 4-(4-methylenebis(2-chloro-	o-Toluidine hydrochloride	100 (45.4)
Benzenamine, 2-methyl-, hydrochloride	5-Nitro-o-toluidine	100 (45.4)
Benzenamine, 2-methyl-5-nitro-	p-Nitroaniline	5000 (2270)
Benzenamine, 4-nitro-		10 (4.54)
Benzene *	4-Bromophenyl phenyl ether	100 (45.4)
Benzene, 1-bromo-4-phenoxy-	Chlorobenzene *	100 (45.4)
Benzene, chloro-	Benzyl chloride *	100 (45.4)
Benzene, chloromethyl-	o-Dichlorobenzene *	100 (45.4)
Benzene, 1,2-dichloro-	1,2-Dichlorobenzene	
	m-Dichlorobenzene	100 (45.4)
Benzene, 1,3-dichloro-	1,3-Dichlorobenzene	
	p-Dichlorobenzene *	100 (45.4)
Benzene, 1,4-dichloro-	1,4-Dichlorobenzene	
	Benzal chloride	5000 (2270)
Benzene, dichloromethyl-	Toluene diisocyanate *	100 (45.4)
Benzene, 2,4-dicyanalamomethyl-	Xylene * (mixed)	1000 (454)
Benzene, dimethyl	m-	
o-	o-	
p-	p-	
Benzene, hexachloro-	Hexachlorobenzene	10 (4.54)
Benzene, hexahydro-	Cyclohexane *	1000 (454)
Benzene, hydroxy-	Phenol *	1000 (454)
Benzene, methyl-	Toluene *	1000 (454)
Benzene, 1-methyl-2,4-dinitro-	2,4-Dinitrotoluene	10 (4.54)

For explanation of abbreviations and reference marks, see last page of this supplement.

TABLE 1—HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES—Continued

Hazardous Substance	Synonyms	Reportable Quantity (RQ) Pounds (Kilograms)
Benzene, 1-methyl-2,6-dinitro	2,6-Dinitrotoluene	100 (45.4)
Benzene, 1,2-methylenedioxy-4-ethyl	Salvia	100 (45.4)
Benzene, 1,2-methylenedioxy-4-propenyl	Isosafrole	100 (45.4)
Benzene, 1,2-methylenedioxy-4-propyl	Oxydrosafrole	10 (4.54)
Benzene, 1-methylethyl	Cumene	5000 (2270)
Benzene, nitro	Nitrobenzene*	1000 (454)
Benzene, pentachloro	Pentachlorobenzene	10 (4.54)
Benzene, pentachloronitro	Pentachloronitrobenzene	100 (45.4)
Benzene, 1,2,4,5-tetrachloro	1,2,4,5-Tetrachlorobenzene	5000 (2270)
Benzene, trichloromethyl	Benzotrichloride	10 (4.54)
Benzene, 1,3,5-trinitro	sym-Trinitrobenzene*	10 (4.54)
Benzenecarboxylic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy-, ethyl ester	Ethyl 4,4'-dichlorobenzilate	10 (4.54)
1,2-Benzenedicarboxylic acid anhydride	Phthalic anhydride	5000 (2270)
1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester	Bis(2-ethylhexyl)phthalate	100 (45.4)
1,2-Benzenedicarboxylic acid, dibutyl ester	Di-n-butyl phthalate	10 (4.54)
1,2-Benzenedicarboxylic acid, decyl ester	Dodecyl phthalate	1000 (454)
1,2-Benzenedicarboxylic acid, dimethyl ester	Dimethyl phthalate	5000 (2270)
1,2-Benzenedicarboxylic acid, di-n-octyl ester	Di-n-octyl phthalate	5000 (2270)
1,3-Benzenediol	Resorcinol	5000 (2270)
1,2-Benzenediol (1-hydroxy-2-(methylamino)ethyl)	Epinephrine	1000 (454)
Benzenesulfonic acid chloride	Benzenesulfonyl chloride	100 (45.4)
Benzenesulfonyl chloride	Benzenesulfonic acid chloride	100 (45.4)
Benzenethiol	Phenyl mercaptan*	100 (45.4)
Benzidine*	Thiophenol	100 (45.4)
1,2-Benzisothiazolin-3-one 1,1-dioxide, and salts	(1,1-Biphenyl)-4,4'-diamine	1 (0.454)
Benzofluoranthene	Saccharin and salts	100 (45.4)
Benzofluoranthene	Benz[a]anthracene	10 (4.54)
Benzofluoranthene	1,2-Benzanthracene	1 (0.454)
Benzofluoranthene	Fluoranthene	5000 (2270)
Benzofluoranthene	100 (45.4)	
Benzofluoranthene	5000 (2270)	
Benzofluoranthene	5000 (2270)	
Benzofluoranthene	5000 (2270)	
Benzofluoranthene	3,4-Benzopyrene	1 (0.454)
Benzofluoranthene	Benzofluoranthene	1 (0.454)
Benzofluoranthene	1,4-Cyclohexadienedione	10 (4.54)
Benzofluoranthene	Benzene, trichloromethyl	10 (4.54)
Benzofluoranthene	1000 (454)	
Benzofluoranthene	Chrysene	100 (45.4)
Benzofluoranthene	Benzene, chloromethyl	100 (45.4)
Benzofluoranthene	Beryllium dust 6	10 (4.54)
Benzofluoranthene	Beryllium 6	1 (0.454)
Benzofluoranthene	Beryllium 6	10 (4.54)
Benzofluoranthene	Beryllium fluoride*	1 (0.454)
Benzofluoranthene	Beryllium nitride*	1 (0.454)
Benzofluoranthene	alpha - B <sub>2</sub> C	10 (4.54)
Benzofluoranthene	beta - B <sub>2</sub> C	1 (0.454)
Benzofluoranthene	delta - B <sub>2</sub> C	1 (0.454)
Benzofluoranthene	gamma - B <sub>2</sub> C	1 (0.454)
Benzofluoranthene	Hexachlorocyclohexane (gamma isomer)	1 (0.454)
Benzofluoranthene	Lindane*	1 (0.454)
Benzofluoranthene	1,2,3,4-Depoxybutane	10 (4.54)
Benzofluoranthene	Benzidine*	1 (0.454)
Benzofluoranthene	3,3-Dichlorobenzidine	1 (0.454)
Benzofluoranthene	3,3-Dimethoxybenzidine	10 (4.54)
Benzofluoranthene	3,3-Dimethylbenzidine	10 (4.54)
Benzofluoranthene	Ethane, 1,1-(methylenebis(ory))bis(2-chloro-	1000 (454)
Benzofluoranthene	Dichloroethyl ether	10 (4.54)
Benzofluoranthene	Ethane, 1,1-cybis(2-chloro-	1000 (454)
Benzofluoranthene	Propane, 2,2-cybis(2-chloro-	1 (0.454)
Benzofluoranthene	Methane, cybis(chloro-	10 (4.54)
Benzofluoranthene	Thiram	10 (4.54)
Benzofluoranthene	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester	100 (45.4)
Benzofluoranthene	Cyanogen bromide*	1000 (454)
Benzofluoranthene	2-Propanone, 1-bromo-	1000 (454)
Benzofluoranthene	Methane, tribromo	100 (45.4)
Benzofluoranthene	Benzene, 1-bromo-4-phenoxy	100 (45.4)
Benzofluoranthene	Strychnidin-10-one, 2,3-dimethoxy	100 (45.4)
Benzofluoranthene	Hexachlorobutadiene*	1 (0.454)
Benzofluoranthene	N-Nitrosod-n-butylamine	10 (4.54)
Benzofluoranthene	Chlorambucil	10 (4.54)
Benzofluoranthene	n-Butyl alcohol*	5000 (2270)
Benzofluoranthene	Ethyl methyl ketone*	5000 (2270)
Benzofluoranthene	Methyl ethyl ketone*	10 (4.54)
Benzofluoranthene	Methyl ethyl ketone peroxide*	100 (45.4)
Benzofluoranthene	Crinaldehyde*	100 (45.4)
Benzofluoranthene	1,4-Dichloro-2-butene	1 (0.454)
Benzofluoranthene	5000 (2270)	
Benzofluoranthene	1-Butanol	5000 (2270)
Benzofluoranthene	1000 (454)	
Benzofluoranthene	iso-Butylamine	100 (45.4)
Benzofluoranthene	sec-Butylamine	100 (45.4)
Benzofluoranthene	tert-Butylamine	100 (45.4)
Benzofluoranthene	Di-n-butyl phthalate	100 (45.4)
Benzofluoranthene	Dibutyl phthalate	10 (4.54)
Benzofluoranthene	1,2-Benzenedicarboxylic acid, dibutyl ester	5000 (2270)
Benzofluoranthene	100 (45.4)	
Benzofluoranthene	Hydroxydimethylarsine oxide	1 (0.454)

SUPPLEMENT 1 TO ATA III-J

TABLE 1—HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES—Continued

Hazardous Substance	Synonyms	Reportable Quantity (RQ) Pounds (Kilograms)
Cadmium *		10 (4.54)
Cadmium acetate		10 (4.54)
Cadmium bromide		10 (4.54)
Cadmium chloride		10 (4.54)
Calcium arsenate *		1 (0.454)
Calcium arsenite *		1 (0.454)
Calcium carbide *		10 (4.54)
Calcium chromate	Chromic acid, calcium salt	10 (4.54)
Calcium cyanide *		10 (4.54)
Calcium dodecylbenzene sulfonate		1000 (454)
Calcium hypochlorite *		10 (4.54)
Camphene, octachloro	Toxaphene *	1 (0.454)
Caplan		10 (4.54)
Carbamic acid, ethyl ester	Ethyl carbamate (urethan)	100 (45.4)
Carbamic acid, methylthio-, ethyl ester	N Nitroso-N-methylurethane	1 (0.454)
Carbamide, N-ethyl-N-nitroso	N Nitroso-N-ethylurea	1 (0.454)
Carbamide, N-methyl-N-nitroso	N Nitroso-N-methylurea	1 (0.454)
Carbamide, thio	Thiourea	10 (4.54)
Carbanilichselenic acid	Selenourea	1000 (454)
Carbonyl chloride, dimethyl	Dimethylcarbonyl chloride	1 (0.454)
Carbonyl *		100 (45.4)
Carbonyl fluoride *		10 (4.54)
Carbon bisulfide *	Carbon disulfide *	100 (45.4)
Carbon disulfide *	Carbon disulfide *	100 (45.4)
Carbonic acid, calcium (II) salt	Thallium(II) carbonate	100 (45.4)
Carbonochloric acid, methyl ester	Methyl chlorocarbonate *	100 (45.4)
	Methyl chloroformate *	1000 (454)
Carbon tetrachloride	Carbon tetrachloride	1000 (454)
Carbon tetrachloride *	Methene, tetrachloro	10 (4.54)
Carbonyl chloride	Phosgene *	10 (4.54)
Carbonyl fluoride	Carbon oxyfluoride	1000 (454)
Chloral	Acetaldehyde, trichloro	5000 (2270)
Chloro- <i>n</i> -butyl	Butanoic acid, 4-(bis(2-chloroethyl)amino)benzene	10 (4.54)
Chlordane *	Chlordane, technical *	1 (0.454)
Chlordane, technical *	4,7-Methanindan, 1,2,4,5,6,7,8,8-octachloro-3a,4,7,7a-tetrahydro- Chlordane *	1 (0.454)
	4,7-Methanindan, 1,2,4,5,6,7,8,8-octachloro-3a,4,7,7a-tetrahydro- Chlordane *	10 (4.54)
Chlorine *		10 (4.54)
Chlorine cyanide	Cyanogen chloride *	10 (4.54)
Chlorophazine	2-Naphthylamine, NN-bis(2-chloroethyl)-	100 (45.4)
Chloroacetaldehyde	Acetaldehyde, chloro	1000 (454)
<i>p</i> -Chloroaniline	Benzenamine, 4-chloro	1000 (454)
Chlorobenzene *	Benzene, chloro	100 (45.4)
4-Chloro- <i>m</i> -cresol	<i>p</i> -Chloro- <i>m</i> -cresol	5000 (2270)
<i>p</i> -Chloro- <i>m</i> -cresol	Phenol, 4-chloro-3-methyl- Phenol, 4-chloro-3-methyl- 4-Chloro- <i>m</i> -cresol	5000 (2270)
Chlorobromomethane		100 (45.4)
1-Chloro-2,3-epoxypropane		100 (45.4)
Chloroethane	Epichlorohydrin *	100 (45.4)
2-Chloroethyl vinyl ether	Oxirane, 2-(chloromethyl)-	100 (45.4)
Chloroform	Ethyl chloride *	100 (45.4)
Chloroform *	Ethane, 2-chloroethoxy	1000 (454)
	Methane, trichloro	10 (4.54)
Chloromethyl methyl ether	Methane, chloro	1 (0.454)
	Methyl chloride *	1 (0.454)
	Methane, chloromethoxy	1 (0.454)
	Methylchloromethyl ether *	1 (0.454)
beta-Chloronaphthalene	Naphthalene, 2-chloro	5000 (2270)
2-Chloronaphthalene	2-Chloronaphthalene	5000 (2270)
	beta-Chloronaphthalene	5000 (2270)
	Naphthalene, 2-chloro	5000 (2270)
2-Chlorophenol	<i>o</i> -Chlorophenol	100 (45.4)
	Phenol, 2-chloro	100 (45.4)
<i>o</i> -Chlorophenol	Phenol, 2-chloro	100 (45.4)
	2-Chlorophenol	100 (45.4)
4-Chlorophenyl phenyl ether		5000 (2270)
1-(4-Chlorophenyl)thiourea	Thiourea, (2-chlorophenyl)-	100 (45.4)
3-Chloropropionitrile	Propanenitrile, 3-chloro	1000 (454)
Chlorosulfonic acid *		1000 (454)
4-Chloro- <i>o</i> -toluidine, hydrochloride	Benzenamine, 4-chloro-2-methyl, hydrochloride	1 (0.454)
Chlorpyrifos *		1 (0.454)
Chromic acetate		1000 (454)
Chromic acid *		10 (4.54)
Chromic acid, calcium salt	Calcium chromate	10 (4.54)
Chromic sulfate		1000 (454)
Chromium *		5000 (2270)
Chromous chloride		1000 (454)
Chrysene	1,2-Benzphenanthrene	100 (45.4)
Cobaltous bromide		1000 (454)
Cobaltous formate		1000 (454)
Cobaltous sulfamate		1000 (454)
Coke Oven Emissions		1 (0.454)
Copper *		5000 (2270)
Copper cyanide *		10 (4.54)
Coumaphos *		10 (4.54)
Cresole		1 (0.454)
Cresols *	Cresylic acid	1000 (454)
	<i>m</i> -Cresylic acid	1000 (454)
	<i>o</i> -Cresylic acid	1000 (454)
	<i>p</i> -Cresylic acid	1000 (454)
Cresylic acid	Cresols *	1000 (454)
	<i>m</i> -Cresylic acid	1000 (454)
	<i>o</i> -Cresylic acid	1000 (454)
	<i>p</i> -Cresylic acid	1000 (454)
Chloroacetaldehyde *	2-Butenal	100 (45.4)

For explanation of abbreviations and reference marks, see last page of this supplement.

SUPPLEMENT 1 TO ATA (11)

TABLE 1—HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES—Continued

Hazardous Substance	Synonyms	Reportable Quantity (RQ) Pounds (Kilograms)
Cumene	Benzene, 1-methylethyl	5000 (2270)
Cumene hydroperoxide	alpha alpha Dimethylbenzylhydroperoxide Hydroperoxide, 1-methyl-1-phenylethyl	10 (4.54)
Cupric acetate		100 (45.4)
Cupric acetoarsenate *		1 (0.454)
Cupric chloride *		10 (4.54)
Cupric nitrate *		100 (45.4)
Cupric oxalate		100 (45.4)
Cupric sulfate		10 (4.54)
Cupric sulfate ammoniated		100 (45.4)
Cupric tartrate		100 (45.4)
Cyanides (soluble cyanide salts) not elsewhere specified *		10 (4.54)
Cyanogen *		100 (45.4)
Cyanogen bromide *	Bromine cyanide	1000 (454)
Cyanogen chloride *	Chlorine cyanide	10 (4.54)
1,4-Cyclohexadienedione	p-Benzoquinone	10 (4.54)
Cyclohexane *	Benzene, hexahydro	1000 (454)
Cyclohexanone		5000 (2270)
1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro	Hexachlorocyclopentadiene *	10 (4.54)
Cyclophosphamide	2H,1,3,2-Oxazaphosphorine 2-bis(2-chloroethyl)amino] tetrahydro-2-oxide	10 (4.54)
2,4-D Acid	2,4-D *, salts and esters	100 (45.4)
2,4-D Esters	2,4-Dichlorophenoxyacetic acid *, salts and esters	100 (45.4)
2,4-D *, salts and esters	2,4-D Acid	100 (45.4)
Daunomycin	5,12-Naphthacenedione, (6S-cis)-8-acetyl-10-[D-amino-2,3,6-trideoxy-alpha-L-lyxo-hexopyranosyl]oxy]-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy,	10 (4.54)
DDO	Dichlorodiphenyl dichloroethane	1 (0.454)
4,4-DDO	TDE *	
	4,4-DDO	
	DDO	1 (0.454)
	Dichlorodiphenyl dichloroethane	
	TDE *	
	4,4-DDO	1 (0.454)
	DDO	1 (0.454)
	Dichlorodiphenyl trichloroethane *	1 (0.454)
	4,4-DDT	
	DDT *	1 (0.454)
	Dichlorodiphenyl trichloroethane *	
Decachlorooctahydro-1,3,4-methano-2H-cyclobuta[c,d]-pentalen-2-one	Kepon *	1 (0.454)
Daflate	S-(2,3-Dichloroethyl) diisopropylthiocarbamate	100 (45.4)
Damine	Hydrazine	1 (0.454)
Daminobutene	Toluenedamine *	10 (4.54)
Daxtron *		1 (0.454)
Dibenz[a,h]anthracene	Dibenz[a,h]anthracene	1 (0.454)
1,2,7,8-Dibenzopyrene	1,2,5,6-Dibenzanthracene	
Dibenz[a,i]pyrene	Dibenz[a,i]pyrene	10 (4.54)
1,2-Dibromo-3-chloropropane	1,2,7,8-Dibenzopyrene	10 (4.54)
Dibutyl phthalate	Propene, 1,2-dibromo-3-chloro	1 (0.454)
	Di-n-butyl phthalate	10 (4.54)
	n-Butyl phthalate *	
	1,2-Benzenedicarboxylic acid, dibutyl ester	
	Dibutyl phthalate	10 (4.54)
	n-Butyl phthalate *	
	1,2-Benzenedicarboxylic acid, dibutyl ester	
Dicamba		1000 (454)
Dichobenzil		100 (45.4)
Dichloro		1 (0.454)
S-(2,3-Dichloroethyl) diisopropylthiocarbamate	Daflate	100 (45.4)
3,5-Dichloro-N-(1,1-dimethyl-2-propyl)benzamide	Pionamide	5000 (2270)
Dichlorobenzene (mixed)		100 (45.4)
1,2-Dichlorobenzene	Benzene, 1,2-dichloro	100 (45.4)
1,3-Dichlorobenzene	o-Dichlorobenzene *	
1,4-Dichlorobenzene	Benzene, 1,3-dichloro	100 (45.4)
m-Dichlorobenzene	m-Dichlorobenzene	
o-Dichlorobenzene *	Benzene, 1,4-dichloro	100 (45.4)
p-Dichlorobenzene *	p-Dichlorobenzene *	
3,3'-Dichlorobenzidine	Benzene, 1,3-dichloro	100 (45.4)
Dichlorobromomethane	1,3-Dichlorobenzene	
1,4-Dichloro-2-butene	Benzene, 1,2-dichloro	100 (45.4)
Dichlorodifluoromethane *	1,2-Dichlorobenzene	
Dichlorodiphenyl dichloroethane	Benzene, 1,4-dichloro	100 (45.4)
	1,4-Dichlorobenzene	
	(1,1'-Biphenyl) 4,4'-diamine,3,3'-dichloro	1 (0.454)
	2-Butene, 1,4-dichloro	5000 (2270)
	Methane dichlorodifluoro	1 (0.454)
	DDO	5000 (2270)
	TDE *	
	4,4-DDO	
	DDT *	1 (0.454)
	4,4-DDT	
Dichlorodiphenyl trichloroethane *	Ethane, 1,1-dichloro	1000 (454)
1,1-Dichloroethane	Ethylene dichloride	
1,2-Dichloroethane	Ethane, 1,2-dichloro	100 (45.4)
1,1-Dichloroethylene	Ethylene dichloride *	
1,2-trans-Dichloroethylene	Ethene, 1,1-dichloro	100 (45.4)
Dichloroethyl ether	Vinylidene chloride *	
	Ethene, trans-1,2-dichloro	1000 (454)
	Bis (2-chloroethyl) ether	10 (4.54)
	Ethane, 1,1'-oxybis(2-chloro	
2,4-Dichlorophenol	Phenol, 2,4-dichloro	100 (45.4)
2,6-Dichlorophenol	Phenol, 2,6-dichloro	100 (45.4)
2,4-Dichlorophenoxyacetic acid *, salts and esters	2,4-D Acid	100 (45.4)
	2,4-D *, salts and esters	

SUPPLEMENT I TO ATA III-J

TABLE I—HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES—Continued

Hazardous Substance	Synonyms	Reportable Quantity (RQ) Pounds (Kilograms)
Dichlorophenylarsine	Phenyl dichloroarsine *	1 (0.454)
Dichloropropane		1000 (454)
1,1-Dichloropropane		
1,3-Dichloropropane		
1,2-Dichloropropane	Propylene dichloride *	1000 (454)
Dichloropropane - Dichloropropene (mixture)		100 (45.4)
Dichloropropene(s)		100 (45.4)
2,3-Dichloropropene (isomer)		
1,3-Dichloropropene	Propene, 1,3-dichloro	100 (45.4)
2,2-Dichloropropionic acid *		5000 (2270)
Dichloros *		10 (4.54)
Dieldrin		10 (4.54)
Dieldrin *	1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,8,7,8,8a-octahydro-endo,endo-1,4,5,8-dimethanonaphthalene	1 (0.454)
2,2-Dioxirane	2,2-Dioxirane	10 (4.54)
1,2,3,4-Deposybutane		10 (4.54)
Diethylamine *		100 (45.4)
Diethylarsine	Arsine, diethyl-	1 (0.454)
1,4-Diethylene dioxide	1,4-Dioxane	100 (45.4)
O,O-Diethyl S-[2-(ethylthio)ethyl] phosphorodithioate	Disulfoton *	1 (0.454)
N,N-Diethylhydrazine	Hydrazine, 1,2-diethyl-	10 (4.54)
O,O-Diethyl S-methyl dithiophosphate	Phosphorodithioic acid, O,O-diethyl S-methyl ester	5000 (2270)
Diethyl p-nitrophenyl phosphite	Phosphoric acid, diethyl p-nitrophenyl ester	100 (45.4)
Diethyl phthalate	1,2-Benzenedicarboxylic acid, diethyl ester	1000 (454)
O,O-Diethyl O-pyrazinyl phosphorothioate	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester	100 (45.4)
Diethylstilbestrol	4,4'-Suberenediol, alpha, alpha'-diethyl-	1 (0.454)
1,2-Dihydro-3,6-pyridazinedione	Maleic hydrazide	5000 (2270)
Dihydroxide	Benzene, 1,2-methyleneedioxy 4-propyl-	10 (4.54)
Dissopropyl fluorophosphate	Phosphorofluoric acid, bis(1-methylethyl) ester	100 (45.4)
Dimethoate	Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester	10 (4.54)
3,3-Dimethoxybenzidine	(1,1-Biphenyl)-4,4'-diamine, 3,3'-dimethoxy-	10 (4.54)
Dimethylamine *	Methanamine, N-methyl-	1000 (454)
Dimethylaminoazobenzene	Benzaniline, N,N-dimethyl 4-phenylazo-	10 (4.54)
7,12-Dimethylbenzimidazole	1,2-Benzimidazole, 7,12-dimethyl-	10 (4.54)
3,3-Dimethylbenzidine	(1,1-Biphenyl)-4,4'-diamine, 3,3'-dimethyl-	10 (4.54)
alpha, alpha-Dimethylbenzylhydroperoxide	Hydroperoxide, 1-methyl-1-phenylethyl-	10 (4.54)
	Cumene hydroperoxide *	
3,3-Dimethyl-1-(methylthio)-2-butanone, O-(methylamino)carbonyl oxime	Thioflanz	100 (45.4)
Dimethylcarbamoyl chloride	Carbamoyl chloride, dimethyl-	1 (0.454)
Dimethylhydrazine, unsymmetrical #	1,1-Dimethylhydrazine	10 (4.54)
	Hydrazine, 1,1-dimethyl-	
1,1-Dimethylhydrazine	Dimethylhydrazine, unsymmetrical #	10 (4.54)
	Hydrazine, 1,1-dimethyl-	
1,2-Dimethylhydrazine	Hydrazine, 1,2-dimethyl-	1 (0.454)
Dimethylhydrazine, unsymmetrical #	1,1-Dimethylhydrazine	10 (4.54)
	Hydrazine, 1,1-dimethyl-	
O,O-Dimethyl O-p-nitrophenyl phosphorothioate	Methyl parathion *	100 (45.4)
Dimethylnitrosamine	N-Nitrosodimethylamine	10 (4.54)
alpha, alpha-Dimethylphenethylamine	Ethanamine, 1,1-dimethyl-2-phenyl-	5000 (2270)
2,4-Dimethylphenol	Phenol, 2,4-dimethyl-	100 (45.4)
Dimethyl phthalate	1,2-Benzenedicarboxylic acid, dimethyl ester	5000 (2270)
Dimethyl sulfate *	Sulfuric acid, dimethyl ester	10 (4.54)
Dinitrobenzene * (mixed)		100 (45.4)
m-Dinitrobenzene		
o-Dinitrobenzene		
p-Dinitrobenzene		
4,6-Dinitro-o-cresol and salts	Phenol, 2,4-dinitro-6-methyl-, and salts	10 (4.54)
4,6-Dinitro-o-cyclohexylphenol	Phenol, 2-cyclohexyl-4,6-dinitro-	100 (45.4)
Dinitrophenol		10 (4.54)
2,5-Dinitrophenol		
2,6-Dinitrophenol		
2,4-Dinitrophenol	Phenol, 2,4-dinitro-	10 (4.54)
Dinitrotoluene		10 (4.54)
3,4-Dinitrotoluene		
2,4-Dinitrotoluene	Benzene, 1-methyl-2,4-dinitro-	10 (4.54)
2,6-Dinitrotoluene	Benzene, 1-methyl-2,6-dinitro-	100 (45.4)
Dinoseb	Phenol, 2,4-dinitro-6-(1-methylpropyl)-	1000 (454)
O-octyl phthalate	1,2-Benzenedicarboxylic acid, di-n-octyl ester	5000 (2270)
1,4-Dioxane	1,4-Diethylene dioxide	100 (45.4)
1,2-Diphenylhydrazine	Hydrazine, 1,2-diphenyl-	10 (4.54)
Diphosphoramide octamethyl-	Octamethylphosphoramide	100 (45.4)
Dipropylamine	1-Propanamine, N-propyl-	5000 (2270)
O-o-propylnitrosamine	N-Nitroso-n-propylamine	10 (4.54)
Diquat		1000 (454)
Disulfoton *	O,O-Diethyl S-[2-(ethylthio)ethyl] phosphorodithioate	1 (0.454)
2,4-Dichlorobutene	Thioimidocarbonic diamide	100 (45.4)
Dithiopyrophosphoric acid, tetraethyl ester	Tetraethyldithiopyrophosphate	100 (45.4)
Duron		100 (45.4)
Dodecylbenzenesulfonic acid *		1000 (454)
Endosulfan *	5-Norbornene-2,3-dimethanol, 1,4,5,6,7,7-hexachloro, cyclic sulfate	1 (0.454)
alpha - Endosulfan		1 (0.454)
beta - Endosulfan		1 (0.454)
Endosulfan sulfate		1 (0.454)
Endosulf *		1000 (454)
Endrin *	7-Oxabicyclo[2,2,1]heptane-2,3-dicarboxylic acid	1000 (454)
	1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,8,7,8,8a-octahydro-endo,endo-1,4,5,8-dimethanonaphthalene	1 (0.454)
Endrin sidehyde		1 (0.454)
Epichlorohydrin *	1-Chloro-2,3-epoxypropane	100 (45.4)
Epinephrine	Oxirane, 2-(chloromethyl)-	
Ethanal	1,2-Benzenediol, 4-[1-hydroxy-2-(methylamino)ethyl]-	1000 (454)
Ethanamine, 1,1-dimethyl-2-phenyl-	Acetaldehyde *	1000 (454)
Ethanamine, N-ethyl-N-nitroso-	alpha, alpha-Dimethylphenethylamine	5000 (2270)
Ethane, 1,2-dibromo-	N-Nitrosodimethylamine	1 (0.454)
Ethane, 1,1-dichloro-	Ethylene dibromide *	1 (0.454)
	Ethylene dichloride	1000 (454)
	1,1-Dichloroethane	

For explanation of abbreviations and reference marks, see last page of this supplement.



SUPPLEMENT 1 TO ATA III-J

TABLE I—HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES—Continued

Hazardous Substance	Synonyms	Reportable Quantity (RQ) Pounds (Kilograms)
Ethane, 1,2-dichloro	Ethylene dichloride 1,2-Dichloroethane	100 (45.4)
Ethane, 1,1,1,2,2,2-hexachloro	1,1,1,2,2,2-Hexachloroethane	100 (45.4)
Ethane, 1,1-(methylenebis(oxy))bis(2-chloro	Bis(2-chloroethoxy)methane	100 (45.4)
Ethane, 1,1-crybis	Ethyl ether	100 (45.4)
Ethane, 1,1-crybis(2-chloro	Bis(2-chloroethyl) ether Dichloroethyl ether	10 (4.54)
Ethane, pentachloro	Pentachloroethane	10 (4.54)
Ethane, 1,1,1,2-tetrachloro	1,1,1,2-Tetrachloroethane	100 (45.4)
Ethane, 1,1,2,2-tetrachloro	1,1,2,2-Tetrachloroethane	100 (45.4)
Ethane, 1,1,2-trichloro	1,1,2-Trichloroethane	100 (45.4)
Ethane, 1,1,1-trichloro-2,2-bis(p-methoxyphenyl)	Methoxychlor	1 (0.454)
1,2-Ethanedithiocarbamodithioic acid	Ethylenebis(dithiocarbamic acid)	5000 (2270)
Ethanenitrile	Acetonitrile	5000 (2270)
Ethanethioamide	Thioacetamide	10 (4.54)
Ethanol, 2,2-(nitrosimino)bis	N-Nitrosodethanolamine	1 (0.454)
Ethanone, t-phenyl	Acetophenone	5000 (2270)
Ethanyl chloride	Acetyl chloride	5000 (2270)
Ethanamine, N-methyl-N-nitroso	N-Nitrosomethylamine	10 (4.54)
Ethene, chloro	Vinyl chloride	1 (0.454)
Ethene, 2-chloroethoxy	2-Chloroethyl vinyl ether	100 (45.4)
Ethene, 1,1-dichloro	Vinylidene chloride	100 (45.4)
Ethene, 1,1,2,2-tetrachloro	1,1-Dichloroethylene Perchloroethylene Tetrachloroethene Tetrachloroethylene 1,2-trans-Dichloroethylene	100 (45.4)
Ethene, trans-1,2-dichloro		1000 (454)
Ethion		10 (4.54)
2-Ethoxyethanol	Ethylene glycol monoethyl ether	1000 (454)
Ethyl acetate	Acetic acid, ethyl ester	5000 (2270)
Ethyl acrylate	2-Propenoic acid, ethyl ester	1000 (454)
Ethylbenzene		1000 (454)
Ethyl carbamate (Urethane)	Carbamic acid, ethyl ester	100 (45.4)
Ethyl chloride (E)	Chloroethane	100 (45.4)
Ethyl cyanide	Propanenitrile	10 (4.54)
Ethyl 4,4'-dichlorobenzilate	Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy, ethyl ester	10 (4.54)
Ethylene dibromide	Ethane, 1,2-dibromo	1 (0.454)
Ethylene dichloride	1,2-Dichloroethane Ethane, 1,2-dichloro	100 (45.4)
Ethylene glycol monoethyl ether	2-Ethoxyethanol	1000 (454)
Ethylene oxide	Oxirane	10 (4.54)
Ethylenebis(dithiocarbamic acid)	1,2-Ethanedithiocarbamodithioic acid	5000 (2270)
Ethylenediamine		5000 (2270)
Ethylenediamine tetraacetic acid (EDTA)		5000 (2270)
Ethylenethiourea	2-Imidazolidinethione	10 (4.54)
Ethylamine	Azidine	1 (0.454)
Ethyl ether	Ethane, 1,1-crybis	100 (45.4)
Ethylene dichloride	Ethane, 1,1-dichloro 1,1-Dichloroethane	1000 (454)
Ethyl methacrylate	2-Propenoic acid, 2-methyl-, ethyl ester	1000 (454)
Ethyl methanesulfonate	Methanesulfonic acid, ethyl ester	1 (0.454)
Ethyl methyl ketone (E)	2-Butanone Methyl ethyl ketone	5000 (2270)
Famphur	Phosphorothioic acid, O,O-dimethyl O-[p-(dimethylamino)-sulfonyl phenyl] ester	1000 (454)
Ferric ammonium citrate		1000 (454)
Ferric ammonium oxalate		1000 (454)
Ferric chloride		1000 (454)
Ferric fluoride		100 (45.4)
Ferric nitrate		1000 (454)
Ferric sulfate		1000 (454)
Ferrous ammonium sulfate		1000 (454)
Ferrous chloride		100 (45.4)
Ferrous sulfate		1000 (454)
Fluoranthene	Benzo[ <i>b</i> ]fluorene	100 (45.4)
Fluorene		5000 (2270)
Fluorine		10 (4.54)
Fluoroacetamide	Acetamide, 2-fluoro	100 (45.4)
Fluoroacetic acid, sodium salt	Acetic acid, fluoro-, sodium salt	10 (4.54)
Formaldehyde	Methylene oxide	10 (4.54)
Formic acid	Methanoic acid	5000 (2270)
Fulminic acid, mercury(II)salt	Mercury fulminate	10 (4.54)
Fumaric acid		5000 (2270)
Furan	Furfural	100 (45.4)
Furan, tetrahydro	Tetrahydrofuran	1000 (454)
2-Furancarboxaldehyde	Furfural	5000 (2270)
2,5-Furandione	Maleic anhydride	5000 (2270)
Furfural	2-Furancarboxaldehyde	5000 (2270)
Furfuran	Furan	100 (45.4)
O-Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosourea)	Streptozotocin	1 (0.454)
Glycidylaldehyde	1-Propanol, 2,3-epoxy	10 (4.54)
Guanidine, N-nitroso-N-methyl-N-nitro	N-Methyl-N-nitro-N-nitrosoguanidine	10 (4.54)
Guthion	Azinphos methyl (E)	1 (0.454)
Heptachlor	4,7-Methano-1H-indene, 1,4,5,6,7,8-heptachloro-3a,4,7,7a-tetrahydro-	1 (0.454)
Heptachlor epoxide		1 (0.454)
Hexachlorobenzene	Benzene, hexachloro	10 (4.54)
Hexachlorobutadiene	1,3-Butadiene, 1,2,3,4,4-hexachloro	1 (0.454)
Hexachlorocyclohexane (gamma isomer)	gamma-BHC Lindane	1 (0.454)
Hexachlorocyclopentadiene	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro	10 (4.54)
1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octa-hydro-endo-1,4,5,8-dimethanonaphthalene	Endrin	1 (0.454)
1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octa-hydro-endo-1,4,5,8-dimethanonaphthalene		1 (0.454)
Hexachloroethane	Ethane, 1,1,1,2,2,2-hexachloro	100 (45.4)
Hexachlorohexahydro-endo,endo-dimethanonaphthalene	1,2,3,4,10,10-Hexachloro-1,4,4a,5,6,7,8,8a-hexahydro-1,4,5,8-endo,endo-dimethanonaphthalene	1 (0.454)

SUPPLEMENT 1 TO ATA III-J

TABLE 1—HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES—Continued

Hazardous Substance	Synonyms	Reportable Quantity (RQ) Pounds (Kilograms)
1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4,5,8-endo,endo-dimethanonaphthalene	Hexachlorohexahydro-endo-endo-dimethanonaphthalene	1 (0.454)
1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4,5,8-endo,exo-dimethanonaphthalene	Aldin *	1 (0.454)
Hexachlorophene	2,2-Methylenebis(3,4,6-trichlorophenol)	100 (45.4)
Hexachloropropene	1-Propene, 1,1,2,3,3,3-hexachloro	1000 (454)
Hexaethyl tetraphosphate *	Tetraphosphoric acid, hexaethyl ester	100 (45.4)
Hydrazine *	Diamine	1 (0.454)
Hydrazine, 1,2-dimethyl	N,N-Dimethylhydrazine	10 (4.54)
Hydrazine, 1,1-dimethyl	1,1-Dimethylhydrazine	10 (4.54)
Hydrazine, 1,2-dimethyl	Dimethylhydrazine, unsymmetrical is	
Hydrazine, 1,2-diphenyl	1,2-Dimethylhydrazine	1 (0.454)
Hydrazine, methyl	1,2-Diphenylhydrazine	10 (4.54)
Hydrazinecarbofuranamide	Methyl hydrazine *	10 (4.54)
Hydrochloric acid *	Thiosemicarbazide	100 (45.4)
Hydrocyanic acid *	Hydrogen cyanide	5000 (2270)
Hydrofluoric acid *	Hydrogen fluoride *	10 (4.54)
Hydrogen cyanide	Hydrocyanic acid *	100 (45.4)
Hydrogen fluoride *	Hydrofluoric acid *	10 (4.54)
Hydrogen phosphide	Phosphine *	100 (45.4)
Hydrogen sulfide *	Hydro-sulfuric acid	100 (45.4)
Hydroperoxide, 1-methyl-1-phenylethyl	Sulfur hydride	
Hydro-sulfuric acid	alpha,alpha-Dimethylbenzylhydroperoxide	10 (4.54)
Hydrazine dimethylarsine oxide	Cumene hydroperoxide is	
2-Imidazolidinethione	Hydrogen sulfide *	100 (45.4)
Indeno[1,2,3-c]pyrene	Sulfur hydride	
Isobutyl alcohol	Cacodylic acid	1 (0.454)
Isocyanic acid, methyl ester	Ethylthiourea	10 (4.54)
Isophorone	1,10-(1,2-Phenylene)pyrene	100 (45.4)
Isoprene *	1-Propanol, 2-methyl	5000 (2270)
Isopropylamine dodecylbenzene sulfonate	Methyl isocyanate *	1 (0.454)
Isoxazole		5000 (2270)
3,2H-Isoxazolone, 5-(aminomethyl)		100 (45.4)
Ketone	Benzene, 1,2-methylenedioxy-4-propenyl-	100 (45.4)
Ketocarpine	5-(Aminomethyl)-3-isoxazolol	1000 (454)
Lead *	Decachlorooctahydro-1,3,4-metheno-2H-cyclobuta[c,d]pentalen-2-one	1 (0.454)
Lead acetate		10 (4.54)
Lead arsenate *	Acetic acid, lead salt	5000 (2270)
Lead chloride *		1 (0.454)
Lead fluoroborate *		100 (45.4)
Lead fluoride *		100 (45.4)
Lead iodide		100 (45.4)
Lead nitrate *		100 (45.4)
Lead phosphate	Phosphoric acid, lead salt	1 (0.454)
Lead stearate		5000 (2270)
Lead subacetate		100 (45.4)
Lead sulfate *		100 (45.4)
Lead sulfide		5000 (2270)
Lead thiocyanate		100 (45.4)
Lindane *	gamma-BHC	1 (0.454)
Lithium chromate	Hexachlorocyclohexane (gamma isomer)	10 (4.54)
Malachite *		100 (45.4)
Maleic acid *		5000 (2270)
Maleic anhydride *	2,5-Furandione	5000 (2270)
Maleic hydrazide	1,2-Dihydro-3,6-pyridazinedione	5000 (2270)
Malononitrile	Propanedinitrile	5000 (2270)
Melphalan	Alanine, 3-[p-bis(2-chloroethyl)amino]phenyl, L-	1000 (454)
Mercaptodimethylur		1 (0.454)
Mercuric cyanide *		10 (4.54)
Mercuric nitrate *		10 (4.54)
Mercuric sulfate *		10 (4.54)
Mercuric thiocyanate		10 (4.54)
Mercurous nitrate *		10 (4.54)
Mercury *		1 (0.454)
Mercury (acetato-O)phenyl	Phenylmercuric acetate	100 (45.4)
Mercury fulminate	Fulminic acid, mercury (II) salt	10 (4.54)
Methacrylonitrile	2-Propenenitrile, 2-methyl	1000 (454)
Methanamine, N-methyl	Dimethylamine *	1000 (454)
Methane, bromo	Methyl bromide *	1000 (454)
Methane, chloro	Chloromethane	100 (45.4)
Methane, chloromethoxy	Methyl chloride *	
Methane, dibromo	Chloromethyl methyl ether	1 (0.454)
Methane, dichloro	Methylchloromethyl ether is	
Methane, dichlorodifluoro	Methylene bromide	1000 (454)
Methane, iodo	Methylene chloride *	1000 (454)
Methane, crys(chloro	Ochlorodifluoromethane *	5000 (2270)
Methane, tetachloro	Methyl iodide	100 (45.4)
Methane, tribromo	Bis(chloromethyl) ether	1 (0.454)
Methane, tribromo	Carbon tetrachloride *	10 (4.54)
Methane, trichloro	Tetranitromethane *	10 (4.54)
Methane, trichlorofluoro	Bromoloms	100 (45.4)
Methanesulfonyl chloride, trichloro	Chloroloms *	10 (4.54)
Methanesulfonic acid, ethyl ester	Trichloromonofluoromethane	5000 (2270)
Methanethiol	Perchloromethyl mercaptan is	100 (45.4)
Methanoic acid	Trichloromethanesulfonyl chloride	
	Ethyl methanesulfonate	1 (0.454)
	Methyl mercaptan *	100 (45.4)
	Thiomethanol	
	Formic acid *	5000 (2270)

For explanation of abbreviations and reference marks, see last page of this supplement.

SUPPLEMENT 1 TO ATA III-J

TABLE I—HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES—Continued

Hazardous Substance	Synonyms	Reportable Quantity (RQ) Pounds (Kilograms)
4,7-Methanodan, 1,2,4,5,6,7,8-octachloro-3a,4,7,7a-tetrahydro	Chlordane*	1 (0.454)
4,7-Methano-1H-indene, 1,4,5,6,7,8-heptachloro-2,4,7,7a-tetrahydro	Chlordane, technical*	
Methanol*	Heptachlor	1 (0.454)
Methacrylene	Methyl alcohol*	5000 (2270)
Methomyl	Pyridine, 2-[2-(dimethylamino)ethyl]-2-ethylamino-	5000 (2270)
Methoxychlor	Acetic acid, N-[1-methyl-2-(2-methoxyphenoxy)ethyl]-, methyl ester	100 (45.4)
Methyl alcohol*	Ethane, 1,1,1-trichloro-2,2-bis(p-methoxyphenyl)-	1 (0.454)
Methylamine #	Methanol*	5000 (2270)
2-Methylazirine	Monomethylamine	100 (45.4)
Methyl bromide*	1,2-Difluoroethane	1 (0.454)
1-Methylbutane	Methane, bromo-	1000 (454)
Methyl chloride*	1,3-Pentadiene	100 (45.4)
	Chloromethane	100 (45.4)
	Methane, chloro-	
Methyl chloroacetate*	Carbonochloridic acid, methyl ester	1000 (454)
	Methyl chloroacetate #	
Methyl chloroform*	1,1,1-Trichloroethane	1000 (454)
Methyl chloroformate #	Carbonochloridic acid, methyl ester	1000 (454)
	Methyl chloroformate #	
Methyl chloromethyl ether #	Chloromethyl methyl ether	1 (0.454)
	Methane, chloromethyl-	
3-Methylcholanthrene	Benz[a]aceanthrylene, 1,2-dihydro-3-methyl-	10 (4.54)
4,4'-Methylenebis(2-chloroaniline)	Benzenamine, 4,4'-methylenebis(2-chloro-	10 (4.54)
2,2'-Methylenebis(3,4,6-trichlorophenol)	Hexachlorophene	100 (45.4)
Methylene bromide*	Methane, dibromo-	1000 (454)
Methylene chloride*	Methane, dichloro-	1000 (454)
Methylene oxide	Formaldehyde*	10 (4.54)
Methyl ethyl ketone*	2-Butanone	5000 (2270)
	Ethyl methyl ketone #	
Methyl ethyl ketone peroxide*	2-Butanone peroxide	10 (4.54)
Methyl hydrazine*	Hydrazine, methyl-	10 (4.54)
Methyl iodide	Methane, iodo-	100 (45.4)
Methyl isobutyl ketone	4-Methyl-2-pentanone	5000 (2270)
Methyl isocyanate*	Isocyanic acid, methyl ester	1 (0.454)
2-Methylacetonitrile	Acetonitrile, 2-hydroxy-2-methyl-	10 (4.54)
	Propionitrile, 2-hydroxy-2-methyl-	
Methyl mercaptan*	Methanethiol	100 (45.4)
	Thiomethanol	
Methyl methacrylate*	2-Propenoic acid, 2-methyl-, methyl ester	1000 (454)
N-Methyl-N-nitrosoguanidine	Guanidine, N-nitroso-N-methyl-N-nitro-	10 (4.54)
Methyl parathion*	O,O-Dimethyl O-p-nitrophenyl phosphorothioate	100 (45.4)
4-Methyl-2-pentanone	Methyl isobutyl ketone	5000 (2270)
Methylthio-oxadiazole	4,1H-Pyrimidinone, 2,3-dihydro-6-methyl-2-thio-	10 (4.54)
Mevinphos*		10 (4.54)
Mexacabate*		1000 (454)
Mitomycin C	Azirin(2,2,3,4-pyridol[1,2-a]indole-4,7-dione, 6-amino-8-[(aminocarbonyloxy)methyl]-1,1a,2,6,8a,8b-hexahydro-6a-methoxy-5-methyl-	10 (4.54)
Monomethylamine		100 (45.4)
Naled	Methylamine #	100 (45.4)
5,12-Naphthacenedione, (8S-cis)-8-acetyl-10-[3-amino-2,3,6-trideoxy-alpha-L-lyxo-hexopyranosyl]oxy]-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-	Daunomycin	10 (4.54)
Naphthalene		100 (45.4)
Naphthalene, 2-chloro-	beta-Chloronaphthalene	5000 (2270)
1,4-Naphthalenedione	2-Chloronaphthalene	
2,7-Naphthalene-sulfonic acid, 3,3'-(3,3'-dimethyl-4,4'-biphenyl)-4,4'-dihydroxy-bis(azo)-bis(3-amino-4-hydroxy)-tetrasodium salt	1,4-Naphthoquinone	5000 (2270)
Naphthoic acid	Trypan blue	10 (4.54)
1,4-Naphthoquinone		100 (45.4)
alpha-Naphthylamine	1,4-Naphthalenedione	5000 (2270)
beta-Naphthylamine	1-Naphthylamine	100 (45.4)
1-Naphthylamine	2-Naphthylamine	1 (0.454)
2-Naphthylamine	alpha-Naphthylamine	100 (45.4)
2-Naphthylamine, N,N-bis(2-chloroethyl)-	beta-Naphthylamine	1 (0.454)
alpha-Naphthylthiourea	Chlornaphazine	100 (45.4)
Nickel #	Thiourea, 1-naphthalenyl-	100 (45.4)
Nickel ammonium sulfate		100 (45.4)
Nickel carbonyl*	Nickel tetracarbonyl	10 (4.54)
Nickel chloride		100 (45.4)
Nickel cyanide*	Nickel(II) cyanide	10 (4.54)
Nickel(II) cyanide	Nickel cyanide*	10 (4.54)
Nickel hydroxide		10 (4.54)
Nickel nitrate		100 (45.4)
Nickel sulfate		100 (45.4)
Nickel tetracarbonyl	Nickel carbonyl*	10 (4.54)
Nicotine* and salts*	Pyridine, (S)-3-(1-methyl-2-pyrrolidinyl)-, and salts	100 (45.4)
Nitric acid*		1000 (454)
Nitric oxide*	Nitrogen(II) oxide	10 (4.54)
p-Nitroaniline*	Benzenamine, 4-nitro-	5000 (2270)
Nitrobenzene	Benzene, nitro-	1000 (454)
Nitrogen dioxide*	Nitrogen(IV) oxide	10 (4.54)
	Nitrogen peroxide #	
	Nitrogen tetroxide #	
	Nitric oxide*	
	Nitrogen dioxide*	
	Nitrogen peroxide #	
	Nitrogen tetroxide #	
	Nitrogen dioxide*	
	Nitrogen(IV) oxide	
	Nitrogen tetroxide #	
	Nitrogen dioxide*	
	Nitrogen(IV) oxide	
	Nitrogen peroxide	
Nitrogen(II) oxide		10 (4.54)
Nitrogen(IV) oxide		10 (4.54)
Nitrogen peroxide		10 (4.54)
Nitrogen tetroxide #		10 (4.54)

TABLE I—HAZARDOUS SUBSTANCES OTHER THAN RADIOISOTOPES—Continued

Hazardous Substance	Synonyms	Reportable Quantity (RQ) Pounds (Kilograms)
Nitroglycerine *	1,2,3 Propanetriol trinitrate	10 (4.54)
Nitrophenol (mixed)		100 (45.4)
m	2-Nitrophenol	
o	4-Nitrophenol	
p	Phenol, 4-nitro	
o-Nitrophenol	2-Nitrophenol	100 (45.4)
p-Nitrophenol	Phenol, 4-nitro	100 (45.4)
2-Nitrophenol	4-Nitrophenol	100 (45.4)
4-Nitrophenol	o-Nitrophenol	100 (45.4)
	p-Nitrophenol	100 (45.4)
	Phenol, 4-nitro	
	Propene, 2-nitro	
2-Nitropropane	1-Butanamine, N-butyl-N-nitroso	10 (4.54)
N-Nitrosodi-n-butylamine	Ethanol, 2,2-(nitrosamino)bis	10 (4.54)
N-Nitrosodethanolamine	Ethanamine, N-ethyl-N-nitroso	10 (4.54)
N-Nitrosodethylamine	Dimethylnitrosamine	10 (4.54)
N-Nitrosodimethylamine		10 (4.54)
N-Nitrosodiphenylamine		100 (45.4)
N-Nitrosodi-n-propylamine	Di-n-propylnitrosamine	10 (4.54)
N-Nitroso-N-ethylurea	Carbamide, N-ethyl-N-nitroso	10 (4.54)
N-Nitroso-N-methylurea	Carbamide, N-methyl-N-nitroso	10 (4.54)
N-Nitroso-N-methylurethane	Carbamic acid, methyl-N-nitroso, ethyl ester	10 (4.54)
N-Nitrosomethylamine	Ethanamine, N-methyl-N-nitroso	10 (4.54)
N-Nitrosopiperidine	Pyridine, hexahydro-N-nitroso	10 (4.54)
N-Nitrosopyrrolidine	Pyrrole, tetrahydro-N-nitroso	10 (4.54)
Nitrotoluene		1000 (454)
m-Nitrotoluene		
p-Nitrotoluene		
5-Nitro-0-toluidine	Benzenamine, 2-methyl-5-nitro	100 (45.4)
5-Norbornene-2,3-dimethanol, 1,4,5,6,7,7-hexachlorobicyclic sulfite	Endosulfan *	10 (4.54)
Octamethylpyrophosphoramide	Diphosphoramide, octamethyl	100 (45.4)
Osmium tetroxide	Osmium tetroxide	1000 (454)
Osmium trioxide	Osmium trioxide	1000 (454)
Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid	Endosulfal	1000 (454)
1,2-Oxathiolane, 2,2-dioxide	1,3-Propane sulfone	10 (4.54)
2H-1,3,2-Oxazaphosphorine 2-bis(2-chloroethyl) amino tetrahydro-2-oxide	Cyclophosphamide	10 (4.54)
Oxirane	Ethylene oxide *	10 (4.54)
Oxirane, 2-(chloromethyl)-	Epichlorohydrin *	100 (45.4)
	1-Chloro-2,3-epoxypropane	
Paraformaldehyde *		1000 (454)
Paraldehyde *	1,3,5-Trioxane, 2,4,6-trimethyl	1000 (454)
Parathion *	Phosphorothioic acid, O,O-diethyl O-(p-nitrophenyl)ester	10 (4.54)
Pentachlorobenzene	Benzene, pentachloro	10 (4.54)
Pentachloroethane	Ethane, pentachloro	10 (4.54)
Pentachloronitrobenzene	Benzene, pentachloronitro	100 (45.4)
Pentachlorophenol	Phenol, pentachloro	10 (4.54)
1,3-Pentadiene	1-Methylbutadiene	100 (45.4)
Perchloroethylene *	Ethene, 1,1,2,2-tetrachloro	100 (45.4)
	Tetrachloroethene	
	Tetrachloroethylene *	
Perchloromethyl mercaptan (S)	Methanesulfonyl chloride, trichloro	100 (45.4)
	Trichloromethanesulfonyl chloride	
	Acetamide, N-(4-ethoxyphenyl)	
Phenacetin		100 (45.4)
Phenanthrene		5000 (2270)
Phenol *	Benzene, hydroxy	1000 (454)
Phenol, 2-chloro	o-Chlorophenol	100 (45.4)
Phenol, 4-chloro-3-methyl	2-Chlorophenol	
	p-Chloro-m-cresol	
	4-Chloro-m-cresol	
Phenol, 2-cyclohexyl-4,6-dinitro	4,6-Dinitro-o-cyclohexylphenol	100 (45.4)
Phenol, 2,4-dichloro	2,4-Dichlorophenol	100 (45.4)
Phenol, 2,6-dichloro	2,6-Dichlorophenol	100 (45.4)
Phenol, 2,4-dimethyl	2,4-Dimethylphenol	100 (45.4)
Phenol, 2,4-dinitro	2,4-Dinitrophenol	10 (4.54)
Phenol, 2,4-dinitro-6-(1-methylpropyl)	Onoseb	1000 (454)
Phenol, 2,4-dinitro-6-methyl, and salts	4,6-Dinitro-o-cresol and salts	10 (4.54)
Phenol, 4-nitro	p-Nitrophenol *	100 (45.4)
	4-Nitrophenol *	
Phenol, pentachloro	Pentachlorophenol	10 (4.54)
Phenol, 2,3,4,6-tetrachloro	2,3,4,6-Tetrachlorophenol	10 (4.54)
Phenol, 2,4,5-trichloro	2,4,5-Trichlorophenol	10 (4.54)
Phenol, 2,4,6-trichloro	2,4,6-Trichlorophenol	10 (4.54)
Phenol, 2,4,6-trinitro, ammonium salt	Ammonium picrate *	10 (4.54)
Phenyl dichloroarsine *	Dichlorophenylarsine	10 (4.54)
1,10-(1,2-Phenylene)pyrene	Indeno[1,2,3-cd]pyrene	100 (45.4)
Phenyl mercaptan (S)	Benzenethiol	100 (45.4)
	Thiophenol *	
Phenylmercuric acetate	Mercury (acetato-O)phenyl	100 (45.4)
N-Phenylthiourea	Thiourea, phenyl	100 (45.4)
Phorate	Phosphorothioic acid, O,O-diethyl S-(ethylthio) methyl ester	10 (4.54)
Phosgene *	Carbonyl chloride	10 (4.54)
Phosphine *	Hydrogen phosphide	100 (45.4)
Phosphonic acid *		5000 (2270)
Phosphonic acid, diethyl p-nitrophenyl ester	Diethyl-p-nitrophenyl phosphazate	100 (45.4)
Phosphonic acid, lead salt	Lead phosphate	10 (4.54)
Phosphorodithioic acid, O,O-diethyl S-(ethylthio) methyl ester	Phorate	10 (4.54)
Phosphorodithioic acid, O,O-diethyl S-methyl ester	O,O-Diethyl S-methyl dithiophosphate	5000 (2270)
Phosphorodithioic acid, O,O-dimethyl S-[2 (methylamino) 2-oxoethyl] ester	Dimethoate	10 (4.54)
Phosphorothioic acid, bis(1-methylthio) ester	Disopropyl fluorophosphate	100 (45.4)
Phosphorothioic acid, O,O-diethyl O-(p-nitrophenyl) ester	Parathion *	10 (4.54)
Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester	O,O-Diethyl O-pyrazinyl phosphorothioate	100 (45.4)
Phosphorothioic acid, O,O-dimethyl O-[p-(dimethylamino)sulfonyl] phenyl ester	Famphur	1000 (454)
Phosphorus *		10 (4.54)
Phosphorus oxychloride *		1000 (454)

SUPPLEMENT 1 TO ATA 111-J

TABLE 1—HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES—Continued

Hazardous Substance	Synonyms	Reportable Quantity (RQ) Pounds (Kilograms)
Phosphorus pentasulfide *	Phosphorus sulfide	100 (45.4)
Phosphorus sulfide	Sulfur phosphide Phosphorus pentasulfide * Sulfur phosphide	100 (45.4)
Phosphorus trichloride *		1000 (454)
Phthalic anhydride	1,2-Benzenedicarboxylic acid anhydride	5000 (2270)
2-Picoline	Pyridine, 2-methyl	5000 (2270)
Plumbane, tetraethyl	Tetraethyl lead *	10 (4.54)
POLYCHLORINATED BIPHENYLS (PCBs)	Aroclor 1016 Aroclor 1221 Aroclor 1232 Aroclor 1242 Aroclor 1248 Aroclor 1254 Aroclor 1260	1 (0.454)
Potassium arsenate *		1 (0.454)
Potassium arsenite *		1 (0.454)
Potassium bichromate	Potassium dichromate #	10 (4.54)
Potassium chromate		10 (4.54)
Potassium cyanide *		10 (4.54)
Potassium dichromate #	Potassium bichromate	10 (4.54)
Potassium hydroxide *		1000 (454)
Potassium permanganate *		100 (45.4)
Potassium silver cyanide		1 (0.454)
Propanamide	3,5-Dichloro-N-(1,1-dimethyl-2-propenyl)benzamide	5000 (2270)
1-Propanol, 2,3-epoxy	Glycidylaldehyde	10 (4.54)
Propanol, 2-methyl-2-(methylthio)-O-[(methylamino)carbonyl]oxime	Aldicarb	1 (0.454)
1-Propanamine	n-Propylamine *	5000 (2270)
1-Propanamine, N-propyl	Dipropylamine	5000 (2270)
Propane, 1,2-dibromo-3-chloro	1,2-Dibromo-3-chloropropane	1 (0.454)
Propane, 2-bromo	2-Bromopropane	10 (4.54)
Propane, 2,2-dicyano-2-chloro	Bis(2-chloroisopropyl) ether	1000 (454)
1,3-Propane sultone	1,2-Oxathiolane, 2,2-dioxide	10 (4.54)
Propanedinitrile	Malononitrile	1000 (454)
Propanenitrile	Ethyl cyanide	10 (4.54)
Propanenitrile, 3-chloro	3-Chloropropanitrile	1000 (454)
Propanenitrile, 2-hydroxy-2-methyl	Acetone cyanohydrin *	10 (4.54)
1,2,3-Propanetriol, trinitrate	2-Methylacrylonitrile	
1-Propanol, 2,3-dibromo-, phosphate (3:1)	Nitroglycerine *	10 (4.54)
1-Propanol, 2-methyl	Tris(2,3-dibromopropyl)phosphate	10 (4.54)
2-Propanone	Isobutyl alcohol	5000 (2270)
2-Propanone, 1-bromo	Acetone *	5000 (2270)
Propargyl	Bromoacetone *	1000 (454)
Propargyl alcohol *		10 (4.54)
2-Propenal	2-Propyn-1-ol	1000 (454)
2-Propenamide	Acrolein *	1 (0.454)
Propene, 1,3-dichloro	Acrylamide	5000 (2270)
1-Propene, 1,1,2,3,3,3-hexachloro	1,3-Dichloropropene	100 (45.4)
2-Propenenitrile	Hexachloropropene	1000 (454)
2-Propenenitrile, 2-methyl	Acrylonitrile	100 (45.4)
2-Propenoic acid	Methacrylonitrile	1000 (454)
2-Propenoic acid, ethyl ester	Acrylic acid *	5000 (2270)
2-Propenoic acid, 2-methyl, ethyl ester	Ethyl acrylate *	1000 (454)
2-Propenoic acid, 2-methyl, methyl ester	Ethyl methacrylate	1000 (454)
2-Propen-1-ol	Methyl methacrylate *	1000 (454)
Propionic acid	Allyl alcohol *	100 (45.4)
Propionic acid, 2-(2,4,5-trichlorophenyl)		5000 (2270)
Propionic anhydride	Silver	100 (45.4)
n-Propylamine *	2,4,5-TP #	
Propylene dichloride *	2,4,5-TP acid	5000 (2270)
Propylene oxide *		5000 (2270)
1,2-Propyleneimine *	1-Propanamine	5000 (2270)
2-Propyn-1-ol	1,2-Dichloropropane	1000 (454)
Pyrene		100 (45.4)
Pyrethrins	2-Methylaziridine	1 (0.454)
4-Pyridinamine	Propargyl alcohol *	1000 (454)
Pyridine		5000 (2270)
Pyridine, 2-[2-(dimethylamino)ethyl]-2-phenylamino	4-Aminopyridine	1 (0.454)
Pyridine, hexahydro-N-nitroso		1000 (454)
Pyridine, 2-methyl	Methacrylene	5000 (2270)
Pyridine, (S)-3-(1-methyl-2-pyrrolidinyl), and salts	N-Nitrosopiperidine	10 (4.54)
4,11a-Pyrimidinone, 2,3-dihydro-6-methyl-2-thio	2-Picoline	5000 (2270)
Pyrophosphoric acid, tetraethyl ester	Nicotine * and salts *	100 (45.4)
Pyrole, tetrahydro-N-nitroso	Methylthiourea	10 (4.54)
Quinoline	Tetraethyl pyrophosphate *	10 (4.54)
RADIONUCLIDES	N-Nitrosopyrrolidine	1 (0.454)
Reserpine		5000 (2270)
Resorcinol	Yohimban-16-carboxylic acid, 11,17-dimethoxy-18-[3,4,5-trimethoxybenzoyloxy]-methyl ester	5000 (2270)
Saccharin and salts	1,3-Benzene-diol	100 (45.4)
Saltol	1,2-Benzisothiazolin-3-one, 1,1-dioxide, and salts	100 (45.4)
Selenious acid	Benzene, 1,2-methylene-dicyclo-4-allyl	10 (4.54)
Selenium c		100 (45.4)
Selenium dioxide	Selenium oxide *	10 (4.54)
Selenium disulfide	Sulfur selenide	10 (4.54)
Selenium oxide *	Selenium dioxide	10 (4.54)
Selenourea	Carbamimidoselenonic acid	1000 (454)
L-Serine, diazoacetate (ester)	Azaserine	1 (0.454)
Silver c		1000 (454)
Silver cyanide *		1 (0.454)
Silver nitrate *		1 (0.454)

SUPPLEMENT 1 TO ATA III-J

TABLE I—HAZARDOUS SUBSTANCES OTHER THAN RADIOISOTOPES—Continued

Hazardous Substance	Synonyms	Reportable Quantity (RQ) Pounds (Kilograms)
Silver	Propionic acid, 2-(2,4,5-trichlorophenyl)- 2,4,5-TP # 2,4,5-TP acid	100 (45.4)
Sodium		10 (4.54)
Sodium arsenate		1 (0.454)
Sodium arsenite		1 (0.454)
Sodium azide		1000 (454)
Sodium dichromate	Sodium dichromate #	10 (4.54)
Sodium bichromate		100 (45.4)
Sodium bisulfite		5000 (2270)
Sodium chromate		10 (4.54)
Sodium cyanide		10 (4.54)
Sodium dichromate #	Sodium bichromate	10 (4.54)
Sodium dodecylbenzene sulfonate		1000 (454)
Sodium fluoride		1000 (454)
Sodium hydrosulfide		5000 (2270)
Sodium hydroxide		1000 (454)
Sodium hypochlorite		100 (45.4)
Sodium metylate		1000 (454)
Sodium nitrite		100 (45.4)
Sodium phosphate, dibasic		5000 (2270)
Sodium phosphate, tribasic		5000 (2270)
Sodium selenite		100 (45.4)
4,4-Stibenedol, alpha, alpha-dimethyl- Streptozotocin	Diethylstilbestrol D-Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido)-	1 (0.454) 1 (0.454)
Strontium chromate		10 (4.54)
Strychnin-10-one, 2,3-dimethoxy-	Brucine	100 (45.4)
Strychnin-10-one, and salts	Strychnine * and salts *	10 (4.54)
Strychnine * and salts *	Strychnin-10-one, and salts	10 (4.54)
Syrene		1000 (454)
Sulfur hydride	Hydrogen sulfide *	100 (45.4)
Sulfur monochloride	Hydrosulfuric acid	
Sulfur phosphide	Phosphorus pentasulfide *	1000 (454)
	Phosphorus sulfide	100 (45.4)
	Selenium disulfide	10 (4.54)
Sulfur selenide		1000 (454)
Sulfuric acid	Dimethyl sulfate *	100 (4.54)
Sulfuric acid, dimethyl ester	Thallium(I) sulfate *	100 (45.4)
Sulfuric acid, thallium(I) salt	2,4,5-T acid	1000 (454)
2,4,5-T *	2,4,5-Trichlorophenoxyacetic acid *	
	2,4,5-T *	1000 (454)
2,4,5-T acid	2,4,5-Trichlorophenoxyacetic acid *	
2,4,5-T amines		5000 (2270)
2,4,5-T esters		1000 (454)
2,4,5-T salts		1000 (454)
TDE *	DDO	1 (0.454)
	Dichlorodiphenyl dichloroethane	
	4,4-DDO	
1,2,4,5-Tetrachlorobenzene	Benzene, 1,2,4,5-tetrachloro-	5000 (2270)
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)		1 (0.454)
1,1,1,2-Tetrachloroethane	Ethane, 1,1,1,2-tetrachloro-	100 (45.4)
1,1,2,2-Tetrachloroethane	Ethane, 1,1,2,2-tetrachloro-	100 (45.4)
Tetrachloroethene	Ethene, 1,1,2,2-tetrachloro- Perchloroethylene *	100 (45.4)
	Tetrachloroethylene *	
Tetrachloroethylene *	Ethene, 1,1,2,2-tetrachloro- Perchloroethylene *	100 (45.4)
	Tetrachloroethene	
2,3,4,6-Tetrachlorophenol	Phenol, 2,3,4,6-tetrachloro-	10 (4.54)
Tetraethyl lead	Plumbane, tetraethyl-	10 (4.54)
Tetraethyl pyrophosphate	Pyrophosphoric acid, tetraethyl ester	10 (4.54)
Tetraethylthiopyrophosphate	Dithiopyrophosphoric acid, tetraethyl ester	100 (45.4)
Tetrahydrofuran	Furan, tetrahydro-	1000 (454)
Tetrahydrofuran *	Methane, tetrahydro-	10 (4.54)
Tetrahydrophosphoric acid, hexaethyl ester	Hexaethyl tetraphosphate *	100 (45.4)
Thallic oxide	Thallium(III) oxide	100 (45.4)
Thallium #		1000 (454)
Thallium(I) acetate	Acetic acid, thallium(I) salt	100 (45.4)
Thallium(I) carbonate	Carbonic acid, dithallium (I) salt	100 (45.4)
Thallium(I) chloride		100 (45.4)
Thallium(I) nitrate		100 (45.4)
Thallium(III) oxide	Thallic oxide	100 (45.4)
Thallium(I) selenide		1000 (454)
Thallium(I) sulfate	Sulfuric acid, thallium(I) salt	100 (45.4)
Thioacetamide	Ethanethioamide	10 (4.54)
Thioacet	3,3-Dimethyl-1-(methylthio)-2-butanone, O-[(methylamino)carbonyl] oxime	100 (45.4)
Thioimidocarbonyl diamide	2,4-Dithioburel	100 (45.4)
Thioisocyanide	Methanethiol	100 (45.4)
Thioisocyanide *	Methyl mercaptan *	
Thioisocyanide *	Benzenethiol	100 (45.4)
Thioisocyanide *	Phenyl mercaptan #	
Thioisocyanide *	Hydrazinecarbothioamide	100 (45.4)
Thioisocyanide *	Carbamide, thio-	10 (4.54)
Thiourea	1-[o-Chlorophenyl]thiourea	100 (45.4)
Thiourea, 2-chlorophenyl-	alpha-Naphthylthiourea	100 (45.4)
Thiourea, 1-naphthyl-	N-Phenylthiourea	100 (45.4)
Thiourea, phenyl-	Bis(dimethylthiocarbonyl) disulfide	10 (4.54)
Thiram	Benzene, methyl-	1000 (454)
Toluene *	Daminotoluene	10 (4.54)
Toluenediamine *	Benzene, 2,4-dicyanatomethyl-	100 (45.4)
Toluene diisocyanate *	2-Amino-1-methyl benzene	100 (45.4)
o-Toluidine	4-Amino-1-methyl benzene	100 (45.4)
p-Toluidine	Benzenamine, 2-methyl-, hydrochloride	100 (45.4)
o-Toluidine hydrochloride		

For explanation of abbreviations and reference marks, see last page of this supplement.

TABLE I—HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES—Continued

Hazardous Substance	Synonyms	Reportable Quantity (RQ) Pounds (Kilograms)
Teraphene *	Camphene, octachloro-	1 (0.454)
2,4,5-TP #	Propionic acid, 2-(2,4,5-trichlorophenoxy)- Saves	100 (45.4)
2,4,5-TP acid	2,4,5-TP acid Propionic acid, 2-(2,4,5-trichlorophenoxy)- Saves	100 (45.4)
2,4,5-TP acid esters	2,4,5-TP #	100 (45.4)
1H-1,2,4-triazol-3-amine	Anzole	10 (4.54)
Trichloron		100 (45.4)
1,2,4-trichlorobenzene		100 (45.4)
1,1,1-trichloroethane *		100 (45.4)
1,1,2-trichloroethane		100 (45.4)
Trichloroethene		100 (45.4)
Trichloroethylene *		100 (45.4)
Trichloromethanesulfonyl chloride	Methanesulfonyl chloride, trichloro- Perchloromethyl mercaptan #	100 (45.4)
Trichloromonofluoromethane	Methane, trichlorofluoro-	5000 (2270)
Trichlorophenol *		10 (4.54)
2,3,4-trichlorophenol		
2,3,5-trichlorophenol		
2,3,6-trichlorophenol		
2,4,5-trichlorophenol		
2,4,6-trichlorophenol		
3,4,5-trichlorophenol		
2,4,5-trichlorophenol	Phenol, 2,4,5-trichloro-	10 (4.54)
2,4,6-trichlorophenol	Phenol, 2,4,6-trichloro-	10 (4.54)
2,4,5-trichlorophenoxyacetic acid *	2,4,5-T * 2,4,5-T acid	1000 (454)
Triethanolamine dodecylbenzene sulfonate		1000 (454)
Triethylamine		5000 (2270)
Trimethylamine *		100 (45.4)
trans-Triazobenzene *		10 (4.54)
1,3,5-trioxane, 2,4,6-trimethyl-	Benzene, 1,3,5-triortho- Paraldehyde	1000 (454)
Tris(2,3-dibromopropyl) phosphate	1-Propanol, 2,3-dibromo-, phosphate (3:1)	10 (4.54)
Trypan blue	2,7-Naphthalene-sulfonic acid, 3,3'-(3,3'-dimethyl(4,4'-oxy)-bis(azo)bis(5-amino-4-hydroxy)tetrasodium salt	10 (4.54)
Unlisted Hazardous Wastes Characteristic of Corrosivity D002		100 (45.4)
Unlisted Hazardous Wastes Characteristic of EP Toxicity		
Arsenic D004		1 (0.454)
Barium D005		1000 (454)
Cadmium D006		10 (4.54)
Chromium D007		10 (4.54)
Lead D008		1 (0.454)
Mercury D009		1 (0.454)
Selenium D010		10 (4.54)
Silver D011		1 (0.454)
Endrin D012		1 (0.454)
Lindane D013		1 (0.454)
Methoxychlor D014		1 (0.454)
Teraphene D015		1 (0.454)
2,4-D D016		100 (45.4)
2,4,5-TP D017		100 (45.4)
Unlisted Hazardous Wastes Characteristic of Ignitability D001		100 (45.4)
Unlisted Hazardous Wastes Characteristic of Reactivity D003		100 (45.4)
Uracil, 5-[bis(2-chloroethyl)amino]-	Uracil mustard	10 (4.54)
Uracil mustard	Uracil, 5-[bis(2-chloroethyl)amino]-	10 (4.54)
Uranyl acetate *		100 (45.4)
Uranyl nitrate *		100 (45.4)
Vanadic acid, ammonium salt	Ammonium vanadate	1000 (454)
Vanadium(V) oxide	Vanadium pentoxide	1000 (454)
Vanadium pentoxide	Vanadium(V) oxide	1000 (454)
Vanadyl sulfate		1000 (454)
Vinyl acetate *		5000 (2270)
Vinyl chloride *	Ethene, chloro-	1 (0.454)
Vinylidene chloride *	Ethene, 1,1-dichloro- 1,1-Dichloroethylene	100 (45.4)
Warfarin	3-(alpha-Acetoxybenzyl)-4-hydroxycoumarin and salts	100 (45.4)
Xylene * (mixed)	Benzene, dimethyl	1000 (454)
m	m	
o	o	
p	p	
Xylenol *		1000 (454)
Yohimban-16-carboxylic acid, 11,17-dimethoxy-18-[3,4,5-trimethoxybenzoyloxy]-, methyl ester	Reserpine	5000 (2270)
Zinc #		1000 (454)
Zinc acetate		1000 (454)
Zinc ammonium chloride		1000 (454)
Zinc borate		1000 (454)
Zinc bromide		1000 (454)
Zinc carbonate		1000 (454)
Zinc chloride		1000 (454)
Zinc cyanide *		10 (4.54)
Zinc fluoride		1000 (454)
Zinc formate		1000 (454)
Zinc hydrosulfite *		1000 (454)
Zinc nitrate *		1000 (454)
Zinc phenolsulfonate		5000 (2270)
Zinc phosphide *		100 (45.4)
Zinc stannochloride		5000 (2270)
Zinc sulfate		1000 (454)
Zirconium nitrate *		5000 (2270)
Zirconium potassium fluoride		1000 (454)
Zirconium sulfate *		5000 (2270)
Zirconium tetrachloride *		5000 (2270)

SUPPLEMENT 1 TO AFA III-J

TABLE 1—HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES—Continued

Hazardous Substance	Synonyms	Reportable Quantity (RQ) Pounds (Kilograms)
F001 The following spent halogenated solvents used in degreasing, all spent solvent mixtures blends used in degreasing containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005, and still bottoms from the recovery of these spent solvents and spent solvent mixtures.		10 (4.54)
(a) Tetrachloroethylene (b) Trichloroethylene (c) Methylene chloride (d) 1,1,1-Trichloroethane (e) Carbon tetrachloride (f) Chlorinated fluorocarbons		100 (45.4) 100 (45.4) 1000 (454) 1000 (454) 10 (4.54) 5000 (2270) 10 (4.54)
F002 The following spent halogenated solvents; all spent solvent mixtures blends containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F004, F005, and still bottoms from the recovery of these spent solvents and spent solvent mixtures		
(a) Tetrachloroethylene (b) Methylene chloride (c) Trichloroethylene (d) 1,1,1-Trichloroethane (e) Chlorobenzene (f) 1,1,2-Trichloro-1,2,2-trifluoroethane (g) o-Dichlorobenzene (h) Trichlorofluoromethane (i) 1,1,2-Trichloroethane		100 (45.4) 1000 (454) 100 (45.4) 1000 (454) 100 (45.4) 5000 (2270) 100 (45.4) 5000 (2270) 100 (45.4) 100 (45.4)
F003 The following spent non-halogenated solvents and solvents:		
(a) Xylene (b) Acetone (c) Ethyl acetate (d) Ethylbenzene (e) Ethyl ether (f) Methyl isobutyl ketone (g) n-Butyl alcohol (h) Cyclohexanone (i) Methanol		1000 (454) 5000 (2270) 5000 (2270) 1000 (454) 100 (45.4) 5000 (2270) 5000 (2270) 5000 (2270) 5000 (2270) 1000 (454)
F004 The following spent non-halogenated solvents and the stillbottoms from the recovery of these solvents:		
(a) Cresols/Cresylic acid (b) Nitrobenzene		1000 (454) 1000 (454) 100 (45.4)
F005 The following spent non-halogenated solvents and the stillbottoms from the recovery of these solvents:		
(a) Toluene (b) Methyl ethyl ketone (c) Carbon disulfide (d) Isobutanol (e) Pyridine		1000 (454) 5000 (2270) 100 (45.4) 5000 (2270) 1000 (454) 10 (4.54)
F006 Wastewater treatment sludges from electroplating operations except from the following processes: (1) Sulfuric acid anodizing of aluminum, (2) tin plating on carbon steel, (3) zinc plating (segregated basis) on carbon steel, (4) aluminum or zinc-aluminum plating on carbon steel, (5) cleaning stripping associated with tin, zinc and aluminum plating on carbon steel, and (6) chemical etching and milling of aluminum.		10 (4.54)
F007 Spent cyanide plating bath solutions from electroplating operations		10 (4.54)
F008 Plating bath sludges from the bottoms of plating baths from electroplating operations where cyanides are used in the process (except for precious metals electroplating plating bath sludges).		10 (4.54)
F009 Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process (except for precious metals electroplating spent stripping and cleaning bath solutions).		10 (4.54)
F010 Quenching bath sludge from oil baths from metal heat treating operations where cyanides are used in the process (except for precious metals heat treating quenching bath sludges).		10 (4.54)
F011 Spent cyanide solutions from salt bath pot cleaning from metal heat treating operations (except for precious metals heat treating spent cyanide solutions from salt bath pot cleaning).		10 (4.54)
F012 Quenching wastewater treatment sludges from metal heat treating operations where cyanides are used in the process (except for precious metals heat treating quenching wastewater treatment sludges).		10 (4.54)
F013 Wastewater treatment sludges from the chemical conversion coating of aluminum.		1 (0.454)
F020 Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tri- or tetrachlorophenol, or of intermediates used to produce their pesticide derivatives. (This listing does not include wastes from the production of hexachlorophene from highly purified 2,4,5-trichlorophenol.)		1 (0.454)
F021 Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of pentachlorophenol, or of intermediates used to produce its derivatives.		1 (0.454)

For explanation of abbreviations and reference marks, see last page of this supplement.



TABLE 1—HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES—Continued

Hazardous Substance	Synonyms	Reportable Quantity (RQ) Pounds (Kilograms)
F022 Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tetra-, penta-, or hexachlorobenzenes under alkaline conditions		1 (0.454)
F023 Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of materials on equipment previously used for the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tri- and tetrachlorophenols. (This listing does not include wastes from equipment used only for the production or use of hexachlorophene from highly purified 2,4,5-trichlorophenol.)		1 (0.454)
F024 Wastes, including but not limited to distillation residues, heavy ends, tars, and reactor cleanout wastes, from the production of chlorinated aliphatic hydrocarbons, having carbon content from one to five, utilizing free radical catalyzed processes. (This listing does not include light ends, spent liters and liter acids, spent desiccants/sic, wastewater, wastewater treatment sludges, spent catalysts, and wastes listed in 40 CFR 261.32.)		1 (0.454)
F026 Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of materials on equipment previously used for the manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tetra-, penta-, or hexachlorobenzene under alkaline conditions.		1 (0.454)
F027 Discarded unused formulations containing tri-, tetra-, or pentachlorophenol or discarded unused formulations containing compounds derived from these chlorophenols. (This listing does not include formulations containing hexachlorophene synthesized from prepurified 2,4,5-trichlorophenol as the sole component.)		1 (0.454)
F028 Residues resulting from the incineration or thermal treatment of soil contaminated with EPA Hazardous Waste Nos. F020, F021, F022, F023, F026, and F027.		1 (0.454)
K001 Bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol.		1 (0.454)
K002 Wastewater treatment sludge from the production of chrome yellow and orange pigments		1 (0.454)
K003 Wastewater treatment sludge from the production of molybdate orange pigments		1 (0.454)
K004 Wastewater treatment sludge from the production of zinc yellow pigments		10 (4.54)
K005 Wastewater treatment sludge from the production of chrome green pigments		1 (0.454)
K006 Wastewater treatment sludge from the production of chrome oxide green pigments (anhydrous and hydrated)		10 (4.54)
K007 Wastewater treatment sludge from the production of iron blue pigments		10 (4.54)
K008 Oven residue from the production of chrome oxide green pigments		10 (4.54)
K009 Distillation bottoms from the production of acetaldehyde from ethylene		10 (4.54)
K010 Distillation side cuts from the production of acetaldehyde from ethylene		10 (4.54)
K011 Bottom stream from the wastewater stripper in the production of acrylonitrile		10 (4.54)
K013 Bottom stream from the acetonitrile column in the production of acrylonitrile		10 (4.54)
K014 Bottoms from the acetonitrile purification column in the production of acrylonitrile		5000 (2270)
K015 Still bottoms from the distillation of benzyl chloride		10 (4.54)
K016 Heavy ends or distillation residues from the production of carbon tetrachloride		1 (0.454)
K017 Heavy ends (still bottoms) from the purification column in the production of epichlorohydrin.		1 (0.454)
K018 Heavy ends from the fractionation column in ethyl chloride production		1 (0.454)
K019 Heavy ends from the distillation of ethylene dichloride in ethylene dichloride production.		1 (0.454)
K020 Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production.		10 (4.54)
K021 Aqueous spent antimony catalyst waste from fluoromethanes production		1 (0.454)
K022 Distillation bottom tars from the production of phenol acetone from cumene		5000 (2270)
K023 Distillation light ends from the production of phthalic anhydride from naphthalene		5000 (2270)
K024 Distillation bottoms from the production of phthalic anhydride from naphthalene		10 (4.54)
K025 Distillation bottoms from the production of nitrobenzene by the nitration of benzene.		1000 (454)
K026 Stripping still tails from the production of methyl ethyl pyridines		1000 (454)

TABLE 1—HAZARDOUS SUBSTANCES OTHER THAN RADIOISOTOPES—Continued

Hazardous Substance	Synonyms	Reportable Quantity (RQ) Pounds (Kilograms)
K027 Ce-4 sludge and distillation residues from toluene diisocyanate production		10 (4.54)
K028 Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane		1 (0.454)
K029 Waste from the product steam stripper in the production of 1,1,1-trichloroethane		1 (0.454)
K030 Column bottoms or heavy ends from the combined production of trichloroethylene and perchloroethylene		1 (0.454)
K031 By-product salts generated in the production of MSMA and cacodylic acid		1 (0.454)
K032 Wastewater treatment sludge from the production of chlordane		10 (4.54)
K033 Wastewater and scrub water from the chlorination of cyclopentadiene in the production of chlordane		10 (4.54)
K034 Filter solids from the nitration of hexachlorocyclopentadiene in the production of chlordane		10 (4.54)
K035 Wastewater treatment sludges generated in the production of creosote		1 (0.454)
K036 Still bottoms from toluene reclamation distillation in the production of disulfoton		1 (0.454)
K037 Wastewater treatment sludges from the production of disulfoton		1 (0.454)
K038 Wastewater from the washing and stripping of phorate production		10 (4.54)
K039 Filter cake from the nitration of diethylphosphorothioic acid in the production of phorate		10 (4.54)
K040 Wastewater treatment sludge from the production of phorate		1 (0.454)
K041 Wastewater treatment sludge from the production of toxaphene		10 (4.54)
K042 Heavy ends or distillation residues from the distillation of tetrachlorobenzene in the production of 2,4,5-T		10 (4.54)
K043 2,6-dichlorophenol waste from the production of 2,4-D		10 (4.54)
K044 Wastewater treatment sludges from the manufacturing and processing of explosives		10 (4.54)
K045 Spent carbon from the treatment of wastewater containing explosives		100 (45.4)
K046 Wastewater treatment sludges from the manufacturing, formulation and loading of lead-based initiating compounds		10 (4.54)
K047 Pink/red water from TNT operations		1 (0.454)
K048 Dissolved air flotation (DAF) float from the petroleum refining industry		1 (0.454)
K049 Slip oil emulsion solids from the petroleum refining industry		10 (4.54)
K050 Heat exchanger bundle cleaning sludge from the petroleum refining industry		1 (0.454)
K051 API separator sludge from the petroleum refining industry		1 (0.454)
K052 Tank bottoms (leaded) from the petroleum refining industry		1 (0.454)
K060 Ammonia still lime sludge from coking operations		1 (0.454)
K061 Emission control dust sludge from the primary production of steel in electric furnaces		1 (0.454)
K062 Spent pickle liquor from steel finishing operations		1 (0.454)
K064 Acid plant blowdown slurry sludge resulting from thickening of blowdown slurry from primary copper production		1 (0.454)
K065 Surface impoundment solids contained in and dredged from surface impoundments at primary lead smelting facilities		1 (0.454)
K066 Sludge from treatment of process wastewater and/or acid plant blowdown from primary zinc production		1 (0.454)
K069 Emission control dust sludge from secondary lead smelting		1 (0.454)
K071 Brine purification muds from the mercury cell process in chlorine production, where separately prepurified brine is not used		10 (4.54)
K073 Chlorinated hydrocarbon waste from the purification step of the diaphragm cell process using graphite anodes in chlorine production		100 (45.4)
K083 Distillation bottoms from aniline extraction		1 (0.454)
K084 Wastewater treatment sludges generated during the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds		10 (4.54)
K085 Distillation or fractionation column bottoms from the production of chlorobenzenes		10 (4.54)

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TABLE 1—HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES—Continued

Hazardous Substance	Synonyms	Reportable Quantity (RQ) Pounds (Kilograms)
K266 Solvent washes and sludges, caustic washes and sludges, or water washes and sludges from cleaning tubs and equipment used in the formulation of ink from pigments, driers, soaps, and stabilizers containing chromium and lead.		1 (0.454)
K267 Decanter tank tar sludge from coking operations		100 (45.4)
K268 Spent potlines from primary aluminum reduction		1 (0.454)
K290 Emission control dust or sludge from ferrochromium/silicon production		1 (0.454)
K291 Emission control dust or sludge from ferrochromium production		5000 (2270)
K293 Distillation light ends from the production of phthalic anhydride from ortho-xylene		5000 (2270)
K294 Distillation bottoms from the production of phthalic anhydride from ortho-xylene.		100 (45.4)
K295 Distillation bottoms from the production of 1,1,1-trichloroethane		100 (45.4)
K296 Heavy ends from the heavy ends column from the production of 1,1,1-trichloroethane.		1 (0.454)
K297 Vacuum stripper discharge from the chlorofane chlorinator in the production of chlorofane.		1 (0.454)
K298 Untreated process wastewater from the production of toxaphene		10 (4.54)
K299 Untreated wastewater from the production of 2,4-D		1 (0.454)
K300 Waste leaching solution from acid leaching of emission control dust sludge from secondary lead smelting		1 (0.454)
K301 Distillation tar residues from the distillation of aniline-based compounds in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds		1 (0.454)
K302 Residue from the use of activated carbon or decolorization in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.		100 (45.4)
K303 Process residues from aniline extraction from the production of aniline		10 (4.54)
K304 Combined wastewater streams generated from nitrobenzene aniline chlorobenzenes.		10 (4.54)
K305 Separated aqueous streams from the reactor product washing step in the production of chlorobenzenes		1 (0.454)
K306 Wastewater treatment sludge from the mercury cell process in chlorine production.		10 (4.54)
K111 Product washwaters from the production of dinitrotoluene via nitration of toluene		10 (4.54)
K112 Reaction by-product water from the drying column in the production of toluenediamine via hydrogenation of dinitrotoluene.		10 (4.54)
K113 Condensed liquid light ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.		10 (4.54)
K114 Moistals from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.		10 (4.54)
K115 Heavy ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.		10 (4.54)
K116 Organic condensate from the solvent recovery column in the production of toluene diisocyanate via phosgenation of toluenediamine.		1 (0.454)
K117 Wastewater from the reaction vent gas scrubber in the production of ethylene dibromide via bromination of ethene.		1 (0.454)
K118 Spent absorbent solids from purification of ethylene dibromide in the production of ethylene dibromide.		10 (4.54)
K123 Process wastewater (including supernates, filtrates, and washwaters) from the production of ethylenedisulfocarbamic acid and its salts.		10 (4.54)
K124 Reactor vent scrubber water from the production of ethylenedisulfocarbamic acid and its salts		10 (4.54)
K125 Filtration, evaporation, and centrifugation solids from the production of ethylenedisulfocarbamic acid and its salts.		10 (4.54)
K126 Baghouse dust and floor sweepings in milling and packaging operations from the production or formulation of ethylenedisulfocarbamic acid and its salts.		1 (0.454)
K136 Still bottoms from the purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene.		

Footnotes:

e - the RQ for these hazardous substances is limited to those pieces of the metal having a diameter smaller than 100 micrometers (0.004 inches)

e - the RQ for asbestos is limited to friable forms only

(\*) indicates that this material appears by name in the Hazardous Materials Table

(#) indicates that the name was added by RSPA because (1) the name is a synonym for a specific hazardous substance and (2) the name appears in the Hazardous Materials Table as a proper shipping name.

In the appendix to § 172.101, entitled "LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES", the introductory text which precedes the listing of hazardous substances in the appendix to § 172.101, is further revised to read as follows:

**Appendix to § 172.101—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES**

1. This appendix lists materials and their corresponding reportable quantities (RQs) which are listed or designated as "hazardous substances" under section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, Pub. L. 96-510). This Appendix is divided into 2 TABLES which are entitled "TABLE 1—HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES" and "TABLE 2—RADIONUCLIDES". A material listed in this Appendix is regulated as a hazardous material and a hazardous substance under this subchapter if it meets the definition of a hazardous substance in § 171.8 of this subchapter.

2. The procedure for selecting a proper shipping name for a hazardous substance is set forth in § 172.101(c)(9).

3. Column 1 of TABLE 1, entitled "Hazardous substance," contains the names of those elements and compounds which are hazardous substances. Following the listing of elements and compounds is a listing of waste streams. These waste streams appear on the list in numerical sequence and are referenced by the appropriate "F" or "K" numbers. Column 2 of TABLE 1, entitled "Synonyms", contains the names of synonyms for certain elements and compounds listed in Column 1. No synonyms are listed for waste streams. Synonyms are useful in identifying hazardous substances and in identifying proper shipping names. Column 3 of TABLE 1, entitled "Reportable quantity (RQ)", contains the reportable quantity (RQ), in pounds and kilograms, for each hazardous substance listed in Column 1 of TABLE 1.

4. A series of notes are used throughout TABLE 1 and TABLE 2 to provide additional information concerning certain hazardous substances. These notes are explained at the end of each TABLE.

5. TABLE 2 lists radionuclides which are hazardous substances and their corresponding RQs. The RQs in Table 2 for radionuclides are expressed in units of curies, and terabecquerels, whereas those in Table 1 are expressed in units of pounds. If a material is listed in both Table 1 and Table 2, the lowest RQ shall apply. Radionuclides are listed in alphabetical order. The RQs for radionuclides are given in the radiological unit of measure of curie, abbreviated "Ci", followed, in parentheses, by an equivalent unit measured in terabecquerels, abbreviated "TBq".

6. For mixtures of radionuclides, the following determinations shall be used in determining if a package contains an RQ of a hazardous substance: (i) if the identity and quantity (in curies or terabecquerels) of each radionuclide in a mixture or solution is known, the ratio between the quantity per package (in curies or terabecquerels) and the RQ for the radionuclide must be determined for each radionuclide. A package contains an RQ of a hazardous substance when the sum of the ratios for the radionuclides in the mixture or solution is equal to or greater than one; (ii) if the identity of each radionuclide in a mixture or solution is known but the quantity per package (in curies or terabecquerels) of one or more of the radionuclides is unknown, an RQ of a hazardous substance is present in a package when the total quantity (in curies or terabecquerels) of the mixture or solution is equal to or greater than the lowest RQ of any individual radionuclide in the mixture or solution; and (iii) if the identity of one or more radionuclides in a mixture or solution is unknown (or if the identity of a radionuclide by itself is unknown), an RQ of a hazardous substance is present when the total quantity (in curies or terabecquerels) in a package is equal to or greater than either one curie or the lowest RQ of any known individual radionuclide in the mixture or solution, whichever is lower.

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Table 2—Radionuclides

(1) Radionuclide	(2) Atomic number	(3) Reportable quantity (RQ) Ci (TBq)
Actinium-224	89	100 (3.7)
Actinium-225	89	1 (0.037)
Actinium-226	89	10 (3.7)
Actinium-227	89	0.001 (0.00037)
Actinium-228	89	10 (3.7)
Actinium-228m	113	10 (3.7)
Actinium-229	95	1000 (3.7)
Actinium-230	95	100 (3.7)
Actinium-231	95	100 (3.7)
Actinium-232	95	10 (3.7)
Actinium-233	95	0.01 (0.0037)
Actinium-234	95	100 (3.7)
Actinium-235	95	0.01 (0.0037)
Actinium-236	95	0.01 (0.0037)
Actinium-237	95	10 (3.7)
Actinium-238	95	1000 (3.7)
Actinium-238m	95	1000 (3.7)
Actinium-239	95	1000 (3.7)
Actinium-240	95	1000 (3.7)
Actinium-241	95	1000 (3.7)
Actinium-242	95	100 (3.7)
Actinium-242m	95	0.01 (0.0037)
Actinium-243	95	0.01 (0.0037)
Actinium-244	95	10 (3.7)
Actinium-244m	95	1000 (3.7)
Actinium-245	95	1000 (3.7)
Actinium-245m	95	1000 (3.7)
Actinium-246	95	1000 (3.7)
Actinium-246m	95	1000 (3.7)
Actinium-247	95	1000 (3.7)
Actinium-248	95	1000 (3.7)
Actinium-249	95	1000 (3.7)
Actinium-250	95	1000 (3.7)
Actinium-251	95	1000 (3.7)
Actinium-252	95	1000 (3.7)
Actinium-253	95	1000 (3.7)
Actinium-254	95	1000 (3.7)
Actinium-255	95	1000 (3.7)
Actinium-256	95	1000 (3.7)
Actinium-257	95	1000 (3.7)
Actinium-258	95	1000 (3.7)
Actinium-259	95	1000 (3.7)
Actinium-260	95	1000 (3.7)
Actinium-261	95	1000 (3.7)
Actinium-262	95	1000 (3.7)
Actinium-263	95	1000 (3.7)
Actinium-264	95	1000 (3.7)
Actinium-265	95	1000 (3.7)
Actinium-266	95	1000 (3.7)
Actinium-267	95	1000 (3.7)
Actinium-268	95	1000 (3.7)
Actinium-269	95	1000 (3.7)
Actinium-270	95	1000 (3.7)
Actinium-271	95	1000 (3.7)
Actinium-272	95	1000 (3.7)
Actinium-273	95	1000 (3.7)
Actinium-274	95	1000 (3.7)
Actinium-275	95	1000 (3.7)
Actinium-276	95	1000 (3.7)
Actinium-277	95	1000 (3.7)
Actinium-278	95	1000 (3.7)
Actinium-279	95	1000 (3.7)
Actinium-280	95	1000 (3.7)
Actinium-281	95	1000 (3.7)
Actinium-282	95	1000 (3.7)
Actinium-283	95	1000 (3.7)
Actinium-284	95	1000 (3.7)
Actinium-285	95	1000 (3.7)
Actinium-286	95	1000 (3.7)
Actinium-287	95	1000 (3.7)
Actinium-288	95	1000 (3.7)
Actinium-289	95	1000 (3.7)
Actinium-290	95	1000 (3.7)
Actinium-291	95	1000 (3.7)
Actinium-292	95	1000 (3.7)
Actinium-293	95	1000 (3.7)
Actinium-294	95	1000 (3.7)
Actinium-295	95	1000 (3.7)
Actinium-296	95	1000 (3.7)
Actinium-297	95	1000 (3.7)
Actinium-298	95	1000 (3.7)
Actinium-299	95	1000 (3.7)
Actinium-300	95	1000 (3.7)
Actinium-301	95	1000 (3.7)
Actinium-302	95	1000 (3.7)
Actinium-303	95	1000 (3.7)
Actinium-304	95	1000 (3.7)
Actinium-305	95	1000 (3.7)
Actinium-306	95	1000 (3.7)
Actinium-307	95	1000 (3.7)
Actinium-308	95	1000 (3.7)
Actinium-309	95	1000 (3.7)
Actinium-310	95	1000 (3.7)
Actinium-311	95	1000 (3.7)
Actinium-312	95	1000 (3.7)
Actinium-313	95	1000 (3.7)
Actinium-314	95	1000 (3.7)
Actinium-315	95	1000 (3.7)
Actinium-316	95	1000 (3.7)
Actinium-317	95	1000 (3.7)
Actinium-318	95	1000 (3.7)
Actinium-319	95	1000 (3.7)
Actinium-320	95	1000 (3.7)
Actinium-321	95	1000 (3.7)
Actinium-322	95	1000 (3.7)
Actinium-323	95	1000 (3.7)
Actinium-324	95	1000 (3.7)
Actinium-325	95	1000 (3.7)
Actinium-326	95	1000 (3.7)
Actinium-327	95	1000 (3.7)
Actinium-328	95	1000 (3.7)
Actinium-329	95	1000 (3.7)
Actinium-330	95	1000 (3.7)
Actinium-331	95	1000 (3.7)
Actinium-332	95	1000 (3.7)
Actinium-333	95	1000 (3.7)
Actinium-334	95	1000 (3.7)
Actinium-335	95	1000 (3.7)
Actinium-336	95	1000 (3.7)
Actinium-337	95	1000 (3.7)
Actinium-338	95	1000 (3.7)
Actinium-339	95	1000 (3.7)
Actinium-340	95	1000 (3.7)
Actinium-341	95	1000 (3.7)
Actinium-342	95	1000 (3.7)
Actinium-343	95	1000 (3.7)
Actinium-344	95	1000 (3.7)
Actinium-345	95	1000 (3.7)
Actinium-346	95	1000 (3.7)
Actinium-347	95	1000 (3.7)
Actinium-348	95	1000 (3.7)
Actinium-349	95	1000 (3.7)
Actinium-350	95	1000 (3.7)
Actinium-351	95	1000 (3.7)
Actinium-352	95	1000 (3.7)
Actinium-353	95	1000 (3.7)
Actinium-354	95	1000 (3.7)
Actinium-355	95	1000 (3.7)
Actinium-356	95	1000 (3.7)
Actinium-357	95	1000 (3.7)
Actinium-358	95	1000 (3.7)
Actinium-359	95	1000 (3.7)
Actinium-360	95	1000 (3.7)
Actinium-361	95	1000 (3.7)
Actinium-362	95	1000 (3.7)
Actinium-363	95	1000 (3.7)
Actinium-364	95	1000 (3.7)
Actinium-365	95	1000 (3.7)
Actinium-366	95	1000 (3.7)
Actinium-367	95	1000 (3.7)
Actinium-368	95	1000 (3.7)
Actinium-369	95	1000 (3.7)
Actinium-370	95	1000 (3.7)
Actinium-371	95	1000 (3.7)
Actinium-372	95	1000 (3.7)
Actinium-373	95	1000 (3.7)
Actinium-374	95	1000 (3.7)
Actinium-375	95	1000 (3.7)
Actinium-376	95	1000 (3.7)
Actinium-377	95	1000 (3.7)
Actinium-378	95	1000 (3.7)
Actinium-379	95	1000 (3.7)
Actinium-380	95	1000 (3.7)
Actinium-381	95	1000 (3.7)
Actinium-382	95	1000 (3.7)
Actinium-383	95	1000 (3.7)
Actinium-384	95	1000 (3.7)
Actinium-385	95	1000 (3.7)
Actinium-386	95	1000 (3.7)
Actinium-387	95	1000 (3.7)
Actinium-388	95	1000 (3.7)
Actinium-389	95	1000 (3.7)
Actinium-390	95	1000 (3.7)
Actinium-391	95	1000 (3.7)
Actinium-392	95	1000 (3.7)
Actinium-393	95	1000 (3.7)
Actinium-394	95	1000 (3.7)
Actinium-395	95	1000 (3.7)
Actinium-396	95	1000 (3.7)
Actinium-397	95	1000 (3.7)
Actinium-398	95	1000 (3.7)
Actinium-399	95	1000 (3.7)
Actinium-400	95	1000 (3.7)
Actinium-401	95	1000 (3.7)
Actinium-402	95	1000 (3.7)
Actinium-403	95	1000 (3.7)
Actinium-404	95	1000 (3.7)
Actinium-405	95	1000 (3.7)
Actinium-406	95	1000 (3.7)
Actinium-407	95	1000 (3.7)
Actinium-408	95	1000 (3.7)
Actinium-409	95	1000 (3.7)
Actinium-410	95	1000 (3.7)
Actinium-411	95	1000 (3.7)
Actinium-412	95	1000 (3.7)
Actinium-413	95	1000 (3.7)
Actinium-414	95	1000 (3.7)
Actinium-415	95	1000 (3.7)
Actinium-416	95	1000 (3.7)
Actinium-417	95	1000 (3.7)
Actinium-418	95	1000 (3.7)
Actinium-419	95	1000 (3.7)
Actinium-420	95	1000 (3.7)
Actinium-421	95	1000 (3.7)
Actinium-422	95	1000 (3.7)
Actinium-423	95	1000 (3.7)
Actinium-424	95	1000 (3.7)
Actinium-425	95	1000 (3.7)
Actinium-426	95	1000 (3.7)
Actinium-427	95	1000 (3.7)
Actinium-428	95	1000 (3.7)
Actinium-429	95	1000 (3.7)
Actinium-430	95	1000 (3.7)
Actinium-431	95	1000 (3.7)
Actinium-432	95	1000 (3.7)
Actinium-433	95	1000 (3.7)
Actinium-434	95	1000 (3.7)
Actinium-435	95	1000 (3.7)
Actinium-436	95	1000 (3.7)
Actinium-437	95	1000 (3.7)
Actinium-438	95	1000 (3.7)
Actinium-439	95	1000 (3.7)
Actinium-440	95	1000 (3.7)
Actinium-441	95	1000 (3.7)
Actinium-442	95	1000 (3.7)
Actinium-443	95	1000 (3.7)
Actinium-444	95	1000 (3.7)
Actinium-445	95	1000 (3.7)
Actinium-446	95	1000 (3.7)
Actinium-447	95	1000 (3.7)
Actinium-448	95	1000 (3.7)
Actinium-449	95	1000 (3.7)
Actinium-450	95	1000 (3.7)
Actinium-451	95	1000 (3.7)
Actinium-452	95	1000 (3.7)
Actinium-453	95	1000 (3.7)
Actinium-454	95	1000 (3.7)
Actinium-455	95	1000 (3.7)
Actinium-456	95	1000 (3.7)
Actinium-457	95	1000 (3.7)
Actinium-458	95	1000 (3.7)
Actinium-459	95	1000 (3.7)
Actinium-460	95	1000 (3.7)
Actinium-461	95	1000 (3.7)
Actinium-462	95	1000 (3.7)
Actinium-463	95	1000 (3.7)
Actinium-464	95	1000 (3.7)
Actinium-465	95	1000 (3.7)
Actinium-466	95	1000 (3.7)
Actinium-467	95	1000 (3.7)
Actinium-468	95	1000 (3.7)
Actinium-469	95	1000 (3.7)
Actinium-470	95	1000 (3.7)
Actinium-471	95	1000 (3.7)
Actinium-472	95	1000 (3.7)
Actinium-473	95	1000 (3.7)
Actinium-474	95	1000 (3.7)
Actinium-475	95	1000 (3.7)
Actinium-476	95	1000 (3.7)
Actinium-477	95	1000 (3.7)
Actinium-478	95	1000 (3.7)
Actinium-479	95	1000 (3.7)
Actinium-480	95	1000 (3.7)
Actinium-481	95	1000 (3.7)
Actinium-482	95	1000 (3.7)
Actinium-483	95	1000 (3.7)
Actinium-484	95	1000 (3.7)
Actinium-485	95	1000 (3.7)
Actinium-486	95	1000 (3.7)
Actinium-487	95	1000 (3.7)
Actinium-488	95	1000 (3.7)
Actinium-489	95	1000 (3.7)
Actinium-490	95	1000 (3.7)
Actinium-491	95	1000 (3.7)
Actinium-492	95	1000 (3.7)
Actinium-493	95	1000 (3.7)
Actinium-494	95	1000 (3.7)
Actinium-495	95	1000 (3.7)
Actinium-496	95	1000 (3.7)
Actinium-497	95	1000 (3.7)
Actinium-498	95	1000 (3.7)
Actinium-499	95	1000 (3.7)
Actinium-500	95	1000 (3.7)
Actinium-501	95	1000 (3.7)
Actinium-502	95	1000 (3.7)
Actinium-503	95	1000 (3.7)
Actinium-504	95	1000 (3.7)
Actinium-505	95	1000 (3.7)
Actinium-506	95	1000 (3.7)
Actinium-507	95	1000 (3.7)
Actinium-508	95	1000 (3.7)
Actinium-509	95	1000 (3.7)
Actinium-510	95	1000 (3.7)
Actinium-511	95	1000 (3.7)
Actinium-512	95	1000 (3.7)
Actinium-513	95	1000 (3.7)
Actinium-514	95	1000 (3.7)
Actinium-515	95	1000 (3.7)
Actinium-516	95	1000 (3.7)
Actinium-517	95	1000 (3.7)
Actinium-518	95	1000 (3.7)
Actinium-519	95	1000 (3.7)
Actinium-52		

SUPPLEMENT I TO ATA 111-J

Table 2.—Radionuclides—Continued

(1) Radionuclide	(2) Atomic number	(3) Reportable quantity (RQ) Ci (TBq)
Curium-243	96	0.01 (00037)
Curium-244	96	0.01 (00037)
Curium-245	96	0.01 (00037)
Curium-246	96	0.01 (00037)
Curium-247	96	0.01 (00037)
Curium-248	96	0.001 (00037)
Curium-249	96	1000 (37)
Dysprosium-155	66	100 (37)
Dysprosium-157	66	100 (37)
Dysprosium-159	66	100 (37)
Dysprosium-165	66	1000 (37)
Dysprosium-166	66	10 (37)
Einsteinium-250	99	10 (37)
Einsteinium-251	99	1000 (37)
Einsteinium-253	99	10 (37)
Einsteinium-254	99	0.1 (0037)
Einsteinium-254m	99	1 (037)
Erbium-161	68	100 (37)
Erbium-165	68	1000 (37)
Erbium-169	68	100 (37)
Erbium-171	68	100 (37)
Erbium-172	68	10 (37)
Europium-145	63	10 (37)
Europium-146	63	10 (37)
Europium-147	63	10 (37)
Europium-148	63	10 (37)
Europium-149	63	100 (37)
Europium-150 (12.6 hr)	63	1000 (37)
Europium-150 (34.2 yr)	63	10 (37)
Europium-152	63	10 (37)
Europium-152m	63	100 (37)
Europium-154	63	10 (37)
Europium-155	63	10 (37)
Europium-156	63	10 (37)
Europium-157	63	10 (37)
Europium-158	63	1000 (37)
Fermium-252	100	10 (37)
Fermium-253	100	10 (37)
Fermium-254	100	100 (37)
Fermium-255	100	100 (37)
Fermium-257	100	1 (037)
Fluorine-18	9	1000 (37)
Francium-222	87	100 (37)
Francium-223	87	100 (37)
Gadolinium-145	64	100 (37)
Gadolinium-146	64	10 (37)
Gadolinium-147	64	10 (37)
Gadolinium-148	64	0.001 (00037)
Gadolinium-149	64	100 (37)
Gadolinium-151	64	100 (37)
Gadolinium-152	64	0.001 (00037)
Gadolinium-153	64	10 (37)
Gadolinium-159	64	1000 (37)
Gallium-65	31	1000 (37)
Gallium-66	31	10 (37)
Gallium-67	31	100 (37)
Gallium-68	31	1000 (37)
Gallium-70	31	1000 (37)
Gallium-72	31	10 (37)
Gallium-73	31	100 (37)
Germanium-66	32	100 (37)
Germanium-67	32	1000 (37)
Germanium-68	32	10 (37)
Germanium-69	32	10 (37)
Germanium-74	32	1000 (37)
Germanium-75	32	1000 (37)
Germanium-77	32	10 (37)
Germanium-78	32	1000 (37)
Gold-193	79	100 (37)
Gold-194	79	10 (37)
Gold-195	79	100 (37)
Gold-196	79	100 (37)
Gold-198m	79	10 (37)
Gold-199	79	100 (37)
Gold-200	79	1000 (37)
Gold-200m	79	10 (37)
Gold-201	79	1000 (37)
Hafnium-170	72	100 (37)
Hafnium-172	72	1 (037)
Hafnium-173	72	100 (37)
Hafnium-175	72	100 (37)
Hafnium-177m	72	1000 (37)
Hafnium-178m	72	0.1 (0037)
Hafnium-179m	72	100 (37)
Hafnium-180m	72	100 (37)
Hafnium-181	72	10 (37)
Hafnium-182	72	0.1 (0037)
Hafnium-182m	72	100 (37)
Hafnium-183	72	100 (37)
Hafnium-184	72	100 (37)
Holmium-155	67	1000 (37)
Holmium-157	67	1000 (37)

Table 2.—Radionuclides—Continued

(1) Radionuclide	(2) Atomic number	(3) Reportable quantity (RQ) Ci (TBq)
Holmium-159	67	1000 (37)
Holmium-161	67	1000 (37)
Holmium-162	67	1000 (37)
Holmium-162m	67	1000 (37)
Holmium-164	67	1000 (37)
Holmium-164m	67	1000 (37)
Holmium-166	67	100 (37)
Holmium-166m	67	1 (037)
Holmium-167	67	100 (37)
Hydrogen-3	1	100 (37)
Indium-109	49	100 (37)
Indium-110 (4.9 hr)	49	10 (37)
Indium-110 (69.1 min)	49	100 (37)
Indium-111	49	100 (37)
Indium-112	49	1000 (37)
Indium-113m	49	1000 (37)
Indium-114m	49	10 (37)
Indium-115	49	0.1 (0037)
Indium-115m	49	100 (37)
Indium-116m	49	100 (37)
Indium-117	49	1000 (37)
Indium-117m	49	100 (37)
Indium-119m	49	1000 (37)
Iodine-120	53	10 (37)
Iodine-120m	53	100 (37)
Iodine-121	53	100 (37)
Iodine-123	53	10 (37)
Iodine-124	53	0.1 (0037)
Iodine-125	53	0.01 (00037)
Iodine-126	53	0.01 (00037)
Iodine-128	53	1000 (37)
Iodine-129	53	0.001 (00037)
Iodine-130	53	1 (037)
Iodine-131	53	0.01 (00037)
Iodine-132	53	10 (37)
Iodine-132m	53	10 (37)
Iodine-133	53	0.1 (0037)
Iodine-134	53	100 (37)
Iodine-135	53	10 (37)
Iridium-182	77	1000 (37)
Iridium-184	77	100 (37)
Iridium-185	77	100 (37)
Iridium-186	77	100 (37)
Iridium-187	77	100 (37)
Iridium-188	77	10 (37)
Iridium-189	77	100 (37)
Iridium-190	77	10 (37)
Iridium-190m	77	1000 (37)
Iridium-192	77	10 (37)
Iridium-192m	77	100 (37)
Iridium-194	77	100 (37)
Iridium-194m	77	10 (37)
Iridium-195	77	1000 (37)
Iridium-195m	77	100 (37)
Iron-52	26	100 (37)
Iron-55	26	100 (37)
Iron-59	26	10 (37)
Iron-60	26	0.1 (0037)
Krypton-74	36	10 (37)
Krypton-76	36	10 (37)
Krypton-77	36	10 (37)
Krypton-79	36	100 (37)
Krypton-81	36	1000 (37)
Krypton-83m	36	1000 (37)
Krypton-85	36	1000 (37)
Krypton-85m	36	100 (37)
Krypton-87	36	10 (37)
Krypton-88	36	10 (37)
Lanthanum-131	57	1000 (37)
Lanthanum-132	57	100 (37)
Lanthanum-135	57	1000 (37)
Lanthanum-137	57	10 (37)
Lanthanum-138	57	1 (037)
Lanthanum-140	57	10 (37)
Lanthanum-141	57	1000 (37)
Lanthanum-142	57	100 (37)
Lanthanum-143	57	1000 (37)
Lead-195m	82	1000 (37)
Lead-196	82	100 (37)
Lead-199	82	100 (37)
Lead-200	82	100 (37)
Lead-201	82	100 (37)
Lead-202	82	1 (037)
Lead-202m	82	10 (37)
Lead-203	82	100 (37)
Lead-205	82	100 (37)
Lead-209	82	1000 (37)
Lead-210	82	0.01 (00037)
Lead-211	82	100 (37)
Lead-212	82	10 (37)
Lead-214	82	100 (37)
Lutetium-169	71	10 (37)

Table 2.—Radionuclides—Continued

(1) Radionuclide	(2) Atomic number	(3) Reportable quantity (RQ) Ci (TBq)
Lutetium-170	71	10 (37)
Lutetium-171	71	10 (37)
Lutetium-172	71	10 (37)
Lutetium-173	71	100 (37)
Lutetium-174	71	10 (37)
Lutetium-174m	71	10 (37)
Lutetium-176	71	1 (037)
Lutetium-176m	71	100 (37)
Lutetium-177	71	10 (37)
Lutetium-177m	71	1000 (37)
Lutetium-178	71	1000 (37)
Lutetium-178m	71	1000 (37)
Lutetium-179	71	1000 (37)
Magnesium-26	12	10 (37)
Manganese-51	25	1000 (37)
Manganese-52	25	10 (37)
Manganese-52m	25	1000 (37)
Manganese-53	25	1000 (37)
Manganese-54	25	10 (37)
Manganese-56	25	100 (37)
Mendelevium-257	101	100 (37)
Mendelevium-258	101	1 (037)
Mercury-193	80	100 (37)
Mercury-193m	80	10 (37)
Mercury-194	80	0.1 (0037)
Mercury-195	80	100 (37)
Mercury-195m	80	100 (37)
Mercury-197	80	1000 (37)
Mercury-197m	80	1000 (37)
Mercury-199m	80	1000 (37)
Mercury-203	80	10 (37)
Molybdenum-101	42	1000 (37)
Molybdenum-90	42	100 (37)
Molybdenum-93	42	100 (37)
Molybdenum-93m	42	10 (37)
Molybdenum-99	42	100 (37)
Neodymium-136	60	1000 (37)
Neodymium-139	60	1000 (37)
Neodymium-139m	60	100 (37)
Neodymium-141	60	1000 (37)
Neodymium-147	60	10 (37)
Neodymium-149	60	100 (37)
Neodymium-151	60	1000 (37)
Neptunium-232	93	1000 (37)
Neptunium-233	93	1000 (37)
Neptunium-234	93	10 (37)
Neptunium-235	93	1000 (37)
Neptunium-236 (1.2 E 5 yr)	93	0.1 (0037)
Neptunium-236 (22.5 hr)	93	100 (37)
Neptunium-237	93	0.01 (00037)
Neptunium-238	93	10 (37)
Neptunium-239	93	100 (37)
Neptunium-240	93	100 (37)
Nickel-56	28	10 (37)
Nickel-57	28	10 (37)
Nickel-59	28	100 (37)
Nickel-63	28	100 (37)
Nickel-65	28	100 (37)
Nickel-66	28	10 (37)
Niobium-88	41	100 (37)
Niobium-89 (122 min)	41	100 (37)
Niobium-89 (56 min)	41	100 (37)
Niobium-90	41	10 (37)
Niobium-93m	41	100 (37)
Niobium-94	41	10 (37)
Niobium-95	41	10 (37)
Niobium-95m	41	100 (37)
Niobium-96	41	10 (37)
Niobium-97	41	100 (37)
Niobium-98	41	1000 (37)
Osmium-180	76	1000 (37)
Osmium-181	76	100 (37)
Osmium-182	76	100 (37)
Osmium-185	76	10 (37)
Osmium-189m	76	1000 (37)
Osmium-191	76	100 (37)
Osmium-191m	76	1000 (37)
Osmium-193	76	100 (37)
Osmium-194	76	1 (037)
Palladium-100	46	100 (37)
Palladium-101	46	100 (37)
Palladium-103	46	100 (37)
Palladium-107	46	100 (37)
Palladium-109	46	1000 (37)
Phosphorus-32	15	0.1 (0037)
Phosphorus-33	15	1 (037)
Platinum-186	78	100 (37)
Platinum-188	78	100 (37)
Platinum-189	78	100 (37)
Platinum-191	78	100 (37)
Platinum-193	78	1000 (37)

SUPPLEMENT I TO ATA III-J

Table 2.—Radionuclides—Continued			Table 2.—Radionuclides—Continued			Table 2.—Radionuclides—Continued		
(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Radionuclide	Atomic number	Reportable quantity (RQ) Ci (TBq)	Radionuclide	Atomic number	Reportable quantity (RQ) Ci (TBq)	Radionuclide	Atomic number	Reportable quantity (RQ) Ci (TBq)
Plutonium-133m	78	100 (3.7)	Rubidium-83	37	10 (3.7)	Tellurium-116	52	1000 (37)
Plutonium-135m	78	100 (3.7)	Rubidium-84	37	10 (3.7)	Tellurium-121	52	10 (3.7)
Plutonium-137	78	1000 (37)	Rubidium-86	37	10 (3.7)	Tellurium-121m	52	10 (3.7)
Plutonium-137m	78	1000 (3.7)	Rubidium-87	37	10 (3.7)	Tellurium-123	52	10 (3.7)
Plutonium-139	78	1000 (3.7)	Rubidium-88	37	1000 (37)	Tellurium-123m	52	10 (3.7)
Plutonium-200	78	100 (3.7)	Rubidium-89	37	1000 (3.7)	Tellurium-125m	52	10 (3.7)
Plutonium-234	94	1000 (3.7)	Ruthenium-103	44	10 (3.7)	Tellurium-127	52	1000 (3.7)
Plutonium-235	94	1000 (3.7)	Ruthenium-105	44	100 (3.7)	Tellurium-127m	52	10 (3.7)
Plutonium-236	94	0.1 (0.037)	Ruthenium-106	44	1 (0.37)	Tellurium-129	52	1000 (3.7)
Plutonium-237	94	1000 (3.7)	Ruthenium-94	44	1000 (3.7)	Tellurium-129m	52	10 (3.7)
Plutonium-238	94	0.01 (0.0037)	Ruthenium-97	44	100 (3.7)	Tellurium-131	52	1000 (3.7)
Plutonium-239	94	0.01 (0.0037)	Samarium-141	62	1000 (3.7)	Tellurium-131m	52	10 (3.7)
Plutonium-240	94	0.01 (0.0037)	Samarium-141m	62	1000 (3.7)	Tellurium-132	52	10 (3.7)
Plutonium-241	94	1 (0.37)	Samarium-142	62	1000 (3.7)	Tellurium-133	52	1000 (3.7)
Plutonium-242	94	0.01 (0.0037)	Samarium-145	62	100 (3.7)	Tellurium-133m	52	1000 (3.7)
Plutonium-243	94	1000 (3.7)	Samarium-146	62	0.01 (0.0037)	Tellurium-134	52	1000 (3.7)
Plutonium-244	94	0.01 (0.0037)	Samarium-147	62	0.01 (0.0037)	Tellurium-147	65	100 (3.7)
Plutonium-245	94	100 (3.7)	Samarium-151	62	10 (3.7)	Tellurium-149	65	100 (3.7)
Polonium-203	84	100 (3.7)	Samarium-153	62	100 (3.7)	Tellurium-150	65	100 (3.7)
Polonium-205	84	100 (3.7)	Samarium-155	62	1000 (3.7)	Tellurium-151	65	10 (3.7)
Polonium-207	84	10 (3.7)	Samarium-156	62	100 (3.7)	Tellurium-153	65	100 (3.7)
Polonium-210	84	0.01 (0.0037)	Scandium-43	21	1000 (3.7)	Tellurium-154	65	10 (3.7)
Potassium-40	19	1 (0.37)	Scandium-44	21	100 (3.7)	Tellurium-155	65	100 (3.7)
Potassium-42	19	100 (3.7)	Scandium-44m	21	10 (3.7)	Tellurium-156	65	10 (3.7)
Potassium-43	19	10 (3.7)	Scandium-46	21	10 (3.7)	Tellurium-156m (24.4 hr)	65	1000 (3.7)
Potassium-44	19	100 (3.7)	Scandium-47	21	100 (3.7)	Tellurium-156m (5.0 hr)	65	1000 (3.7)
Potassium-45	19	1000 (3.7)	Scandium-48	21	10 (3.7)	Tellurium-157	65	100 (3.7)
Praseodymium-136	59	1000 (3.7)	Scandium-49	21	1000 (3.7)	Tellurium-158	65	10 (3.7)
Praseodymium-137	59	1000 (3.7)	Selenium-70	34	1000 (3.7)	Tellurium-160	65	10 (3.7)
Praseodymium-138m	59	100 (3.7)	Selenium-73	34	10 (3.7)	Tellurium-161	65	100 (3.7)
Praseodymium-139	59	1000 (3.7)	Selenium-73m	34	100 (3.7)	Thallium-194	81	1000 (3.7)
Praseodymium-142	59	100 (3.7)	Selenium-75	34	10 (3.7)	Thallium-194m	81	100 (3.7)
Praseodymium-142m	59	1000 (3.7)	Selenium-79	34	10 (3.7)	Thallium-195	81	100 (3.7)
Praseodymium-143	59	10 (3.7)	Selenium-81	34	1000 (3.7)	Thallium-197	81	100 (3.7)
Praseodymium-144	59	1000 (3.7)	Selenium-81m	34	1000 (3.7)	Thallium-198	81	10 (3.7)
Praseodymium-145	59	1000 (3.7)	Selenium-83	34	1000 (3.7)	Thallium-198m	81	100 (3.7)
Praseodymium-147	59	1000 (3.7)	Silicon-31	14	1000 (3.7)	Thallium-199	81	100 (3.7)
Promethium-141	61	1000 (3.7)	Silicon-32	14	1 (0.37)	Thallium-200	81	10 (3.7)
Promethium-143	61	100 (3.7)	Silver-102	47	100 (3.7)	Thallium-201	81	1000 (3.7)
Promethium-144	61	10 (3.7)	Silver-103	47	1000 (3.7)	Thallium-202	81	10 (3.7)
Promethium-145	61	100 (3.7)	Silver-104	47	1000 (3.7)	Thallium-204	81	10 (3.7)
Promethium-146	61	10 (3.7)	Silver-104m	47	1000 (3.7)	Thorium (irradiated)	90	...
Promethium-147	61	10 (3.7)	Silver-105	47	10 (3.7)	Thorium (natural)	90	...
Promethium-148	61	10 (3.7)	Silver-106	47	1000 (3.7)	Thorium-226	90	100 (3.7)
Promethium-148m	61	10 (3.7)	Silver-106m	47	10 (3.7)	Thorium-227	90	1 (0.37)
Promethium-149	61	100 (3.7)	Silver-108m	47	10 (3.7)	Thorium-228	90	0.01 (0.0037)
Promethium-150	61	100 (3.7)	Silver-110m	47	10 (3.7)	Thorium-229	90	0.001 (0.00037)
Promethium-151	61	100 (3.7)	Silver-111	47	10 (3.7)	Thorium-230	90	0.01 (0.0037)
Protactinium-227	91	100 (3.7)	Silver-112	47	100 (3.7)	Thorium-231	90	100 (3.7)
Protactinium-228	91	10 (3.7)	Silver-115	47	1000 (3.7)	Thorium-232	90	0.001 (0.00037)
Protactinium-230	91	10 (3.7)	Sodium-22	11	10 (3.7)	Thorium-234	90	100 (3.7)
Protactinium-231	91	0.01 (0.0037)	Sodium-24	11	10 (3.7)	Thulium-162	69	1000 (3.7)
Protactinium-232	91	10 (3.7)	Strontium-80	38	100 (3.7)	Thulium-166	69	10 (3.7)
Protactinium-233	91	100 (3.7)	Strontium-81	38	1000 (3.7)	Thulium-167	69	100 (3.7)
Protactinium-234	91	10 (3.7)	Strontium-83	38	100 (3.7)	Thulium-170	69	10 (3.7)
RADIONUCLIDES §†			Strontium-85	38	10 (3.7)	Thulium-171	69	100 (3.7)
Radium-223	88	1 (0.37)	Strontium-85m	38	1000 (3.7)	Thulium-172	69	100 (3.7)
Radium-224	88	10 (3.7)	Strontium-87m	38	100 (3.7)	Thulium-173	69	100 (3.7)
Radium-225	88	1 (0.37)	Strontium-89	38	10 (3.7)	Thulium-175	69	1000 (3.7)
Radium-226	88	0.1 (0.037)	Strontium-90	38	0.1 (0.037)	Tin-110	50	100 (3.7)
Radium-227	88	1000 (3.7)	Strontium-91	38	10 (3.7)	Tin-111	50	1000 (3.7)
Radium-228	88	0.1 (0.037)	Strontium-92	38	100 (3.7)	Tin-113	50	10 (3.7)
Radon-220	86	0.1 (0.037)	Sulfur-35	16	1 (0.37)	Tin-117m	50	100 (3.7)
Radon-222	86	0.1 (0.037)	Tantalum-172	73	100 (3.7)	Tin-119m	50	10 (3.7)
Rhenium-177	75	1000 (3.7)	Tantalum-173	73	100 (3.7)	Tin-121	50	1000 (3.7)
Rhenium-178	75	1000 (3.7)	Tantalum-174	73	100 (3.7)	Tin-121m	50	10 (3.7)
Rhenium-181	75	100 (3.7)	Tantalum-175	73	100 (3.7)	Tin-123m	50	1000 (3.7)
Rhenium-182 (12.7 hr)	75	10 (3.7)	Tantalum-176	73	10 (3.7)	Tin-125	50	10 (3.7)
Rhenium-182 (64.0 hr)	75	10 (3.7)	Tantalum-177	73	1000 (3.7)	Tin-126	50	1 (0.37)
Rhenium-184	75	10 (3.7)	Tantalum-178	73	1000 (3.7)	Tin-127	50	100 (3.7)
Rhenium-184m	75	10 (3.7)	Tantalum-179	73	1000 (3.7)	Tin-128	50	1000 (3.7)
Rhenium-186	75	100 (3.7)	Tantalum-180	73	100 (3.7)	Titanium-44	22	1 (0.37)
Rhenium-186m	75	10 (3.7)	Tantalum-180m	73	1000 (3.7)	Titanium-45	22	1000 (3.7)
Rhenium-187	75	1000 (3.7)	Tantalum-182	73	10 (3.7)	Tungsten-176	74	1000 (3.7)
Rhenium-188	75	1000 (3.7)	Tantalum-182m	73	1000 (3.7)	Tungsten-177	74	100 (3.7)
Rhenium-188m	75	1000 (3.7)	Tantalum-183	73	100 (3.7)	Tungsten-178	74	100 (3.7)
Rhenium-189	75	1000 (3.7)	Tantalum-184	73	10 (3.7)	Tungsten-179	74	1000 (3.7)
Rhodium-100	45	10 (3.7)	Tantalum-185	73	1000 (3.7)	Tungsten-181	74	100 (3.7)
Rhodium-101	45	10 (3.7)	Tantalum-186	73	1000 (3.7)	Tungsten-185	74	10 (3.7)
Rhodium-101m	45	100 (3.7)	Technetium-101	43	1000 (3.7)	Tungsten-187	74	100 (3.7)
Rhodium-102	45	10 (3.7)	Technetium-104	43	1000 (3.7)	Tungsten-188	74	10 (3.7)
Rhodium-102m	45	10 (3.7)	Technetium-93	43	100 (3.7)	Uranium (Depleted)	92	...
Rhodium-103m	45	1000 (3.7)	Technetium-93m	43	1000 (3.7)	Uranium (Irradiated)	92	...
Rhodium-105	45	100 (3.7)	Technetium-94	43	10 (3.7)	Uranium (Natural)	92	...
Rhodium-106m	45	10 (3.7)	Technetium-94m	43	100 (3.7)	Uranium Enriched	92	...
Rhodium-107	45	1000 (3.7)	Technetium-96	43	10 (3.7)	Uranium Enriched	92	...
Rhodium-99	45	10 (3.7)	Technetium-96m	43	1000 (3.7)	20% or greater	92	...
Rhodium-99m	45	100 (3.7)	Technetium-97	43	100 (3.7)	less than 20%	92	...
Rubidium-79	37	1000 (3.7)	Technetium-97m	43	100 (3.7)	Uranium-230	92	1 (0.37)
Rubidium-81	37	100 (3.7)	Technetium-98	43	10 (3.7)	Uranium-231	92	1000 (3.7)
Rubidium-81m	37	1000 (3.7)	Technetium-99	43	10 (3.7)	Uranium-232	92	0.01 (0.0037)
Rubidium-82m	37	10 (3.7)	Technetium-99m	43	100 (3.7)			

For explanation of abbreviations and reference marks, see last page of this supplement.

**SUPPLEMENT I TO ATA III-J**

**Table 2.—Radionuclides—Continued**

(1) Radionuclide	(2) Atomic number	(3) Reportable quantity (RQ) Ci (TBq)
Uranium-233	92	0.1 (0037)
Uranium-234**	92	0.1 (0037)
Uranium-235**	92	0.1 (0037)
Uranium-236	92	0.1 (0037)
Uranium-237	92	100 (37)
Uranium-238**	92	0.1 (0037)
Uranium-239	92	1000 (37)
Uranium-240	92	1000 (37)
Vanadium 47	23	1000 (37)
Vanadium 48	23	10 (37)
Vanadium 49	23	1000 (37)
Xenon-129	54	100 (37)
Xenon-121	54	10 (37)
Xenon-122	54	100 (37)
Xenon-123	54	10 (37)
Xenon-125	54	100 (37)
Xenon-127	54	100 (37)
Xenon-129m	54	1000 (37)
Xenon-131m	54	1000 (37)
Xenon-133	54	1000 (37)
Xenon-133m	54	1000 (37)
Xenon-135	54	100 (37)
Xenon-135m	54	10 (37)
Xenon-138	54	10 (37)
Yttrium-162	70	1000 (37)
Yttrium-166	70	10 (37)
Yttrium-167	70	1000 (37)

**Table 2.—Radionuclides—Continued**

(1) Radionuclide	(2) Atomic number	(3) Reportable quantity (RQ) Ci (TBq)
Yttrium-169	70	10 (37)
Yttrium-175	70	100 (37)
Yttrium-177	70	1000 (37)
Yttrium-178	70	1000 (37)
Yttrium-86	39	10 (37)
Yttrium-86m	39	1000 (37)
Yttrium-87	39	10 (37)
Yttrium-88	39	10 (37)
Yttrium-90	39	10 (37)
Yttrium-90m	39	100 (37)
Yttrium-91	39	10 (37)
Yttrium-91m	39	1000 (37)
Yttrium-92	39	100 (37)
Yttrium-93	39	100 (37)
Yttrium-94	39	1000 (37)
Yttrium-95	39	1000 (37)
Zinc-62	30	100 (37)
Zinc-63	30	1000 (37)
Zinc-65	30	10 (37)
Zinc-69	30	1000 (37)
Zinc-69m	30	100 (37)
Zinc-71m	30	100 (37)
Zinc-72	30	100 (37)
Zirconium-86	40	100 (37)
Zirconium-88	40	10 (37)
Zirconium-89	40	100 (37)
Zirconium-93	40	1 (037)

**Table 2.—Radionuclides—Continued**

(1) Radionuclide	(2) Atomic number	(3) Reportable quantity (RQ) Ci (TBq)
Zirconium-95	40	10 (37)
Zirconium-97	40	10 (37)

§ The RQs for all radionuclides apply to chemical compounds containing the radionuclides and elemental forms regardless of the diameter of pieces of solid material.

§ The RQ of one curie applies to all radionuclides not otherwise listed. Whenever the RQs in TABLE 1—HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES and this table conflict, the lowest RQ shall apply. For example, uranyl acetate and uranyl nitrate have RQs shown in TABLE 1 of 100 pounds, equivalent to about one tenth the RQ level for uranium-238 in this table.

\*\* The method to determine the RQs for mixtures or solutions of radionuclides can be found in paragraph 6 of the note preceding TABLE 1 of this Appendix. RQs for the following four common radionuclide mixtures are provided: radium-226 in secular equilibrium with its daughters (0.053 curie); natural uranium (0.1 curie); natural uranium in secular equilibrium with its daughters (0.052 curie); and natural thorium in secular equilibrium with its daughters (0.011 curie).

\*\*\* Indicates that the name was added by RSPK because it appears in the list of radionuclides in 49 CFR 173.435. The reportable quantity (RQ), if not specifically listed elsewhere in this Appendix, shall be determined in accordance with the procedures in Paragraph 6 of this Appendix.

In § 172.201, a new paragraph (d) is added to read as follows:

**§ 172.201 General entries.**

\*\*\*  
(d) *Emergency response telephone number.* A shipping paper must contain an emergency response telephone number, as prescribed in Subpart G of Part 172 of this subchapter.

**§ 172.203 [Amended]**

In § 172.203, paragraph (h)(1)(i) is amended by removing the reference "§ 173.315(a)(1), Note 14" and inserting in its place the reference "§ 173.315(a), Note 15" and paragraph (h)(2)(i) is amended by removing the reference "§ 173.315(a)(1), Note 15" and inserting in its place the reference "§ 173.315(a), Note 15".

In § 172.203, the introductory text of paragraph (c)(1) is revised to read as follows:

**§ 172.203 Additional description requirements.**

\*\*\*  
(c) \*\*\* (1) Except for radioactive materials described in accordance with paragraph (d) of this section, if the proper shipping name for a material that is a hazardous substance does not identify the hazardous substance by name, one of the following descriptions shall be entered, in parentheses, in association with the basic description:

In § 172.203, paragraph (i)(2) is removed, paragraph (i)(3) is redesignated as paragraph (i)(2), paragraph (k) is revised and paragraph (m) is added to read as follows:

**§ 172.203 Additional descriptions requirements.**

\*\*\*  
(k) *Technical names for "n.o.s." and other generic descriptions.* Unless otherwise excepted, if a material is described on a shipping paper by one of the proper shipping names listed in paragraph (k)(3) of this section, the technical name of the hazardous material must be entered in parentheses in association with the basic description. For example, "Corrosive liquid, n.o.s. (Caprylyl chloride), UN1760" or "Corrosive liquid, n.o.s., UN1760 (contains caprylyl chloride)". The word contains may be used in association with the technical name, if appropriate.

(1) In addition to the n.o.s. descriptions listed herein, the requirements of this section apply to all shipping descriptions for poisonous materials which are subject to the requirements of paragraph (m) of this section, and for which the proper shipping name does not specifically identify the poisonous constituent by technical name. For example, "Motor fuel antiknock compound (Tetraethyl lead), Poison B, UN1649" or "Motor fuel antiknock compound, Poison B, UN1649, (Tetraethyl lead)".

(2) If a hazardous material is a mixture or solution of two or more hazardous materials, the technical names of at least two components most predominately contributing to the hazards of the mixture or solution must be entered on the shipping paper as required by this paragraph. For example, "Flammable liquid, corrosive, n.o.s. (contains Methanol, Potassium hydroxide), UN2924".

(3) Proper shipping names for which the provisions of this paragraph apply are as follows:

- Acid, liquid, n.o.s.
- Alcohol, n.o.s.
- Alkaline liquid, n.o.s.
- Cement, adhesive, n.o.s.
- Combustible liquid, n.o.s.
- Compressed gas, n.o.s.
- Corrosive liquid, n.o.s.
- Corrosive liquid, poisonous, n.o.s.
- Corrosive solid, n.o.s.
- Dispersant gas, n.o.s.
- Etching acid, liquid, n.o.s.
- Etiologic agent, n.o.s.
- Flammable gas, n.o.s.
- Flammable liquid, corrosive, n.o.s.
- Flammable liquid, n.o.s.
- Flammable liquid, poisonous, n.o.s.
- Flammable solid, corrosive, n.o.s.
- Flammable solid, n.o.s.
- Flammable solid, poisonous, n.o.s.
- Hazardous substance, liquid or solid, n.o.s.
- Hazardous waste, liquid or solid, n.o.s.
- Infectious substance, human, n.o.s.
- Insecticide, dry, n.o.s.
- Insecticide, liquid, n.o.s.
- Irritating agent, n.o.s.
- Nonflammable gas, n.o.s.
- Organic peroxide, solid, n.o.s.
- Organic peroxide, liquid or solution, n.o.s.
- ORM-A, n.o.s.
- ORM-B, n.o.s.
- ORM-E, n.o.s.
- Oxidizer, corrosive, liquid, n.o.s.
- Oxidizer, corrosive, solid, n.o.s.
- Oxidizer, n.o.s.
- Oxidizer, poisonous, liquid, n.o.s.
- Oxidizer, poisonous, solid, n.o.s.
- Poisonous liquid or gas, flammable, n.o.s.
- Poisonous liquid or gas, n.o.s.
- Poisonous liquid, n.o.s.
- Poison B liquid, n.o.s.
- Poisonous solid, corrosive, n.o.s.
- Poisonous solid, n.o.s.
- Poison B, solid, n.o.s.
- Pyrophoric liquid, n.o.s.
- Pyrotoric liquid, n.o.s.
- Refrigerant gas, n.o.s.
- Water reactive solid, n.o.s.

(4) The provisions of this paragraph do not apply—

- (f) To a material that is described using the proper shipping name "Hazardous Substance, liquid or solid, n.o.s." provided the material is described in accordance with the provisions of § 172.203(c) of this part; or
- (g) To a material that is described using the proper shipping name "Hazardous Waste, liquid or solid, n.o.s." that is also a hazardous substance and which is described in accordance with the provisions of § 172.203(c) of this part.

\*\*\*  
(m) **Poisonous materials.** Notwithstanding the hazard class to which a material is assigned—

- (1) If a liquid or solid material in a package meets the definition of a poison according to this subchapter, and the fact that it is a poison is not disclosed in the shipping name or class entry, the word "Poison" shall be entered on the shipping paper in association with the shipping description.
- (2) If the technical name of the compound or principal constituent that causes a material to meet the definition of a poison (according to this subchapter) is not included in the proper shipping name for the material, the technical name shall be entered on the shipping paper in the manner prescribed in paragraph (k) of this section.
- (3) If the inhalation toxicity of any material falls within the criteria specified in § 173.3a(b)(2) of this subchapter (subject to definitions and implementation conditions of paragraphs (c) and (d) of the same section), the words "Poison-Inhalation Hazard" shall be entered on the shipping paper in association with the shipping description. However, the word "Poison" need not be repeated if it is entered as part of the basic description or in conformance with paragraph (m)(1) of this section. This paragraph does not apply to packagings containing inner receptacles of one liter capacity or less.

\*\*\*  
In § 172.301, paragraph (c) is redesignated as paragraph (d) and paragraph (c) is added to this section to read as follows:

**§ 172.301 General marking requirements.**

\*\*\*  
(c) **Technical names.** Each non-bulk packaging containing hazardous materials subject to the provisions of § 172.203(k) of this part must be marked with the technical name of the hazardous material in parentheses immediately following the proper shipping name, in accordance with the requirements and exceptions specified for the display of technical descriptions on shipping papers in § 172.203(k) of this part.

\*\*\*  
**§ 172.302 [Removed]**  
§ 172.302 is removed.

\*\*\*  
In § 172.324, the introductory text of paragraph (a) is revised to read as follows:

**§ 172.324 Hazardous substances.**

\*\*\*  
(a) Except for radioactive material in packages labeled in accordance with § 172.403 of this subchapter, if the proper shipping name does not identify the hazardous substance by name, one of the following descriptions shall be marked on the package, in parentheses, in association with the proper shipping name:

\*\*\*  
In § 172.504, paragraph (c) is revised to read as follows:

**§ 172.504 General placarding requirements.**

\*\*\*  
(c) Except for transport vehicles and freight containers subject to § 172.505, portable tanks, cargo tanks, tank cars, or transportation by aircraft or vessel, placards for hazardous materials covered by Table 2 are not required on—

- (1) A transport vehicle or freight container which contains less than 1000 pounds (453.6 kilograms) aggregate gross weight of hazardous materials covered by Table 2; or
- (2) A rail car loaded with transport vehicles or freight containers, none of which is required to be placarded. The exceptions provided in this paragraph do not prohibit the display of placards in the manner prescribed in this subpart, if not otherwise prohibited (see § 172.502), on transport vehicles or freight containers which are not required to be placarded.

In the Table of Contents for Part 172, a new Subpart G is added to read as follows:

**Subpart G—Emergency Response Information**

Sec.	
172.600	Applicability and general requirements.
172.602	Emergency response information.
172.604	Emergency response telephone number.

In Part 172, a new Subpart G, entitled "Emergency Response Information" is added to read as follows:

**Subpart G—Emergency Response Information**

**§ 172.600 Applicability and general requirements.** (a) **Scope.** Except as provided in paragraph (d) of this section, this subpart prescribes requirements for providing and maintaining emergency response information during transportation and at facilities where hazardous materials are loaded for transportation, stored incidental to transportation or otherwise handled during any phase of transportation.

(b) **Applicability.** This subpart applies to persons who offer for transportation, accept for transportation, transfer or otherwise handle hazardous materials during transportation.

(c) **General requirements.** No person to whom this subpart applies may offer for transportation, accept for transportation, transfer, store or otherwise handle during transportation a hazardous material unless:

- (1) Emergency response information conforming to this subpart is immediately available for use at all times the hazardous material is present;
- (2) Emergency response information required by this subpart is immediately available to any person who, as a representative of a Federal, state or local government agency, responds to an incident involving a hazardous material, or is conducting an investigation which involves a hazardous material.
- (d) **Exception.** The requirements of this subpart do not apply to hazardous materials which are excepted from the shipping paper requirements of this subchapter.

**§ 172.602. Emergency response information.** (a) **Information required.** For purposes of this subpart, the term "emergency response information" means information that can be used in the mitigation of an incident involving hazardous materials and, as a minimum, must contain the following information:

- (1) The description of the hazardous material required by §§ 172.202 and 172.203;
  - (2) Immediate hazards to health;
  - (3) Risks of fire or explosion;
  - (4) Immediate precautions to be taken in the event of an accident or incident;
  - (5) Immediate methods for handling small or large fires;
  - (6) Initial methods for handling spills or leaks in the absence of fire; and
  - (7) Preliminary first aid measures.
- (b) **Form of information.** The information required for a hazardous material by paragraph (a) of this section must be:

- (1) Printed legibly in English;
- (2) Available for use away from the package containing the hazardous material; and
- (3) Presented—
  - (i) On a shipping paper;
  - (ii) In a document, other than a shipping paper, that includes both the basic description of the hazardous material as specified in § 172.101, and the emergency response information required by this subpart, (e.g., a material safety data sheet); or
  - (iii) In conjunction with a shipping paper, in a separate document, such as an emergency response guidance manual, in a manner that cross-references the basic description for the hazardous material on the shipping paper with the emergency response information contained in the document. For example, the ICAO "Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods" and the IMO "Emergency Procedures for Ships Carrying Dangerous Goods", for shipments by air and water respectively, could be used in association with a shipping paper to satisfy the requirements of this paragraph, if the document contains the information specified in paragraph (a) of this section.

(c) **Maintenance of information.** Emergency response information shall be maintained as follows:

- (1) **Carriers.** Each carrier who transports a hazardous material shall maintain the information specified in paragraph (a) of this section in the same manner as prescribed for shipping papers (including dangerous cargo manifests). This information must be immediately accessible to a transport vehicle operator or crew in the event of an incident involving a hazardous material.
- (2) **Facility operators.** Each operator of a facility where a hazardous material is received, stored or handled during transportation, shall maintain the information required by paragraph (a) of this section whenever



the hazardous material is present. This information must be in a location that is immediately accessible to facility personnel in the event of an incident involving the hazardous material.

**§ 172.604 Emergency response telephone number.** (a) A person who offers a hazardous material for transportation must provide a 24-hour emergency response telephone number (including the area code or international access code) for use in the event of an emergency involving the hazardous material. The telephone number must be—

- (1) Monitored at all times;
- (2) The number of a person who is knowledgeable of the hazards and characteristics of the hazardous material being shipped, has comprehensive emergency response and accident mitigation information for that material, or has immediate access to a person who possesses such knowledge and information; and
- (3) Entered on a shipping paper, as follows:
  - (i) Immediately following the description of the hazardous material required by Subpart C of this Part 172; or

(i) Entered once on the shipping paper in a clearly visible location. This provision may be used only if the telephone number applies to each hazardous material entered on the shipping paper, and if it is indicated that the telephone number is for emergency response information (for example: "EMERGENCY CONTACT: 1").

(b) The telephone number required by paragraph (a) of this section must be the number of the person offering the hazardous material for transportation or the number of an agency or organization capable of, and accepting responsibility for, providing the detailed information concerning the hazardous material. A person offering a hazardous material for transportation who lists the telephone number of an agency or organization shall ensure that agency or organization has received current information on the material, as required by paragraph (a)(2) of this section before it is offered for transportation.

**PART 173—SHIPPERS—GENERAL REQUIREMENTS FOR SHIPMENTS AND PACKAGINGS**

In § 173.5, paragraph (a)(2) is revised to read as follows:

**§ 173.5 Agricultural operations.**

(2) Each inside packaging does not exceed 2½ gallons capacity for liquids or 25 pounds for dry materials.

**§ 173.6 [Amended]**

In paragraph (c) of § 173.6, one of the "\$" signs before §§ 172.101 and the reference "and 173.1020" are removed.

In § 173.12, a new paragraph (f) is added to read as follows:

**§ 173.12 Exceptions for shipment of waste material.**

(f) *Technical names for n.o.s. descriptions.* The requirements for the inclusion of technical names for n.o.s. descriptions on shipping papers and package markings, §§ 172.208 and 172.301 of this subchapter, respectively, do not apply to packagings prepared in accordance with the requirements of this section, except as follows:

- (1) Packages containing materials meeting the definition of a hazardous substance must be described as required in § 172.203(c) and marked as required in § 172.324 of this subchapter; and
- (2) Packages containing hazardous materials subject to the provisions of § 172.203(m) of this subchapter must be described in accordance with § 172.203(m) of this subchapter.

In § 173.22, the introductory text to paragraph (a)(2) is revised and paragraph (b) is removed and reserved to read as follows:

**§ 173.22 Shipper's responsibility.**

(2) The person shall determine that the packaging or container is an authorized packaging, including all special requirements, and that the packaging has been manufactured, assembled, and marked in accordance with the following:

(b) [Reserved]

In § 173.25, the introductory text to paragraph (c) is revised to read as follows:

**§ 173.25 Authorized packages and overpacks.**

(c) Hazardous materials which are required to be labeled POISON, may be transported in the same motor vehicle with material that is marked or known to be foodstuffs, feed or any edible material intended for consumption by humans or animals provided the hazardous material is marked, labeled, and packaged in accordance with this subchapter, conforms to the requirements of paragraph (a) of this section and is overpacked as specified in § 177.841(e) or is in an overpack meeting the following requirements:

In § 173.31, paragraph (a)(7) is removed and reserved, paragraphs (a)(5) and (a)(6) are revised, and paragraphs (c)(14) and (d)(10) are added to read as follows:

**§ 173.31 Qualification, maintenance, and use of tank cars.**

(5) Each DOT specification tank car shall be equipped with a coupler vertical restraint system that meets the requirements of § 179.14 of this subchapter.

(6) Effective November 15, 1990, each non-specification tank car used for the transportation of hazardous materials shall be equipped with a coupler vertical restraint system that meets the requirements of § 179.14 of this subchapter.

(7) [Reserved]

(14) Excess flow valves having threaded seals must be checked for tightness and tightened at the time of each tank retest or safety relief valve retest.

(10) A class DOT 106A or 110A tank car tank (§§ 179.300, 179.301, 179.302 of this subchapter) used exclusively for transportation of non-corrosive gases (as listed in the table in § 173.34(e)(10)), for which the retest has become due, may not be filled and shipped until it has been properly tested. However, tanks filled prior to the expiration of the retest date may be shipped on a one-time basis.

In § 173.33, paragraph (a)(2) is added to read as follows:

**§ 173.33 Qualification, maintenance and use of cargo tanks.**

(2) Notwithstanding the requirements in paragraph (b) of this section, the requirement in § 178.340-8 of this chapter for a rear bumper or rear-end tank protection device on MC-300, MC-301, MC-302, MC-305, and MC-306 cargo tanks does not apply to a cargo tank truck (power unit) until July 1, 1992, if the cargo tank truck—

- (i) Was manufactured before July 1, 1989;
- (ii) Is used to transport gasoline or any other petroleum distillate product; and
- (iii) Is operated in combination with a cargo tank full trailer. However, an empty cargo tank truck, without a cargo tank full trailer attached, may be operated without the required rear bumper or rear-end tank protection device on a one-time basis while being transported to a repair facility for installation of a rear bumper or rear-end protection device.

(Note: This preceding change was followed up with another change affecting the entire section.)

Section 173.33 is revised to read as follows:

**§ 173.33 Hazardous materials in cargo tank motor vehicles.** (a) *General requirements.* (1) No person may offer or accept a hazardous material for transportation in a cargo tank motor vehicle except as authorized by this subchapter.

(2) Two or more materials may not be loaded or accepted for transportation in the same cargo tank motor vehicle if, as a result of any mixture of the materials, an unsafe condition would occur, such as an explosion, fire, excessive increase in pressure or heat, or the release of toxic vapors.

(3) A cargo tank motor vehicle for which the prescribed periodic retest or reinspection under Subpart E of Part 180 of this subchapter is past due may not be filled and offered for transportation until the retest or inspection has been successfully completed.

(b) **Loading requirements.** (1) A hazardous material may not be loaded in a cargo tank if during transportation any part of the tank in contact with the hazardous material lading would have a dangerous reaction with the hazardous material.

(2) A cargo tank may not be loaded with a hazardous material that will have an adverse effect on the tank's integrity or—

- (i) May combine chemically with any residue or contaminants in the tank to produce an explosion, fire, excessive increase in pressure, release of toxic vapors or other unsafe condition.
- (ii) Due to its density, exceeds the maximum weight of lading marked on the specification plate.
- (iii) Is at a temperature outside of the design temperature range specified on the tank specification plate.
- (iv) May severely corrode or react with the tank material at any concentration and temperature that will exist during transportation.
- (v) Is prohibited by § 173.21 or § 173.24 of this subchapter.

(3) Air pressure may not be used to load or unload any lading if it may create an air-enriched mixture within the flammability range of the lading in the vapor space of the tank.

(4) The loading or unloading rate used must be less than or equal to that indicated on the cargo tank specification plate, except as specified in § 173.318(b)(6). If no loading or unloading rate is marked on the specification plate, the loading or unloading rate and pressure used must be limited such that the pressure in the tank may not exceed 130% of the MAWP.

(c) **Maximum Lading Pressure.** (1) Prior to filling and offering a cargo tank motor vehicle for transportation, the person must confirm that the cargo tank motor vehicle conforms to the specification required for the lading and that the MAWP of the cargo tank is greater than or equal to the largest pressure obtained under the following conditions:

- (i) For compressed gases and certain refrigerated liquids that are not cryogenic liquids, the pressure prescribed in § 173.315 of this subchapter.
- (ii) For cryogenic liquids, the pressure prescribed in § 173.318 of this subchapter.
- (iii) For liquid hazardous materials shipped in DOT specification cargo tanks equipped with a 1 psig normal vent, the sum of the tank static head plus 1 psig. In addition, for hazardous materials shipped in these cargo tanks, the vapor pressure of the lading at 115°F must be not greater than 1 psig, except for gasoline transported in accordance with § 173.119(a)(1)(vii).
- (iv) For liquid hazardous materials not covered in paragraph (c)(1)(i), (ii), or (iii) of this section, the sum of the vapor pressure of the lading at 115°F, plus the tank static head exerted by the lading, plus any pressure exerted by the gas padding, including air in the ullage space or dome.
- (v) The pressure prescribed in Subpart B, D, E, F, G, or H of this part, as applicable.
- (vi) The maximum pressure used to load or unload the lading.

(2) Any Specification MC 300, MC 301, MC 302, MC 303, MC 305, MC 306 or MC 312 cargo tank motor vehicle with no marked design pressure or marked with a design pressure of 2.65 psig or less may be used for an authorized lading where the largest pressure derived from § 173.33(c) or § 178.345-1(k) of this subchapter is less than or equal to 2.65 psig. These cargo tanks must be marked or remarked with an MAWP or design pressure in accordance with § 180.405(h).

(3) Any Specification MC 310 or MC 311 cargo tank motor vehicle may be used for an authorized lading where the largest pressure derived from § 173.33(c) or § 178.345-1(k) of this subchapter is less than or equal to the MAWP or MWP, respectively, as marked on the specification plate.

(4) Any cargo tank manufactured prior to December 12, 1989, marked with a design pressure rather than an MAWP may be used for an authorized lading where the largest pressure derived from § 173.33(c) is less than or equal to the design pressure marked on the cargo tank.

(5) Any material that meets the definition of a Poison B material must be shipped in a cargo tank motor vehicle having a MAWP of 25 psig or greater.

(d) **Relief system.** (1) A non-reclosing pressure relief device, except when installed in series with a reclosing pressure relief valve, may not be fitted in a cargo tank used to transport hazardous materials. However, a cargo tank constructed before December 12, 1989, that is fitted with one or more non-reclosing pressure relief devices installed parallel to one or more reclosing pressure relief valves may continue to be used in hazardous material service for which the cargo tank was authorized on December 12, 1989. The requirements in this paragraph do not apply to MC 338 cargo tank motor vehicles transporting a cryogenic liquid or to MC 330, MC 331 or MC 338 cargo tank motor vehicles transporting a material described in part as a refrigerated liquid in § 172.101 of this subchapter.

(2) Each cargo tank used to transport a liquid hazardous material in its gaseous state must have a pressure relief system that provides the venting capacity prescribed in § 178.345-10(e) of this subchapter.

(3) A cargo tank made to a specification listed in column 1 may be upgraded or have the relief devices or outlets modified to meet the

applicable requirement for the specification listed in column 2 without changing the markings on the tank specification plate.

Column 1	Column 2
MC 300, MC 301, MC 302, MC 303, MC 305	MC 306 or DOT 436
MC 306	DOT 406
MC 304	MC 307 or DOT 437
MC 307	DOT 437
MC 310, MC 311	MC 312 or DOT 412
MC 312	DOT 412
MC 330	MC 331

(e) **Fuel metered for road fuel tax purposes.** Notwithstanding the requirements in § 178.345-8(a), specification cargo tanks without bottom damage protection devices, used for the transportation of fuel metered for road fuel tax purposes may be transported with bottom product lifting discharge piping filled with such fuels, provided that:

- (1) Each internal self-closing stop valve is provided with a sacrificial device (see § 178.345-1), such as a shear section, located in the piping system outboard of the stop valve;
- (2) The inside diameter of any piping does not exceed 4½ inches; and
- (3) The aggregate volume of all piping on the cargo tank motor vehicles does not exceed 50 gallons.

\*\*\*

§ 173.34 (Amended)

In the Table which follows the introductory text in § 173.34(e), the entry, "DOT-3A, 3AA, 3AL" is removed and new entries for DOT-3A, 3AA, and DOT-3AL are added to read as follows:

Specification under which cylinder was made	Minimum retest pressure (p.s.i.)	Retest period (years)
DOT-3A, 3AA	½ times service pressure, except noncorrosive service (see § 173.34(e)(10))	5 or 10 (see § 173.34(e)(11)(e)(14) and (e)(15))
DOT-3AL	¾ times service pressure	5

\*\*\*

In § 173.86, paragraph (b) is revised and paragraph (j) is added to read as follows:

§ 173.86 New explosive definitions; approval and notification.

\*\*\*

(b) Except as otherwise provided in this section, no person may offer a new explosive for transportation unless:

(1) It has been examined and assigned a recommended shipping description and hazard class by the Bureau of Explosives, Association of American Railroads or the Bureau of Mines, U.S. Department of the Interior and has been classed and approved by the Director, OHMT;

(2) It has been examined, classed, and approved by the U.S. Army Materiel Development and Readiness Command (DRCSF), Naval Sea Systems Command (NAVSEA 06H), or HOUAF (IGD SEV) when made by, or under the direction or supervision of, the DOD and tested in accordance with the Explosives Hazard Classification Procedures contained in DOD TB 700-2 (September 1982), (NAVSEAINST 8020 8 AFTO 11A-1-47, DSAR 8220.1) and the approval has been submitted to, and acknowledged by the Director, OHMT; or

(3) It has been examined, classed, and approved by the U.S. Department of Energy (DOE) when made by, or under the direction or supervision of, the DOE and tested in accordance with the Explosives Hazard Classification Procedures contained in DOD TB 700-2 (September 1982) and the approval has been submitted to, and acknowledged in writing by the Director, OHMT.

\*\*\*

(j) **Fireworks and Novelties.** Notwithstanding the provisions of paragraph (b) of this section, Class B and C fireworks and Class C novelties may be classed and approved by the Director, OHMT, without prior examination and offered for transportation, if—

(1) The fireworks or novelty devices are manufactured in accordance with the applicable requirements in APA Standard 87-1;

(2) A thermal stability test is conducted on the device by the BOE, and BOM, or the manufacturer. The test must be performed by maintaining the device, or a representative prototype of a large device such as a display shell, at a temperature of 167°F (75°C.) for 48 consecutive hours. When a device contains more than one component, those components which could be in physical contact with each other in the finished device must be placed in contact with each other during the thermal stability test;

(3) The manufacturer applies in writing to the Director, OHMT, following the applicable requirements in APA Standard 87-1, and is notified in writing by the Director, OHMT, that the fireworks or novelty device has

been classed, approved, and assigned an EX-number. Each application must be complete, include all relevant background data and copies of all applicable drawings, test results, and any other pertinent information on each device for which approval is being requested. The manufacturer must sign the application and certify that the device for which approval is requested conforms to APA Standard 87-1 and that the descriptions and technical information contained in the application are complete and accurate. If the application is denied, the manufacturer is notified in writing of the reasons for the denial. The Director, OHS&T, may require that the fireworks or novelty be examined by an agency listed in paragraph (b)(1) of this section; and

(4) When offered for transportation, each package containing approved fireworks or novelties is marked with the EX-number for each device therein, except that when more than five different fireworks or novelty devices are packed in the same package, the package need not be marked with more than five of the EX-numbers.

\*\*\*

In § 173.88, paragraph (d) is revised to read as follows:

§ 173.88 Definitions of Class B explosives.

\*\*\*

(d) Special fireworks are devices designed primarily to produce visible or audible effects, or both visible and audible effects by combustion or explosion. Fireworks must be in a finished state, exclusive of mere ornamentation, and must be so constructed and packed that loose pyrotechnic composition will not be present in packages in transportation. Examples of special fireworks are toy torpedoes, railway torpedoes, some firecrackers and salutes (depending on pyrotechnic composition or quantity), exhibition display pieces, airplane flares, illuminating projectiles, incendiary projectiles, incendiary bombs or incendiary grenades and smoke projectiles or smoke bombs fuzed or unfuzed containing expelling charges, but without bursting charges, flash powders in inner units not exceeding 2 ounces each, flash sheets in inner packages, flash powder or spreader cartridges containing not over 72 grains of flash powder each (see § 173.60 for shipments made as low explosives), and flash cartridges consisting of a paper cartridge shell, small-arms primer, and flash composition, not exceeding 180 grains as assembled in one piece. See also definitions and standards found in APA Standard 87-1. (See § 173.100(r) for common fireworks.)

\*\*\*

In § 173.100, paragraphs (t) and (x) are removed and reserved and paragraphs (r) and (u) are revised to read as follows:

§ 173.100 Definition of Class C explosives.

\*\*\*

(r) Common fireworks are devices suitable for use by the public and designed primarily to produce visible or audible effects, or both visible and audible effects, by combustion. No component of the device which produces or is intended to produce an audible effect (other than a whistle) shall contain pyrotechnic composition in excess of 2 grains in weight, nor shall such device or component, upon functioning, project or disperse any dangerous fragments such as metal, glass, or brittle plastic. See also definitions and standards found in APA Standard 87-1.

\*\*\*

(t) (Reserved)

(u) Toy propellant devices consist of small paper or composition tubes or containers containing a small charge of slow burning propellant powder. These devices must be so designed that they will neither burst nor produce external flame except through the nozzle on functioning. Ignition elements, if attached, must be of a design examined by the Bureau of Explosives or the Bureau of Mines, and approved by the Director, OHS&T.

\*\*\*

(x) (Reserved)

\*\*\*

§ 173.104 (Amended)

In paragraph (c) of § 173.104, in the second sentence, revise the marking to read: "CORD, DETONATING—HANDLE CAREFULLY" or "FUSE, MILD DETONATING, METAL CLAD—HANDLE CAREFULLY" or "FLEXIBLE LINEAR SHAPED CHARGES, METAL CLAD—HANDLE CAREFULLY"

\*\*\*

In § 173.115, paragraphs (b)(1), (b)(2)(i), and (b)(2)(ii) are revised to read as follows:

§ 173.115 Flammable combustible, and pyrophoric liquids; definitions.

\*\*\*

(b) **Combustible liquid.** (1) For the purposes of this subchapter, a combustible liquid is defined as any liquid that does not meet the definition of any other hazard class defined in this subchapter, other than ORM-E, and which has a flash point at or above 100 F. (37.8 C.) and below 200 F. (93.3 C.) Notwithstanding this definition, a mixture having one component or more with a flash point at 200 F. (93.3 C.) or higher, that makes up at least 99 percent of the total volume of the mixture, is not subject to the requirements of this subchapter.

(2) \*\*\*

(i) An aqueous solution containing 24 percent or less alcohol by volume is considered to have a flash point of no less than 100 F. (37.8 C.) if the remainder of the solution contains no material (other than an ORM-E) that is subject to this subchapter.

(ii) An aqueous solution containing 24 percent or less alcohol by volume is not subject to the requirements of this subchapter if it is not a hazardous substance or a hazardous waste and contains no less than 50 percent water and no material (other than alcohol) which is subject to this subchapter.

\*\*\*

In § 173.118, the first sentence in paragraph (a) is revised to read as follows:

§ 173.118 Limited quantities of flammable liquids. (a) Limited quantities of flammable liquids that do not meet the definition of another hazard class defined in this subchapter (other than ORM-E), and for which exceptions are permitted as noted by reference to this section in § 172.101 of this subchapter, are exempted from labeling (except when offered for transportation by air) and specification packaging requirements of this subchapter when packaged according to the following paragraphs. \*\*\*

\*\*\*

In § 173.118a, paragraph (b)(7) is revised to read as follows:

§ 173.118a Exceptions for combustible liquids.

\*\*\*

(b) \*\*\*

(7) The requirements of §§ 173.1, 173.3, 173.24, 173.29, 173.30, 173.31, 174.67 and 177.804 of this subchapter.

\*\*\*

In § 173.119, paragraphs (m)(11) and (m)(12) are removed and reserved, the introductory text of paragraphs (a) and (b), and paragraphs (a)(17), (b)(1), (e)(3), and (m)(10) are revised to read as follows:

§ 173.119 Flammable liquids not specifically provided for. (a) **Flammable liquids with flash point of 20 F. or below.** Flammable liquids with flash points of 20 F. or below and having a vapor pressure (Reid<sup>1</sup> test) not over 16 psia, at 100 F., other than those for which special requirements are prescribed in this Part, must be offered for transportation in DOT specification packagings constructed of materials that will not react dangerously with or be decomposed by the chemical packed therein as required in the following paragraphs (see paragraphs (c) to (i) of this section for high pressure liquids, paragraphs (j) to (l) of this section for viscous liquids, and paragraph (m) of this section for flammable liquids which are also oxidizers, radioactive material, corrosive liquids, poison B liquids, or organic peroxides and § 173.134 for flammable liquids that are also pyrocloric liquids):

<sup>1</sup>ASTM test D323

\*\*\*

(17) Specification MC 300, MC 301, MC 302, MC 303, MC 304, MC 305, MC 306, MC 307, MC 310, MC 311, MC 312, DOT 406, DOT 407, DOT 412 MC 330, or MC 331 (§§ 178.345, 178.346, 178.347, 178.348, 178.337 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

(i) Each cargo tank is equipped with a pressure relief system meeting the requirements in § 178.346-10 or § 178.347-10 of this subchapter, except that pressure relief devices on Specification MC 330 and MC 331 cargo tanks must meet the requirements in § 178.337-9 of this subchapter.

(ii) Bottom outlets of the cargo tank are equipped with internal self-closing stop-valves meeting the requirements in § 178.345-11 of this subchapter, except that bottom outlets on Specification MC 330 and MC 331 cargo tanks must be equipped with internal self-closing stop-valves meeting the requirements in § 178.337-11(a) of this subchapter. (See § 173.33(b)(3) for limitations on the use of air pressure unloading.)

(iii) MC 300, MC 301, MC 302, MC 303, MC 305, MC 306, and DOT 406 cargo tanks equipped with a 1 psig normal vent used to transport gasoline are subject to the following requirements:

Based on this volatility class determined by using ASTM D439 and the Reid vapor pressure (RVP) of the particular gasoline, the maximum loading pressure and maximum ambient temperature permitted during the loading of gasoline may not exceed that listed in Table I.

Table I.—Maximum Ambient Temperature—Gasoline

ASTM D439 volatility class	Maximum loading and ambient temperature (see note 1)
A (RVP < = 9.0 psia)	131 F
B (RVP < = 10.0 psia)	124 F
C (RVP < = 11.5 psia)	116 F
D (RVP < = 13.5 psia)	107 F
E (RVP < = 15.0 psia)	100 F

Note 1. Based on maximum loading pressure of 1 psig at top of cargo tank.

(b) Flammable liquids with flash points above 20° F. to 73° F. Flammable liquids with flash points above 20° F. to 73° F. having vapor pressure (Reid' test) not over 16 psia at 100° F., other than those for which special requirements are prescribed in this Part, must be offered for transportation in DOT specification packagings constructed of materials that will not react dangerously with or be decomposed by the chemical packed therein, as follows (see paragraphs (c) through (f) of this section for high-pressure liquids and paragraph (m) of this section for flammable liquids which are also oxidizers, poison B liquids, organic peroxides or corrosive liquids):

(1) Packagings as prescribed in paragraph (a) of this section. Openings greater than 2.3 inches in diameter in barrels and drums are authorized when permitted by the specification.

(3) Specification MC 304, MC 307, MC 310, MC 311, MC 312, DOT 407, DOT 412, MC 330 or MC 331 (§§ 178.345, 178.347, 178.348, 178.337 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) The design pressure or MAWP of the cargo tank is at least 25 psig.
- (ii) Each cargo tank is equipped with a pressure relief system meeting the requirements of § 178.347-10 of this subchapter, except that pressure relief devices on Specification MC 330 and MC 331 cargo tanks must meet the requirements in § 178.337-9 of this subchapter.
- (iii) Bottom outlets on the cargo tank are equipped with self-closing stop-valves meeting the requirements in § 178.345-11 of this subchapter, except that bottom outlets on Specification MC 330 and MC 331 cargo tanks must be equipped with internal self-closing stop-valves meeting the requirements in § 178.337-11(a) of this subchapter.

(10) Specification MC 304, MC 307, MC 310, MC 311, MC 312, DOT 407, DOT 412, MC 330 or MC 331 (§§ 178.345, 178.347, 178.348, 178.337 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) The cargo tank may not be used to transport a flammable liquid which is also an organic peroxide, oxidizer or radioactive material.
- (ii) Any cargo tank used to transport a flammable liquid that is also a poison B material has a design pressure or MAWP of at least 25 psig.
- (iii) Any cargo tank used to transport a flammable liquid that is also a corrosive liquid, except Specification MC 330 or MC 331 cargo tanks, meets the corrosion protection requirements in § 178.345-2(c) of this subchapter.
- (iv) Each cargo tank is equipped with a pressure relief system meeting the requirements in § 178.347-10 of this subchapter, except that pressure relief devices on Specification MC 330 and MC 331 cargo tanks must meet the requirements in § 178.337-9 of this subchapter.
- (v) Bottom outlets on the cargo tank are equipped with self-closing stop-valves meeting the requirements in § 178.345-11 of this subchapter, except that bottom outlets on Specification MC 330 and MC 331 cargo tanks must be equipped with internal self-closing stop-valves meeting the requirements in § 178.337-11(a) of this subchapter.

(11)-(12) (Reserved)

In § 173.123, paragraph (a)(6) is revised to read as follows:

§ 173.123 Ethyl chloride.

(6) Specification MC 330 or MC 331 (§ 178.337 of this subchapter) cargo tank motor vehicle, with bottom outlets equipped with internal self-closing stop-valves meeting the requirements in § 178.337-11(a) of this subchapter.

In § 173.131, paragraphs (a) introductory text and (a)(2) are revised to read as follows:

§ 173.131 Road asphalt, or tar, liquid. (a) Road asphalt, or tar, liquid must be packed in packagings as follows:

(2) A nonspecification cargo tank motor vehicle is at least equivalent in design and construction to a Specification MC 306 or DOT 406 (§§ 178.345, 178.346 of this subchapter) cargo tank motor vehicle, except for the requirements in §§ 178.345-8(c) and (d), 178.345-14, 178.345-15, 178.346-5, 178.348-10, and 178.346-11 of this subchapter (or the certification, manhole, venting, and emergency flow control requirements of the MC 306 cargo tank specification).

In § 173.134, paragraph (a)(6) is revised to read as follows:

§ 173.134 Pyroforic liquids, n.o.s.

(6) Specification MC 330 or MC 331 (§ 178.337 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) The design pressure of the cargo tank is at least 175 psig.
- (ii) Each pressure relief device has direct communication with the vapor space in the tank when fully loaded.
- (iii) Bottom outlets on the cargo tank are equipped with internal self-closing stop-valves meeting the requirements in § 178.337-11(a) of this subchapter.

In § 173.135, paragraph (a)(9) is revised to read as follows:

§ 173.135 Diethyl dichlorosilane, dimethyl dichlorosilane, ethyl dichlorosilane, ethyl trichlorosilane, methyl trichlorosilane, trimethyl chlorosilane, and vinyl trichlorosilane.

(9) Specification MC 304, MC 307, DOT 407, MC 330 or MC 331 (§§ 178.345, 178.347, 178.337 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) The cargo tank is fabricated from steel or stainless steel.
- (ii) The design pressure or MAWP of the cargo tank is as prescribed in § 178.345-1 of this subchapter.
- (iii) The cargo tank, except Specification MC 330 and MC 331 cargo tanks, meets the corrosion protection requirements in § 178.345-2(c) of this subchapter.
- (iv) The cargo tank is equipped with a pressure relief system meeting the requirements in § 178.347-10 of this subchapter, except that pressure relief devices on Specification MC 330 and MC 331 cargo tanks must meet the requirements in § 178.337-9 of this subchapter.
- (v) Bottom outlets on the cargo tank are equipped with internal self-closing stop-valves meeting the requirements in § 178.345-11 of this subchapter, except that bottom outlets on Specification MC 330 and MC 331 cargo tanks must be equipped with internal self-closing stop-valves meeting the requirements in § 178.337-11(a) of this subchapter.

In § 173.136, paragraph (a)(8) is revised to read as follows:

§ 173.136 Methyl dichlorosilane and trichlorosilane.

(8) Specification MC 330 or MC 331 (§ 178.337 of this subchapter) cargo tank motor vehicle. Bottom outlets must be equipped with internal self-closing stop-valves meeting the requirements in § 178.337-11(a) of this subchapter.

In § 173.141, paragraph (a)(8) is revised to read as follows:

§ 173.141 Amyl mercaptan, butyl mercaptan, ethyl mercaptan, isopropyl mercaptan, propyl mercaptan, and aliphatic mercaptan mixtures.

(8) Specification MC 330 or MC 331 (§ 178.337 of this subchapter) cargo tank motor vehicle. Bottom outlets must be equipped with internal self-closing stop-valves meeting the requirements in § 178.337-11(a) of this subchapter.

\*\*\*

In § 173.145, paragraph (a)(7) is revised to read as follows:

§ 173.145 Dimethylhydrazine, unsymmetrical, and methylhydrazine.

(a) \*\*\*

(7) Specification MC 304, MC 307, MC 310, MC 311, MC 312, DOT 407, DOT 412, MC 330 or MC 331 (§§ 178.345, 178.347, 178.348, 178.337 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) The cargo tank is fabricated from steel or stainless steel.
- (ii) The tank is equipped with steel pressure relief valves meeting the requirements in § 178.347-10 of this subchapter.
- (iii) The cargo tank meets the corrosion protection requirements in § 178.345-2(c) or § 178.347 of this subchapter.
- (iv) The cargo tank has no bottom outlets.
- (v) The design pressure or MAWP of the cargo tank is at least 25 psig.

\*\*\*

In § 173.148, paragraph (a)(5) is revised to read as follows:

§ 173.148 Monoethylamine.

(a) \*\*\*

(5) Any cargo tank motor vehicle prescribed in § 173.119(e)(3).

\*\*\*

In § 173.154, paragraph (a)(18) is removed and reserved; and paragraph (a)(4) is revised to read as follows:

§ 173.154 Flammable solids, organic peroxide solids and oxidizers not specifically provided for.

(a) \*\*\*

(4) Specification MC 303, MC 304, MC 306, MC 307, MC 310, MC 311, MC 312, DOT 406, DOT 407, DOT 412, MC 330 or MC 331 (§§ 178.345, 178.346, 178.347, 178.348, 178.337 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) Cargo tanks are authorized only for—
  - (A) Sodium perchlorate or magnesium perchlorate, wet, with 10 percent or more water, equally distributed within the cargo tank;
  - (B) Potassium nitrate solutions, except that MC 306 cargo tanks are not authorized; or
  - (C) Ammonium nitrate with 15 percent of more water in solution at a maximum temperature of 240 F, except that transportation by vessel in unsaturated tanks and MC 303, MC 306, MC 310 and DOT 406 cargo tank motor vehicles is not authorized.
- (ii) Bottom outlets on the cargo tank are equipped with stop-valves meeting the requirements in § 178.345-11 of this subchapter, except that bottom outlets on Specification MC 330 and MC 331 cargo tanks must be equipped with internal self-closing stop-valves meeting the requirements in § 178.337-11(a) of this subchapter.
- (iii) Only a Specification MC 304, MC 307 or DOT 407 cargo tank motor vehicle is authorized for transportation by vessel.
- (iv) A cargo tank may have heating coils if an inorganic heating medium is used.
- (v) Each MC 310, MC 311, MC 312, or DOT 412 cargo tank is equipped with pressure relief devices meeting the requirements in § 178.347-10 of this subchapter.

\*\*\*

(18) [Reserved]

\*\*\*

In § 173.182, footnote 1 is amended by removing the phrase "dated May 7, 1971".

\*\*\*

In § 173.190, paragraph (b)(4) is revised to read as follows:

§ 173.190 Phosphorus, white or yellow.

\*\*\*

(b) \*\*\*

(4) Specification MC 304, MC 307, MC 310, MC 311, MC 312, DOT 407, DOT 412, MC 330 or MC 331 (§§ 178.337, 178.345, 178.347, 178.348 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) The lading is completely immersed in water or completely blanketed with an inert gas. The loading temperature may not exceed 140 F.

(i) The cargo tank has foam or equivalent insulation at least 4 inches thick, or at least 2 inches thick if the tank is equipped with an exterior heating jacket. The cargo tank has no interior heating coils.

(ii) The cargo tank has no bottom outlets.

(iv) Each cargo tank is equipped with pressure relief devices meeting the requirements in § 178.347-10 of this subchapter.

(v) An empty cargo tank motor vehicle may not be offered for transportation unless the tank is cleaned, or is filled to capacity with water having a temperature not exceeding 140 F.

\*\*\*

In § 173.206, paragraph (c)(3) is revised to read as follows:

§ 173.206 Sodium or potassium, metallic; sodium amide; sodium potassium alloys; sodium aluminum hydride; lithium metal; lithium silicon, lithium ferro silicon; lithium hydride; lithium borohydride; lithium aluminum hydride; lithium acetylideethylene diamine complex; aluminum hydride; cesium metal; rubidium metal; zirconium hydride, powdered.

\*\*\*

(3) Specification MC 330 or MC 331 (§ 178.337 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) The material is in a molten condition when loaded and solidified before being moved over a public highway.
- (ii) The outage is 5 percent or more at a sodium temperature of 208 F.
- (iii) The design pressure of the cargo tank is at least 150 psig.
- (iv) The tank is equipped with exterior heating coils fusion-welded to the tank shell and properly stressed relieved.
- (v) The cargo tank is equipped with pressure relief devices meeting the requirements in § 178.337-9 of this subchapter.
- (vi) The cargo tank has no bottom outlets.

\*\*\*

In § 173.224, paragraph (a)(4) is revised to read as follows:

§ 173.224 Cumene hydroperoxide, dicumyl peroxide, diisopropylbenzene hydroperoxide, paramenthane hydroperoxide, pinane hydroperoxide, and tertiary butylisopropyl benzene hydroperoxide.

(a) \*\*\*

(4) Specification MC 310, MC 311, MC 312, or DOT 412 (§§ 178.345, 178.348 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) Cargo tanks are authorized only for—
  - (A) Diisopropylbenzene hydroperoxide not over 60 percent strength in a nonvolatile solvent;
  - (B) Paramenthane hydroperoxide not over 60 percent strength in a nonvolatile solvent;
  - (C) Pinane hydroperoxide not over 45 percent strength in a nonvolatile solvent; or
  - (D) Cumene hydroperoxide not over 90 percent strength in a nonvolatile solvent, except that specification MC 310 cargo tanks are not authorized.
- (ii) The cargo tank has no bottom outlets.
- (iii) The pressure relief system on the cargo tank meets the requirements in § 178.347-10 of this subchapter.

\*\*\*

In § 173.245, paragraphs (a)(30) and (a)(31) are removed and reserved; paragraph (a)(29) is revised to read as follows:

§ 173.245 Corrosive liquids not specifically provided for.

(a) \*\*\*

(29) Specification MC 303, MC 304, MC 306, MC 307, MC 310, MC 311, MC 312, DOT 407 or DOT 412 (§§ 178.345, 178.346, 178.347, 178.348 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) A Specification MC 303 or MC 306 cargo tank fabricated from Type 316 stainless steel not less than 0.100 inch thick is authorized only for monoethanolamine, primary amyl alcohol, phosphoric acid, and solutions thereof.
- (ii) A Specification MC 306 cargo tank fabricated of aluminum is authorized only for monoethanolamine and primary amyl alcohol.
- (iii) The cargo tank meets the corrosion protection requirements in § 178.345 2(c) of this subchapter.
- (iv) Bottom outlets on the cargo tank are equipped with self-closing stop-valves meeting the requirements in § 178.345-11 of this subchapter.

(30)-(31) [Reserved]

\*\*\*

In paragraph (a) of § 173.247, the words "trimethyl acetic chloride" are changed to read "trimethyl acetyl chloride".

\*\*\*

In § 173.247 paragraph (a)(12) is revised to read as follows:

§ 173.247 Acetyl bromide; acetyl chloride; acetyl iodide, anti-mony pentachloride; benzoyl chloride, boron trifluoride acetic acid complex; chromyl chloride; dichloroacetyl chloride; diphenylmethyl bromide solutions, pyrosulfuryl chloride; silicon chloride; sulfur chloride (mono and di); sulfuryl chloride; thionyl chloride; tin tetrachloride (anhydrous); titanium tetrachloride; trimethyl acetyl chloride.

(a) \*\*\*

(12) Specification MC 310, MC 311, MC 312, DOT 412, MC 330, or MC 331 (§§ 178.345, 178.348, 178.337 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) The cargo tank meets the corrosion protection requirements in § 178.345-2(c) of this subchapter.
- (ii) Bottom outlets on the cargo tank are equipped with stop-valves meeting the requirements in § 178.345-11 of this subchapter, except that bottom outlets on Specification MC 330 and MC 331 cargo tanks must be equipped with internal self-closing stop-valves meeting the requirements in § 178.337-11(a) of this subchapter.
- (iii) The cargo tank is not made of aluminum.

\*\*\*

In § 173.247a, paragraph (a)(3) is revised to read as follows:

§ 173.247a Vanadium tetrachloride and vanadium oxytrichloride.

(a) \*\*\*

(3) Specification MC 310, MC 311, MC 312, or DOT 412 (§§ 178.345, 178.348 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) The cargo tanks are authorized only for vanadium oxytrichloride padded with an inert non-soluble gas adequate to exclude the presence of air.
- (ii) The cargo tank meets the corrosion protection requirements in § 178.345-2(c) of this subchapter.
- (iii) Bottom outlets on the cargo tank are equipped with stop-valves meeting the requirements in § 178.345-11 of this subchapter.
- (iv) The tank is not authorized for transportation by vessel.
- (v) The cargo tank is not made of aluminum.

\*\*\*

In § 173.248, paragraph (a)(6) is revised to read as follows:

§ 173.248 Spent sulfuric acid, or spent mixed acid.

(a) \*\*\*

(6) Specification MC 310, MC 311, MC 312, or DOT 412 (§§ 178.345, 178.348 of this subchapter) cargo tank motor vehicle, and—

- (i) The cargo tank meets the corrosion protection requirements in § 178.345-2(c) of this subchapter.
- (ii) Bottom outlets on the cargo tank are equipped with stop valves meeting the requirements in § 178.345-11 of this subchapter.

\*\*\*

§ 173.249 [Amended]

In the heading of § 173.249, the words "alkaline corrosive battery fluid," are removed. And, in paragraph (a) of § 173.249, the words "alkaline corrosive battery fluid," are also removed.

\*\*\*

In § 173.249, paragraphs (a)(1) and (a)(6) are revised to read as follows:

§ 173.249 Alkaline corrosive liquids, n.o.s.; alkaline liquids, n.o.s.; alkaline corrosive battery fluid; potassium fluoride solution; potassium hydrogen fluoride solution; sodium aluminate, liquid; sodium hydroxide solution; potassium hydroxide solution.

(a) \*\*\*

(1) In packagings prescribed in § 173.245, except § 173.245(a)(29).

\*\*\*

(6) Specification MC 303, MC 304, MC 306, MC 307, MC 310, MC 311, MC 312, DOT 407, DOT 412 (§§ 178.345, 178.347, 178.348 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) A Specification MC 303 cargo tank—
  - (A) is fabricated from steel or stainless steel;
  - (B) When fabricated of steel, is authorized only for alkaline corrosive liquid, n.o.s., and alkaline liquid, n.o.s.; and

(c) is not authorized for transportation by vessel.

(i) The cargo tank meets the corrosion protection requirements in § 178.345-2(c) of this subchapter.

(ii) A Specification MC 306 cargo tank is fabricated from Type 316 stainless steel of not less than 0.100 inch thick.

(iv) Bottom outlets on the cargo tank are equipped with self-closing stop-valves meeting the requirements in § 178.345-11 of this subchapter.

\*\*\*

§ 173.249a [Amended]

In the heading of § 173.249a, the word "or" is added between the words "compound" and "mixture" to read "compound or mixture".

\*\*\*

In § 173.249a, paragraph (d)(1) is revised and a new paragraph (d)(6) is added to read as follows:

§ 173.249a Cleaning compound, liquid; coal tar dye, liquid; dye intermediate, liquid; mining reagent, liquid; and textile treating compound mixture, liquid.

(d) \*\*\*

(1) In specification packaging as prescribed in § 173.245, except § 173.245(a)(29).

\*\*\*

(6) Specification MC 303, MC 304, MC 306, MC 307, MC 310, MC 311, MC 312, DOT 407 or DOT 412 (§§ 178.345, 178.347, 178.348 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) Each cargo tank meets the corrosion protection requirements in § 178.345-2(c) of this subchapter.
- (ii) A Specification MC 303 cargo tank is made from steel or stainless steel. The cargo tank is not authorized for transportation by vessel.
- (iii) A Specification MC 306 cargo tank is fabricated from Type 316 stainless steel of not less than 0.100 inch thick. The cargo tank is not authorized for transportation by cargo vessel.
- (iv) Bottom outlets on the cargo tank are equipped with self-closing stop-valves meeting the requirements in § 178.345-11 of this subchapter.

\*\*\*

In § 173.249a, paragraph (d)(3) is revised to read as follows:

§ 173.249a Cleaning compound, liquid; coal tar dye, liquid; dye intermediate liquid; mining reagent, liquid; and textile treating compound mixture, liquid.

\*\*\*

(d) \*\*\*

(3) Removable (open) head or tight-head fiber drum lined or coated on the inside with a plastic material, not over 55-gallon capacity. Not authorized for shipment by aircraft.

\*\*\*

In § 173.250a, paragraphs (a)(1) and (a)(2) are revised to read as follows:

§ 173.250a Benzene phosphorus dichloride and benzene phosphorus thiodichloride.

(a) \*\*\*

(1) In specification packagings prescribed in § 173.245, except § 173.245(a)(29), which are made of or lined with materials compatible with the lading.

(2) Specification MC 304, MC 307, MC 310, MC 311, MC 312, DOT 407 or DOT 412 (§§ 178.345, 178.347, 178.348 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) The cargo tank meets the corrosion protection requirements in § 178.345-2(c) of this subchapter.
- (ii) Bottom outlets on the cargo tank are equipped with internal self-closing stop-valves meeting the requirements in § 178.345-11 of this subchapter.

\*\*\*

In § 173.250, paragraph (b) is revised to read as follows:

§ 173.250 Automobiles, other self-propelled vehicles, engines or other mechanical apparatus.

\*\*\*

(b) For transportation by aircraft or vessel the following provisions apply:

(1) For transportation by passenger-carrying aircraft, wheelchairs equipped with wet electric storage batteries must be shipped as prescribed in § 175.10 of this subchapter.

(2) For transportation by vessel, the requirements in § 176.905 apply.

\*\*\*

In § 173.252, paragraph (a)(4) is revised to read as follows:

§ 173.252 Bromine.

(a) \*\*\*

(4) Specification MC 310, MC 311, MC 312, or DOT 412 (§§ 178.345, 178.348 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) The total volume of bromine loaded into the cargo tank is at least 83 percent and not more than 96 percent of the volume of the tank.
- (ii) The tank shell and heads are at least 3/8 inch thick, excluding lining, cladding or corrosion allowance.
- (iii) The tank is of ASTM A-265 material having a nickel cladding material on the inside surface comprising at least 20 percent of the total minimum thickness, or steel at least 3/8 inch thick lined with lead at least 3/8 inch thick. The cladding material must meet the requirements in ASTM B-162. The composite plate must meet the requirements in ASTM A-265.
- (iv) The cargo tank meets the corrosion protection requirements in § 178.345-2(c) of this subchapter.
- (v) Bottom outlets on the cargo tank are equipped with internal self-closing stop-valves meeting the requirements in § 178.345-11 of this subchapter.

\*\*\*

In § 173.253, paragraph (a)(6) is revised to read as follows:

§ 173.253 Chloroacetyl chloride.

(a) \*\*\*

(6) Specification MC 310, MC 311, MC 312, or DOT 412 (§§ 178.345, 178.348 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) The cargo tank is fabricated from at least 99 percent nickel, or Type 316 stainless steel.
- (ii) The cargo tank meets the corrosion protection requirements in § 178.345-2(c) of this subchapter.
- (iii) Bottom outlets on the cargo tank are equipped with internal self-closing stop-valves meeting the requirements in § 178.345-11 of this subchapter.

\*\*\*

In § 173.254, paragraph (a)(5) is revised to read as follows:

§ 173.254 Chlorosulfonic acid and mixtures of chlorosulfonic acid-sulfur trioxide.

(a) \*\*\*

(5) Specification MC 310, MC 311, MC 312, or DOT 412 (§§ 178.345, 178.348 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) The cargo tank meets the corrosion protection requirements in § 178.345-2(c) of this subchapter.
- (ii) Bottom outlets on the cargo tank are equipped with self-closing stop-valves meeting the requirements in § 178.345-11 of this subchapter.

\*\*\*

In § 173.255, paragraph (a)(5) is revised to read as follows:

§ 173.255 Dimethyl sulfate.

(a) \*\*\*

(5) Cargo tank motor vehicles as prescribed in § 173.254(a)(5).

\*\*\*

In § 173.257, paragraph (a)(4) is revised to read as follows:

§ 173.257 Electrolyte (acid) and alkaline corrosive battery fluid.

(a) \*\*\*

(4) Specification MC 310, MC 311, MC 312, or DOT 412 (§§ 178.345, 178.348 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) The cargo tank is lined with rubber or material of equivalent or greater strength, durability, and acid-resistance.
- (ii) Bottom outlets on the cargo tank are equipped with self-closing stop-valves meeting the requirements in § 178.345-11 of this subchapter.

\*\*\*

In § 173.262, paragraphs (a)(11) and (b)(4) are revised to read as follows:

§ 173.262 Hydrobromic acid.

(a) \*\*\*

(11) Specification MC 310, MC 311, MC 312, or DOT 412 (§§ 178.345, 178.348 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) The cargo tank is lined with rubber or other material of equivalent or greater strength, durability, and acid-resistance.
- (ii) Bottom outlets on the cargo tank are equipped with internal self-closing stop-valves meeting the requirements in § 178.345-11 of this subchapter.

\*\*\*

(b) \*\*\*  
(4) Cargo tank motor vehicles as prescribed in paragraph (a)(11) of this section.

\*\*\*

In § 173.262, a sentence is added to paragraphs (b)(1), (b)(2), and (b)(3) to read as follows:

§ 173.262 Hydrobromic acid.

\*\*\*

- (b) \*\*\*  
(1) \*\*\* The shipper shall assure conformance with the requirements of § 173.24(d) of this part prior to first shipment.
- (2) \*\*\* The shipper shall assure conformance with the requirements of § 173.24(d) of this part prior to first shipment.
- (3) \*\*\* The shipper shall assure conformance with the requirements of § 173.24(d) of this part prior to first shipment.

\*\*\*

In § 173.263, paragraph (a)(10) is revised to read as follows:

§ 173.263 Hydrochloric (muriatic) acid; hydrochloric (muriatic) acid mixtures; hydrochloric (muriatic) acid solution, inhibited, sodium chlorite solution (not exceeding 42 percent sodium chlorite); and cleaning compounds, liquids, containing hydrochloric (muriatic) acid.

(a) \*\*\*

(10) Specification MC 310, MC 311, MC 312, or DOT 412 (§§ 178.345, 178.348 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) The cargo tank is lined with rubber or other material of equivalent or greater strength, durability, and acid-resistance, except that an unlined tank made from Type 304 or Type 316 stainless steel is authorized for sodium chlorite solutions not exceeding 42 percent strength.
- (ii) Bottom outlets on the cargo tank are equipped with internal self-closing stop-valves meeting the requirements in § 178.345-11 of this subchapter.

\*\*\*

In § 173.264, Note 1 to paragraph (a)(14) is removed; paragraphs (a)(14) and (b)(3) are revised to read as follows:

§ 173.264 Hydrofluoric acid; White acid.

(a) \*\*\*

(14) Specification MC 310, MC 311, MC 312, or DOT 412 (§§ 178.345, 178.348 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) The cargo tank is lined with rubber or other material of equivalent or greater strength, durability, and acid-resistance, except that an unlined cargo tank is authorized for hydrofluoric acid solutions of 60 percent to 65 percent concentration provided the lading is inhibited so that the corrosive effect on steel is not greater than that of 65 percent hydrofluoric acid.
- (ii) Bottom outlets on the cargo tank are equipped with self-closing stop-valves meeting the requirements in § 178.345-11 of this subchapter.

\*\*\*

(b) \*\*\*  
(3) Specification MC 310, MC 311, MC 312 or DOT 412 (§§ 178.345, 178.348 of this subchapter) cargo tank motor vehicle. Bottom outlets on the cargo tank must be equipped with self-closing stop-valves meeting the requirements in § 178.345-11 of this subchapter.

\*\*\*

§ 173.264 [Amended]

In § 173.264, the introductory text of paragraph (b)(1) is amended by adding "3BN," immediately after "3B," and adding "178.39," immediately after "178.38."

\*\*\*

In § 173.265, paragraph (b)(4) is revised to read as follows:

§ 173.265 Fluorosulfuric acid (hydrofluorosulfuric acid) (hydrofluosulfuric acid).

(b) \*\*\*

(4) Specification MC 310, MC 311, MC 312, or DOT 412 (§§ 178.345, 178.348 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) The cargo tank is lined with rubber or other material of equivalent or greater strength, durability, and acid-resistance.
- (ii) Bottom outlets on the cargo tank are equipped with self-closing stop-valves meeting the requirements in § 178.345-11 of this subchapter.

\*\*\*

In § 173.266, paragraph (f)(2) is revised to read as follows:

§ 173.266 Hydrogen peroxide solution in water.

\*\*\*

(f) \*\*\*

(2) Specification MC 310, MC 311, MC 312 or DOT 412 (§§ 178.345, 178.348 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) The tank is fabricated—
  - (A) From aluminum meeting the requirements of Aluminum Association designation 1069, 1260, 5254 or 5282 alloy, and with a minimum wall thickness of 0.500 inches; or
  - (B) An MC 312 cargo tank may be fabricated of Type 304L, 316 or 316L stainless steel.
- (ii) The MAWP of the cargo tank is at least 40 psig.
- (iii) The tank is designed and fabricated so that the internal surfaces can be effectively cleaned and passivated. All openings are located on the top of the tank.
- (iv) The cargo tank has no bottom outlets.
- (v) A cargo tank in hydrogen peroxide service is used in hydrogen peroxide service only and the cargo tank specification plate is so marked. In addition to the required markings prescribed in § 172.328 of this subchapter, each such cargo tank is marked in letters at least 1 inch high "FOR HYDROGEN PEROXIDE SERVICE ONLY".
- (vi) The designs for venting and pressure relief devices have been examined by the Bureau of Explosives and approved by the Director, O.H.M.T.

\*\*\*

In § 173.267, paragraph (a)(7) is revised to read as follows:

§ 173.267 Mixed acid (nitric and sulfuric acid) (nitrating acid).

(a) \*\*\*

(7) Any cargo tank motor vehicle prescribed in § 173.254(a)(5).

\*\*\*

In § 173.268, paragraph (b)(3) is revised to read as follows:

§ 173.268 Nitric acid.

\*\*\*

(b) \*\*\*

(3) Any cargo tank motor vehicle is prescribed in § 173.254(a)(5).

\*\*\*

In § 173.271, paragraph (a)(8) is revised to read as follows:

§ 173.271 Methyl phosphonic dichloride, phosphorus oxybromide, phosphorus oxychloride, phosphorus trichloride, and thiophosphoryl chloride.

(a) \*\*\*

(8) Specification MC 310, MC 311, MC 312 or DOT 412 (§§ 178.345, 178.348 of this subchapter) cargo tank motor vehicles, subject to the following conditions:

- (i) The tank is—
  - (A) Fabricated from mild steel, stainless steel or at least 99 percent nickel (with cast metal parts of tank in contact with lading at least 96.7 percent nickel);
  - (B) Clad with Type 316 stainless steel at least 20 percent as thick as the parent metal; or
  - (C) Lined with lead at least 1/2 inch thick or lined with at least 99 percent pure nickel at least 1/2 inch thick at all points including rivets, welds and other joints, and edges of tank plates.
- (ii) A tank fabricated from, or clad with, Type 316 stainless steel is authorized only for phosphorous oxychloride, phosphorous trichloride, and thiophosphoryl chloride.
- (iii) A tank fabricated from mild steel or austenitic stainless steel, without cladding or lining, is authorized only for phosphorous trichloride service.

(iv) Bottom outlets on the cargo tank are equipped with internal self-closing stop-valves meeting the requirements in § 178.345-11 of this subchapter.

\*\*\*

§ 173.272 [Amended]

In paragraph (b), the designation (b) is correctly designated as (1), and (b) is reserved.

\*\*\*

In § 173.272, paragraphs (i)(25) and (i)(28) are removed and reserved; paragraphs (c), (d), (e), (f), (g), (h) and (i)(21) are revised to read as follows:

§ 173.272 Sulfuric acid.

\*\*\*

(c) Concentrations of 51 percent or less. Authorized packagings for sulfuric acid at concentrations of 51 percent or less are prescribed in paragraphs (i)(1)-(16), (21), (24), and (26) of this section.

(d) Concentrations of greater than 51 percent to not over 65.25 percent. Authorized packagings for sulfuric acid at concentrations of 51 percent to not over 65.25 percent are prescribed in paragraphs (i)(1)-(16), (21), and (27)-(29) of this section.

(e) Concentrations of greater than 65.25 percent to not over 77.5 percent. Authorized packagings for sulfuric acid at concentrations of 65.25 percent to not over 77.5 percent are prescribed in paragraphs (i)(1)-(16), (20)-(22), and (29) of this section.

(f) Concentrations of greater than 77.5 percent to not over 95 percent. Authorized packagings for sulfuric acid concentrations of 77.5 percent to not over 95 percent are prescribed in paragraphs (i)(1)-(22), and (29) of this section.

(g) Concentrations of greater than 95 percent to not over 100.5 percent. Authorized packagings for sulfuric acid concentrations of greater than 95 percent to not over 100.5 percent are prescribed in paragraphs (i)(1)-(4), (6), (9), (14)-(22), and (29) of this section.

(h) Concentrations of over 100.5 percent. Authorized packagings for sulfuric acid concentrations of over 100.5 percent are prescribed in paragraphs (i)(1)-(4), (17), and (19)-(23) of this section.

\*\*\*

(i) \*\*\*

(21) Specification MC 310, MC 311, MC 312 or DOT 412 (§§ 178.345, 178.348 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) The cargo tank is lined with rubber or other material of equivalent or greater strength, durability, and acid-resistance.
- (ii) An unlined steel cargo tank is authorized for sulfuric acid of 65.25 percent or greater concentration, provided the corrosive effect on steel is not greater than that of 65.25 percent sulfuric acid measured at 100°F.
- (iii) The temperature of the lading may not exceed the design temperature of the cargo tank marked on the cargo tank specification plate.
- (iv) Bottom outlets on the cargo tank are equipped with internal self-closing stop-valves meeting the requirements in § 178.345-11 of this subchapter.

\*\*\*

(25) [Reserved]

\*\*\*

(28) [Reserved]

\*\*\*

In § 173.273, paragraphs (a)(5) and (b)(2) are revised to read as follows:

§ 173.273 Sulfur trioxide.

(a) \*\*\*

(5) Specification MC 310, MC 311, MC 312 or DOT 412 (§§ 178.345, 178.348 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) The cargo tank is equipped with a pressure relief system meeting the requirements in § 178.345-10 of this subchapter and consisting of a spring-loaded pressure relief valve, or a combination spring-loaded pressure relief valve and a frangible (rupture disk) installed in series with the relief valve. When the pressure relief system consists of a spring-loaded pressure relief valve and a frangible (rupture disk) installed in series with the pressure relief valve, the spring-loaded pressure relief valve must be set-to-discharge at a pressure not exceeding 125 percent of the design pressure.
- (ii) The tank is not equipped with interior heating coils.
- (iii) Bottom outlets on the cargo tank are equipped with self-closing stop valves meeting the requirements in § 178.345-11 of this subchapter.



(b) \* \* \*

(2) Specification MC 311, MC 312, DOT 412 (§§ 178.345, 178.348 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) The cargo tank is insulated.
- (ii) The tank is not equipped with interior heating coils.
- (iii) The cargo tank is equipped with a pressure relief system meeting the requirements in § 178.345-10 of this subchapter and consisting of a spring-loaded pressure relief valve, or a combination spring-loaded pressure relief valve and a frangible (rupture) disk installed in series with the relief valve. When the pressure relief system consists of a spring-loaded pressure relief valve and a frangible (rupture) disk installed in series with the pressure relief valve, the spring-loaded pressure relief valve must be set-to-discharge at a pressure not exceeding 125 percent of the design pressure.

\* \* \*

In § 173.274, paragraph (a)(4) is revised to read as follows:

§ 173.274 Fluosulfonic acid.

- (a) \* \* \*
- (4) Specification MC 310, MC 311, MC 312, or DOT 412 (§§ 178.345, 178.348 of this subchapter) cargo tank motor vehicle. Bottom outlets must be equipped with internal self-closing stop-valves meeting the requirements in § 178.345-11(a)(1) of this subchapter.

\* \* \*

In § 173.276, paragraph (a)(6) is revised to read as follows:

§ 173.276 Anhydrous hydrazine and hydrazine solution.

(a) \* \* \*

(6) Specification MC 310, MC 311, MC 312, or DOT 412 (§§ 178.345, 178.348 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) The cargo tank is fabricated from Type 304 or Type 317 stainless steel with molybdenum content not exceeding 1 percent.
- (ii) The vapor space in the cargo tank is filled with nitrogen gas at not less than atmospheric pressure.
- (iii) Bottom outlets on the cargo tank are equipped with internal self-closing stop-valves meeting the requirements in § 178.345-11(a)(1)(i) of this subchapter, except that bottom outlets on Specification MC 330 and MC 331 cargo tanks must be equipped with internal self-closing stop-valves meeting the requirements in § 178.337-11(c) of this subchapter.

\* \* \*

In § 173.277, paragraph (a)(9) is revised to read as follows:

§ 173.277 Hypochlorite solutions.

(a) \* \* \*

(9) Specification MC 310, MC 311, MC 312, or DOT 412 (§§ 178.345, 178.348 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) The cargo tank is lined with rubber or other material of equivalent or greater strength, durability, and acid-resistance.
- (ii) Bottom outlets are equipped with internal self-closing stop-valves meeting the requirements in § 178.345-11(a)(1)(i) of this subchapter.
- (iii) Continued use of nonspecification cargo tanks is authorized only if they were used to transport hypochlorite solutions prior to January 1, 1983.

\* \* \*

In § 173.280, paragraph (a)(8) is revised to read as follows:

§ 173.280 Trichlorosilanes.

(a) \* \* \*

(8) Specification MC 310, MC 311, MC 312, or DOT 412 (§§ 178.345, 178.348 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) The tank is made of steel or stainless steel.
- (ii) Bottom outlets on the cargo tank are equipped with internal self-closing stop-valves meeting the requirements in § 178.345-11(a)(1) of this subchapter.

\* \* \*

In § 173.287, paragraph (b)(8) is revised to read as follows:

§ 173.287 Chromic acid solution.

\* \* \*

(b) \* \* \*

(8) Any cargo tank motor vehicle prescribed in § 173.254(a)(5), except that the cargo tanks are not authorized for transportation by vessel.

\* \* \*

In § 173.289, paragraphs (a)(1) and (a)(4) are revised to read as follows:

§ 173.289 Formic acid and formic acid solutions.

(a) \* \* \*

(1) In packagings prescribed in § 173.245, except § 173.245(a)(14) and (a)(29) and DOT 5A steel drum.

\* \* \*

(4) Any cargo tank motor vehicle prescribed in § 173.254(a)(5).

\* \* \*

In § 173.292, paragraphs (a)(1) and (a)(2) are revised to read as follows:

§ 173.292 Hexamethylene diamine solution.

(a) \* \* \*

(1) In packagings as prescribed in § 173.249, except § 173.249(a)(6).

(2) Specification MC 300, MC 301, MC 302, MC 303, MC 304, MC 305, MC 306, MC 307, MC 310, MC 311, MC 312 or DOT 406, DOT 407, DOT 412 (§§ 178.345, 178.346, 178.347, 178.348 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) The cargo tank meets the corrosion protection requirements in § 178.345-2(c) of this subchapter.
- (ii) A Specification MC 306 or DOT 406 cargo tank is fabricated from Type 316 stainless steel not less than 0.100 inch thick.
- (iii) A Specification MC 303 cargo tank is fabricated from steel or stainless steel.
- (iv) Bottom outlets on the cargo tank are equipped with internal self-closing stop-valves meeting the requirements in § 178.345-11(a)(1) of this subchapter.

\* \* \*

In § 173.294, paragraph (a)(3) is revised to read as follows:

§ 173.294 Monochloroacetic acid liquid or solution.

(a) \* \* \*

(3) Specification MC 310, MC 311, MC 312, or DOT 412 (§§ 178.345, 178.348 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) The tank is fabricated from Type 304 or Type 316 stainless steel, 99 percent pure nickel plates, titanium meeting the requirements in ASTM SA-265, or is suitably lined with nickel or stainless steel.
- (ii) Bottom outlets on the cargo tank are equipped with internal self-closing stop-valves meeting the requirements in § 178.345-11(a)(1)(i) of this subchapter.

\* \* \*

In § 173.295, paragraph (a)(10) is removed and reserved; paragraph (a)(9) is revised to read as follows:

§ 173.295 Benzyl chloride.

(a) \* \* \*

(9) Specification MC 310, MC 311, MC 312, or DOT 412 (§§ 178.345, 178.348 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) A tank fabricated of steel is used to transport stabilized benzyl chloride.
  - (ii) A tank fabricated from at least 99 percent nickel is used for unstabilized benzyl chloride that is anhydrous and free from impurities such as iron. All cast metal parts of the tank in contact with the lading are fabricated from at least 96.7 percent nickel.
  - (iii) Bottom outlets on the cargo tank are equipped with internal self-closing stop-valves meeting the requirements in § 178.345-11(a)(1)(i) of this subchapter.
- (10) [Reserved]

\* \* \*

In § 173.296, paragraph (a)(2) is revised to read as follows:

§ 173.296 Di Iso octyl acid phosphate.

(a) \* \* \*

(2) Any cargo tank motor vehicle prescribed in § 173.254(a)(5).

\* \* \*

In 173.297, paragraph (a)(1) is revised to read as follows:

§ 173.297 Titanium sulfate solution containing not more than 45 percent sulfuric acid.

(a) \*\*\*

(4) Specification MC 310, MC 311, MC 312, or DOT 412 (§§ 178.345, 178.348 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) Each cargo tank is rubber-lined.
- (ii) Bottom outlets on the cargo tank are equipped with internal self-closing stop-valves meeting the requirements in § 178.345-11(a)(1) of this subchapter.

\*\*\*

In § 173.301, the first sentence in paragraph (j)(3) is amended by adding "1,1-Difluoroethylene" immediately after the word "gases," and in paragraph (l) (1) the phrase "or framework" is added immediately after the word "vehicle." Also, the introductory text of paragraph (l) is revised to read as follows:

§ 173.301 General requirements for shipment of compressed gases in cylinders.

\*\*\*

(l) Specifications 3AX, 3AAX, and 3T cylinders are authorized for transportation only when horizontally mounted on a motor vehicle or in an ISO framework or other framework of equivalent structural integrity. Cylinders may be transported in COFC or TOFC service only under conditions approved by the Associate Administrator for Safety, Federal Railroad Administration. Cylinder valves and safety devices must be protected as follows:

\*\*\*

§ 173.304. [Amended]

In § 173.304, paragraph (b) is amended by adding "1,1-Difluoroethylene (R-1132A)," immediately following "carbon dioxide," and paragraph (a)(2) Table is amended by adding an entry for "1,1-Difluoroethylene (R-1132A)" in alphabetical sequence, revising the entries for "insecticide, liquefied gas" and "Refrigerant gas, n.o.s. or Dispersant gas, n.o.s." and adding Notes 12 and 13 following the Table, to read as follows:

Kind of gas	Maximum permitted filling density (percent) (see Note 1)	Containers marked as shown in this column or of the same type with higher service pressure must be used except as provided in § 173.34(a), (b), § 173.301(f) (see notes following table)
1,1-Difluoroethylene (R-1132A) .....	73 .....	DOT-3A2200, DOT-3AA2200, DOT-3AX2200, DOT-3AAX2200, DOT-3T2200, DOT-39
Insecticide, liquefied gas (See Notes 8 and 12) .....	Not liquid at 130°F	DOT-3A300, DOT-3AA300, DOT-3B300, DOT-4B300, DOT-4BA300, DOT-4B W300, DOT-8, DOT-40, DOT-41, DOT-3E1800
Refrigerant gas, n.o.s. or Dispersant gas, n.o.s. (see Notes 8 and 13)	Not liquid at 130°F	DOT-3A240, DOT-3AA240, DOT-3B240, DOT-3E1800, DOT-4A240, DOT-4B240, DOT-4BA240, DOT-4B W240, DOT-4E240, DOT-8, DOT-39, and DOT-3AL240

Note 1: The "filling density" is hereby defined as the percent ratio of the weight of gas in a container to the weight of water that the container will hold at 60°F. (1 lb. of water = 27.677 cubic inches at 60°F).

Note 8: See § 173.301(h).

Note 12: For an insecticide gas which is nonpoisonous and nonflammable, see § 173.305(c).  
Note 13: For a refrigerant or dispersant gas which is nonpoisonous and nonflammable, see § 173.304(e).

\*\*\*

§ 173.314 [Amended]

In § 173.314, the table in paragraph (c) is amended by revising the entry for "Bromotrifluoromethane (R-13B1 or H-1301)" to read as follows:

§ 173.314 Requirements for Compressed Gases In Tank Cars.

\*\*\*

(c) \*\*\*

Kind of gas	Maximum permitted filling density, Note 1	Required tank car, see § 173.31(a) (2) and (3)
Bromotrifluoromethane .....	124 .....	DOT-110A300N, Notes 13 and 25
(R-13B1 or H-1301) .....	140 .....	DOT-105A300N, Note 13

\* Use of existing tank cars authorized, but new construction not authorized.

Note 1: The filling density for liquefied gases is hereby defined as the percent ratio of the weight of gas in the tank to the weight of water that the tank will hold. For determining the water capacity of the tank in pounds, the weight of a gallon (231 cubic inches) of water at 60°F in air shall be 8.32828 pounds.

Note 13: This gas may be transported in authorized tank car tanks stenciled "DISPERSANT GAS" or "REFRIGERANT GAS."

Note 25: Specification 106 and 110A tanks for these commodities are authorized for transportation by rail, highway and cargo vessel. (See §§ 174.204, 176.200, 176.230, 177.834(m) of this subchapter for additional requirements.)

\*\*\*

In § 173.315, the introductory text of paragraph (a), and Note 4 and paragraph 5 of Note 17 which follows the table in paragraph (a) are revised; and paragraphs (h)(4), (i)(1) and (j)(5) are revised; and paragraphs (n) and (o) are added to read as follows:

§ 173.315 Compressed gases in cargo tanks and portable tanks. (a) A compressed gas offered for transportation in a cargo tank motor vehicle or a portable tank must be prepared in accordance with this section §§ 173.32, 173.33 and Subpart E of Part 180 of this subchapter for cryogenic liquids, see § 173.318; for marking requirements, see §§ 172.326 and 172.328 of this subchapter. A compressed gas must be loaded and offered for transportation in accordance with the following table:

\*\*\*

Note 4: Material must be steel. Tank must have a corrosion allowance of 20 percent or 0.10 inch, whichever is less, added to the metal thickness. In chlorine tanks, the wall thickness must be at least 0.625 inch including corrosion allowance.

\*\*\*

Note 17: \*\*\*

(5) Has been inspected and tested in accordance with Subpart E of Part 180 of this subchapter as specified for MC 331 cargo tanks.

\*\*\*

(h) \*\*\*

(4) Except on a tank used exclusively for the transportation of carbon dioxide refrigerated liquid or nitrous oxide, refrigerated liquid, each opening for a pressure gauge must be restricted at or inside the tank by an orifice no larger than 0.060 inch in diameter. For carbon dioxide, refrigerated liquid or nitrous oxide, refrigerated liquid service, the pressure gauge need only be used during the filling operation.

(i) \*\*\*

(1) The safety relief valves on each tank must meet the following conditions:

- (i) The total relieving capacity, as determined by the flow formulas contained in Section 5 of CGA Pamphlet S-1.2, must be sufficient to prevent a maximum pressure in the tank of more than 120 percent of the design pressure.
- (ii) The flow capacity testing and rating must be in accordance with Section 5 of CGA Pamphlet S-1.2 and certified by the valve manufacturer.
- (iii) For an insulated tank, the required relieving capacity of the relief valves must be the same as for an uninsulated tank, unless the insulation will remain in place and will be effective under fire conditions. In this case, each insulated tank must be covered by a sheet metal jacket of not less than 16 gauge thickness.
- (iv) An MC 330 cargo tank that has relief valves sized by Fetterly's formula dated November 27, 1928, may be continued in service. Copies of this formula may be obtained from the Bureau of Explosives.

\*\*\*

(k) \*\*\*

(5) Has been inspected and tested in accordance with Subpart E of Part 180 of this subchapter as specified for MC 331 cargo tanks;

\*\*\*

(n) Each MC 330 and MC 331 cargo tank used to transport a flammable gas, anhydrous ammonia or hydrogen chloride, refrigerated liquid must have each liquid opening equipped in accordance with § 178.337-11 of this subchapter.

(c) Chlorine cargo tanks. Each cargo tank motor vehicle used for the transportation of chlorine must meet the requirements in the following:

(1) No piping, hose, or other device for loading or unloading may be attached to any valve, except at the time of loading or unloading. No hose, piping, or tubing used for loading or unloading may be mounted or carried on the motor vehicle. Except at the time of loading or unloading, the pipe connection of each angle valve must be closed with a screw plug which is chained or otherwise fastened to prevent misplacement.

(2) Each chlorine cargo tank angle valve must be tested to be leak free at not less than 225 psig using dry air or inert gas before installation and thereafter once every five loadings or once a week, whichever occurs first. Prior to each loading, the cargo tank must be inspected and the angle valves and gasketed joints must be examined and tested at a pressure of not less than 50 psig to determine that they are not leaking and are in proper condition for transportation. Any leaks must be corrected before the cargo tank is offered for transportation.

(3) Excess flow valves on the cargo tank must meet the requirements in § 178.337-11(a)(4) of this subchapter.

\*\*\*

§ 173.315 [Amended]

In § 173.315(a)(1) Table, for the entries "Carbon dioxide, refrigerated liquid" and "Nitrous oxide, refrigerated liquid", the references to "par (c)" in the second column are revised to read "par. (c)(1)".

\*\*\*

In § 173.318, paragraphs (b)(2)(i)(C) and (g)(3), and a sentence at the end of paragraph (b)(2)(ii) are added to read as follows:

§ 173.318 Cryogenic liquids in cargo tanks.

- \*\*\*
- (b) \*\*\*
- (2) \*\*\*
- (i) \*\*\*

(C) The flow capacity and rating must be verified and certified by the manufacturer.

(i) \*\*\* The flow capacity and rating must be verified and certified by the manufacturer of the device.

- \*\*\*
- (g) \*\*\*

(3) Each cargo tank motor vehicle used to transport a flammable cryogenic liquid must be examined after each shipment to determine its actual holding time. The record required by § 177.840(h) of this subchapter may be used for this determination. If the examination indicates that the actual holding time of the cargo tank, after adjustment to reflect an average ambient temperature of 85°F, is less than 90 percent of the marked rated holding time (MRHT) for the cryogenic liquid marked on the specification plate or adjacent thereto (see § 178.338-18(b) of this subchapter), the tank may not be refilled with any flammable cryogenic liquid until it is restored to its marked rated holding time value or it is re-marked with the actual marked rated holding time determined by this examination. If the name of the flammable cryogenic liquid that was transported and its marked rated holding time is not displayed on or adjacent to the specification plate, this requirement may be met by deriving the MRHT of the cargo tank for that flammable cryogenic liquid and comparing that derived MRHT with the actual holding time after adjustment.

\*\*\*

§ 173.336 [Corrected]

In paragraph (a)(4), the first sentence is corrected to read: "Specification 105A500 W (§§ 179.100, 179.101 of this subchapter) tank cars."

\*\*\*

In § 173.346, paragraph (a)(12) is revised to read as follows:

§ 173.346 Poison B liquids not specifically provided for.

(a) \*\*\*  
 (12) Specification MC 304, MC 307, MC 310, MC 311, MC 312, DOT 407 or DOT 412 (§§ 178.345, 178.347, 178.348, 178.337 of this subchapter) cargo tank motor vehicle subject to the following conditions:

- (i) The design pressure of the cargo tank is at least 25 psig.
- (ii) Bottom outlets on the cargo tank are equipped with self-closing stop-valves meeting the requirements in § 178.345-11(a)(1)(i) of this subchapter, except that bottom outlets on Specification MC 330 and MC 331 cargo tanks must be equipped with internal self-closing stop-valves meeting the requirements in § 178.337-11(a) of this subchapter.
- (iii) Each tank is equipped with a steel pressure relief system meeting the requirements in § 178.347-10 of this subchapter, except that pressure relief devices on MC 330 or MC 331 cargo tanks must meet the requirements in § 178.337-9 of this subchapter.

\*\*\*

In § 173.347, paragraph (a)(3) is revised to read as follows:

§ 173.347 Aniline oil.

- (a) \*\*\*
- (3) Any cargo tank motor vehicle prescribed in § 173.346(a)(12).

\*\*\*

In § 173.352, paragraph (a)(5) is revised to read as follows:

§ 173.352 Sodium and potassium cyanide solutions, and cyanide solution, n.o.s.

- (a) \*\*\*
- (5) Any cargo tank motor vehicle prescribed in § 173.346(a)(12), except that the tank is at least 0.250 inch thick and the tank has no bottom outlets.

\*\*\*

§ 173.353a [Amended]

In paragraph (a) of § 173.353a, the reference "§ 173.353a" is changed to read "§ 173.353".

\*\*\*

In § 173.353, paragraph (e) is revised to read as follows:

§ 173.353 Methyl bromide and methyl bromide mixtures.

\*\*\*

(e) Specification MC 330 or MC 331 (§ 178.337 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (1) The design pressure of the cargo tank is at least 250 psig.
- (2) The tank has sufficient outage so that it will not become liquid full with loading at 130°F.
- (3) Bottom outlets on the cargo tank are equipped with internal self-closing stop-valves meeting the requirements in § 178.337-11(a) of this subchapter.

\*\*\*

In § 173.354, Note 1 and footnote 1 are moved, and paragraph (a)(5) is revised to read as follows:

§ 173.354 Motor fuel antiknock compound or tetraethyl lead.

- (a) \*\*\*
- (5) Specification MC 330 or MC 331 (§ 178.337 of this subchapter) cargo tank motor vehicle are authorized for motor fuel antiknock compound only.

\*\*\*

In § 173.358, paragraph (a)(14) is revised to read as follows:

§ 173.358 Hexaethyl tetraphosphate, methyl parathion, organic phosphate compound, organic phosphorus compound, parathion, tetraethyl dithio pyrophosphate, and tetraethyl pyrophosphate, liquid.

(a) \*\*\*  
 (14) Specification MC 310, MC 311, MC 312, DOT 412, MC 330, or MC 331 (§§ 178.345, 178.348, 178.337 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) The loading is under no pressure except its own vapor pressure.
- (ii) Only a Specification MC 330 or MC 331 cargo tank is authorized for hexaethyl tetraphosphate, parathion, tetraethyl dithio pyrophosphate or tetraethyl pyrophosphate, liquid.
- (iii) Each Specification MC 310, MC 311, MC 312 or DOT 412 cargo tank has a minimum shell and head thickness of 0.187 inch for a steel tank and 0.266 inch for an aluminum tank. The tank is designed for a loading weight of at least 13 pounds per gallon.
- (iv) The design pressure of the cargo tank is at least 25 psig.
- (v) Transportation is authorized by private motor carrier only.
- (vi) Bottom outlets on the cargo tank are equipped with internal self-closing stop-valves meeting the requirements in § 178.345-11 of this subchapter, except that bottom outlets on Specification MC 330 and MC 331 cargo tanks must be equipped with internal self-closing stop-valves meeting the requirements in § 178.337-11(a) of this subchapter.
- (vii) Each tank is equipped with a steel pressure relief system meeting the requirements in § 178.347-10 of this subchapter, except that pressure relief devices on MC 330 or MC 331 cargo tanks must meet the requirements in § 178.337-9 of this subchapter.

\*\*\*

In § 173.359, paragraph (a)(16) is revised to read as follows:

§ 173.359 Hexaethyl tetraphosphate mixtures; methyl parathion mixtures; organic phosphorus compound mixtures, organic phosphate compound mixtures; parathion mixtures, tetraethyl dithio

pyrophosphate mixtures; and tetraethyl pyrophosphate mixtures, liquid (includes solutions, emulsions, or emulsifiable liquids).

(16) Specification MC 310, MC 311, MC 312, DOT 412, MC 330 or MC 331 (§§ 178.345, 178.348, 178.337 of this subchapter) cargo tank motor vehicle, subject to the following conditions:

- (i) The lading is under no pressure except its own vapor pressure.
- (ii) Each Specification MC 310, MC 311, MC 312 and DOT 412 cargo tank has a minimum shell and head thickness of 0.187 inch for a steel tank and 0.266 inch for an aluminum tank. The tank is designed for a lading weight of at least 13 pounds per gallon.
- (iii) The design pressure of the cargo tank is at least 25 psig.
- (iv) Transportation is authorized by private motor carrier only.
- (v) Bottom outlets on the cargo tank are equipped with internal self-closing stop-valves meeting the requirements in § 178.345-11(a)(1) of this subchapter, except that bottom outlets on Specification MC 330 and MC 331 cargo tanks must be equipped with internal self-closing stop-valves meeting the requirements in § 178.337-11(a) of this subchapter.
- (vi) Each tank is equipped with a steel pressure relief system meeting the requirements in § 178.345-10 of this subchapter, except that pressure relief devices on MC 330 or MC 331 cargo tanks must meet the requirements in the § 178.337-9 of this subchapter.

In § 173.369, paragraph (a)(14) is revised to read as follows:

§ 173.369 Carbotic acid (phenol), not liquid.

- (14) Specification MC 304, MC 307, MC 310, MC 311, MC 312, DOT 407 or DOT 412 (§§ 178.345, 178.347, 178.348 of this subchapter) cargo tank motor vehicle, subject to the following conditions:
- (i) The MAWP of the cargo tank is at least 25 psig.
  - (ii) The tank has sufficient outage so that it will not become liquid full with lading at 130°F.
  - (iii) Bottom outlets on the cargo tank are equipped with internal self-closing stop-valves meeting the requirements in § 178.345-11(a)(1) of this subchapter.

§ 173.373 (Amended)

In § 173.373, the heading is revised to read "Nitroaniline, ortho or para", and in the introductory text to paragraph (a), the words "Ortho-nitroaniline and paranitroaniline" are changed to read "Nitroaniline, ortho or para".

In § 173.373, paragraph (a)(6) is revised to read as follows:

§ 173.373 Nitroaniline, ortho or para.

- (6) Specification MC 304, MC 307, MC 310, MC 311, MC 312, DOT 407 or DOT 412 (§§ 178.345, 178.347, 178.348 of this subchapter) cargo tank motor vehicle, subject to the following conditions:
- (i) The tanks are authorized only for ortho-nitroaniline loaded in a liquefied state at a temperature not over 180°F.
  - (ii) Each cargo tank is made of steel and is insulated.
  - (iii) The MAWP of the cargo tank is at least 25 psig.
  - (iv) Bottom outlets on the cargo tank are equipped with internal self-closing stop-valves meeting the requirements in § 178.345-11(a)(1) of this subchapter.
  - (v) The tanks are not authorized for transportation by vessel.

In § 173.374, paragraph (a)(4) is revised to read as follows:

§ 173.374 Nitrochlorobenzene, meta or para.

- (4) Specification MC 312 or DOT 412 (§§ 178.345, 178.348 of this subchapter) cargo tank motor vehicle, subject to the following conditions:
- (i) The tanks are authorized only for para nitrochlorobenzene, solid.
  - (ii) Each cargo tank is insulated and equipped with heating coils.

- (iii) The MAWP of the cargo tank is at least 25 psig.
- (iv) The tanks are not authorized for transportation by vessel.
- (v) Bottom outlets on the cargo tank meet the requirements in § 178.345-11(a)(1) of this subchapter.

§ 173.417 (Amended)

In § 173.417, Table 4 in paragraph (b)(1) is amended by changing "3<HX<10" under the heading Uranium-235 to read "3<HZ<20".

Section 173.420 is revised to read as follows:

§ 173.420 Uranium hexafluoride (fissile and low specific activity). (a) In addition to any other applicable requirements of this subchapter, uranium hexafluoride, fissile or low specific activity, must be offered for transportation as follows:

- (1) Before initial filling and during periodic inspection and test, packagings must be cleaned in accordance with American National Standard N14.1.
- (2) Packagings must be designed, fabricated, inspected, tested and marked in accordance with—
  - (i) American National Standard N14.1 (1987, 1982 or 1971 edition) in effect at the time the packaging was manufactured;
  - (ii) Specifications for Class DOT-106A multi-unit tank car tanks (§§ 179.300 and 179.301 of this subchapter); or
  - (iii) Section VIII, Division I of the ASME Code, provided the packaging—
    - (A) Was manufactured on or before June 30, 1987;
    - (B) Conforms to the edition of the ASME Code in effect at the time the packaging was manufactured;
    - (C) Is used within its original design limitations; and
    - (D) Has shell and head thicknesses that have not decreased below the minimum value specified in the following table—

Packaging model	Minimum thickness millimeters (inches)
1S, 2S	1.58 (0.062)
5A, 5B, 6A	3.17 (0.125)
12A, 12B	4.76 (0.187)
30B	7.93 (0.312)
45A, F, X, and Y	12.70 (0.500)
45T, O, OM, OM Alred, HC, H, and G	6.35 (0.250)

- (3) Uranium hexafluoride must be in solid form.
- (4) The volume of solid uranium hexafluoride, except solid depleted uranium hexafluoride, at 20°C (68°F) must not exceed 61% of the certified volumetric capacity of the packaging. The volume of solid depleted uranium hexafluoride at 20°C (68°F) must not exceed 62% of the certified volumetric capacity of the packaging.
- (5) The pressure in the package at 20°C (68°F) must be less than 101.3 kPa (14.8 psia).
- (b) Packagings of uranium hexafluoride must be periodically inspected, tested, marked and otherwise conform with the American National Standard N14.1-1987.
- (c) Each repair to a packaging for uranium hexafluoride must be performed in accordance with American National Standard N14.1-1987.

In § 173.425, paragraph (b)(8) is revised to read as follows:

§ 173.425 Transport requirements for low specific activity material (L.S.A.) radioactive material.

- (8) The exterior of each package must be stenciled or otherwise marked "Radioactive-LSA". Packages, with a capacity of 110 gallons or less, that contain a hazardous substance, must be stenciled or otherwise marked with the letters "RQ" in association with the above description.

**PART 174—CARRIAGE BY RAIL**

**§ 174.104 (Corrected)**

In § 174.104, the certificate in paragraph (f) is revised to add a line for the signature of the "Qualified Person Designated Under 49 CFR 215.11" for No. 2.

\*\*\*

**§ 174.104 (Amended)**

In paragraphs (c), (d) and (f) of § 174.104, all references to "§ 215.15" and "49 CFR 215.15" are changed to read "§ 215.11" and "49 CFR 215.11", respectively.

**§ 174.510 (Amended)**

In § 174.510, the third sentence is amended by removing the phrase "dated May 7, 1971".

\*\*\*

**PART 175—CARRIAGE BY AIRCRAFT**

In § 175.10, paragraphs (a)(5) and (a)(7) are revised to read as follows:

**§ 175.10 Exceptions.**

(a) \*\*\*

(5) Small-arms ammunition for personal use carried by a crewmember or passenger in his baggage (excluding carry-on baggage) if securely packed in fiber, wood or metal boxes, or other packagings specifically designed to carry small amounts of ammunition. This paragraph does not apply to persons traveling under the provisions of 14 CFR 106.11 (a) and (b).

\*\*\*

(7) Oxygen, or any hazardous material used for the generation of oxygen, carried for medical use by a passenger in accordance with 14 CFR 121.574 or 135.91.

\*\*\*

In § 175.45, paragraph (a), the introductory text of paragraph (b) and the first sentence of paragraph (c) are revised to read as follows:

**§ 175.45 Reporting hazardous materials incidents.** (a) Each operator who transports hazardous materials shall report to the nearest FAA Civil Aviation Security Office by telephone at the earliest practicable moment after each incident that occurs during the course of transportation (including loading, unloading or temporary storage) in which—

(1) As direct result of hazardous materials—

- (i) A person is killed; or
- (ii) A person receives injuries requiring hospitalization; or
- (iii) Estimated carrier or other property damage, exceeds \$50,000; or

(iv) An evacuation of the general public occurs lasting one or more hours; or

(v) One or more major transportation arteries or facilities are closed or shutdown for two hours or more; or

(vi) The operational flight pattern or routine of an aircraft is altered; or

(2) Fire, breakage, or spillage or suspected radioactive contamination occurs involving shipment of radioactive materials (see § 175.700(b)); or

(3) Fire, breakage, spillage, or suspected contamination occurs involving shipment of etiologic agents (in addition to the report required by paragraph (a) of this section, a report on an incident involving etiologic agents should be telephoned directly to the Director, Center of Disease Control, U.S. Public Health, Atlanta, Georgia, area code 404-633-5313); or

(4) A situation exists of such a nature (e.g., a continuing danger to life exists at the scene of the incident) that, in the judgment of the carrier, it should be reported to the Department even though it does not meet the criteria of paragraph (a) (1), (2) or (3) of this section.

(b) If the operator conforms to the provisions of this section, the carrier requirements of § 171.15, except § 171.15(c), of this subchapter shall be deemed to have been satisfied. The following information shall be furnished in each report.

\*\*\*

(c) Each operator who transports hazardous materials shall report in writing, in duplicate, on DOT Form F 5600.1 (Rev. 6-89) within 30 days of the date of discovery, each incident that occurs during the course of transportation (including loading, unloading or storage incidental thereto) in which any of the circumstances set forth in paragraph (a) of this section occurs or there has been unintentional release of hazardous materials from a package. \*\*\*

\*\*\*

**PART 176—CARRIAGE BY VESSEL**

In § 176.11, the introductory text of paragraph (a) is revised to read as follows:

**§ 176.11 Exceptions.** (a) A hazardous material may be offered and accepted for transportation by vessel when in conformance with the requirements of the IMDG Code in place of the corresponding requirements of this subchapter pertaining to packaging, marking, labeling, classification, description, certification, placarding, stowage and segregation. All hazardous materials must otherwise be stowed and carried in accordance with this subchapter.

\*\*\*

In § 176.30, a new paragraph (a)(3)(i) is added to read as follows:

**§ 176.30 Dangerous cargo manifest.**

(a) \*\*\*

(3) \*\*\*

(i) An emergency response telephone number as prescribed in Subpart G of Part 172 of this subchapter.

\*\*\*

In § 176.76, a sentence is added at the end of paragraph (b) to read as follows:

**§ 176.76 Highway vehicles, railroad vehicles, freight containers, and portable tanks containing hazardous materials.**

\*\*\*

(b) \*\*\* A cargo tank motor vehicle containing hazardous materials may be transported—

(1) On a carload or trailership if the material is authorized aboard a cargo vessel by § 172.101 of this subchapter; or

(2) On a passenger ferry vessel or railroad car ferry vessel if the material is authorized aboard a passenger vessel by § 172.101 of this subchapter.

\*\*\*

In § 176.340, paragraph (a)(2) is revised to read as follows:

**§ 176.340 Combustible liquids in portable tanks.**

(a) \*\*\*

(2) In nonspecification portable tanks, subject to the following conditions:

(i) Each portable tank must conform to §§ 178.251 and 178.253 of this subchapter, except as otherwise provided in this paragraph;

(ii) The rated capacity of the tank may not exceed 1,200 gallons, and the rated gross weight may not exceed 30,000 pounds;

(iii) The vibration test in § 178.253-5 need not be performed;

(iv) When the total surface area of the tank exceeds 160 square feet, the total emergency venting capacity must be determined in accordance with Table III in § 178.341-4;

(v) In place of a specification identification marking required by § 178.251-7, the tank must be marked, two sides in letters at least two inches high on contrasting background: "FOR COM-

**"BUSTIBLE LIQUIDS ONLY"** and "49 CFR 176.340". This latter marking is the certification of the person offering the combustible liquid for transportation that the portable tank conforms to this paragraph;

- (vi) Each tank must be made of steel;
- (vii) The design pressure of the tank must be no less than 9 psig;
- (viii) No pressure relief device may open at less than 5 psig;
- (ix) Each tank must be retested and marked at least once every 2 years in accordance with § 173.32(e)(2), (3), and (4) of this subchapter; and
- (x) Each tank must conform to the provisions of § 173.24 and paragraphs (g), (h), (i), and (k) of § 173.32

\*\*\*

In § 176.905, the introductory text of paragraph (k) before the quoted material is revised to read as follows:

**§ 176.905 Motor vehicles or mechanical equipment powered by internal combustion engines**

\*\*\*

(k) Motor vehicles with fuel in their tanks may be stowed in a closed freight container if the battery cables are disconnected and secured away from the battery terminals and the following warning is affixed to the access doors: \*\*\*

\*\*\*

## PART 177—CARRIAGE BY PUBLIC HIGHWAY

Sections 177.800, 177.801, and 177.802 are revised to read as follows:

**§ 177.800 Purpose and scope.** (a) This part prescribes requirements, in addition to those contained in Parts 171, 172, 173, 178 and 180 of this subchapter, that are applicable to the acceptance and transportation of hazardous materials by private, common or contract carriers by motor vehicle.

(b) It is the duty of each motor carrier to comply with the prescribed regulations and to thoroughly instruct employees in relation thereto.

**§ 177.801 Unacceptable hazardous materials shipments.** No person may accept for transportation or transport by motor vehicle any shipment of hazardous material that is not in accordance with the requirements of this subchapter.

**§ 177.802 Inspection.** Records, equipment, packagings and containers under the control of a motor carrier, insofar as they affect safety in transportation of hazardous materials by motor vehicle, must be made available for examination and inspection by a duly authorized representative of the Department.

\*\*\*

Section 177.814 is revised to read as follows:

**§ 177.814 Retention of cargo tank motor vehicle manufacturer's certificate, maintenance and other reports.** Each owner of a cargo tank motor vehicle and each motor carrier must comply with the reporting and record retention requirements contained in § 180.417 of this subchapter.

\*\*\*

**§ 177.822 (Amended)**

In § 177.822, paragraph (b) is amended by removing the reference "178.315" and inserting in its place "178.351".

\*\*\*

Section 177.824 is revised to read as follows:

**§ 177.824 Retesting and inspection of cargo tanks.** Except as otherwise provided in this subchapter, no motor carrier may operate a cargo tank motor vehicle containing a hazardous material unless the cargo tank motor vehicle conforms to the retest and inspection requirements set forth in Subpart E of Part 180 of this subchapter. This paragraph does not apply to any cargo tank filled prior to the retest or inspection due date.

\*\*\*

**§ 177.835 (Amended)**

In § 177.835, paragraph (k), the first sentence is amended by removing the reference to "178.315" and inserting in its place "178.351", and the last sentence is amended by removing the reference "178.318" and inserting in its place "178.352".

\*\*\*

In § 177.840, the section heading and paragraph (f) are revised to read as follows:

**§ 177.840 Compressed gases.**

\*\*\*

(f) A cargo tank motor vehicle used for transportation of chlorine may not be moved, coupled or uncoupled, when any loading or unloading connections are attached to the vehicle, nor may it be left without the power unit attached unless the vehicle is chocked or equivalent means are provided to prevent motion. For additional requirements, see § 173.315(o) of this subchapter.

\*\*\*

**PART 178—SHIPPING CONTAINER SPECIFICATIONS**

In § 178.39-5, paragraph (a) is revised to read as follows:

§ 178.39-5 Nickel. (a) The percentage of nickel plus cobalt must be at least 99.0 percent.

\*\*\*

§ 178.51-15 (Amended)

Paragraph (b) of § 178.51-15, in the first sentence, remove the comma between the words "inches, provided" and add a semicolon, to read "inches; provided".

In § 178.224, the Tables in § 178.224-1 and § 178.224-2 are revised to read as follows:

§ 178.224-1 Construction requirements.

(a) \*\*\*  
(i) \*\*\*

Net weight of contents (pounds) not over	Capacity, maximum (gals) (not over)	Diameter inside maximum (inches)	Sidewall strength (lbs) <sup>1,2</sup>	Tops and bottoms					
				Fiber <sup>3</sup>		Steel (U.S. gauge)	Wood Thickness (inches)	Plastic Solid <sup>4,5,6</sup>	Plywood at least 3-ply construction Top Thickness
				Thickness (inches)	Strength				
60	5	11 1/2	500	0.090	600	26	1 3/8	3/16	
60	20	18 1/2	600	.120	800	28	1 3/8	3/16	
115	20	18 1/2	700	.120	800	26	1 3/8	3/8	
115	75	23	800	.160	1100	26	1 3/8	3/8	090
250	75	23	900	.200	1200	24	1 3/8	3/8	090
400	75	23	1000	.200	1300	24	1 3/8	3/8	090

<sup>1</sup> **Mullen or Cady Test.** Either of the following test methods may be used. When more than single ply test shall be determined from the summation of the tests of individual plies, or when test is made on a complete drum, the punctures shall be made from the exterior to the interior surface in which case the values for sidewall shall be not less than 80 percent of the value in the above table and the values for fiber tops and bottoms shall be not less than the value in the above table. There shall be a minimum of six tests and the average shall be not less than the prescribed minimum requirements.

<sup>2</sup> **Sidewalls.** Sidewalls to be convolutely wound of fiberboard at least 0.012 inch thick, the plies being secured together with adhesives, or may consist of an outer shell and an inner tube each convolutely wound with each fiberboard ply not less than 0.012 inch thick and secured together with adhesive. Drums may contain barrier or lining materials.

<sup>3</sup> When made of 2 or more discs, the discs must be fastened together with adhesive.

<sup>4</sup> Joints in head must be Linderman joints, glued, except as specified in footnote 5.

<sup>5</sup> Wooden heads at least one-half inch thick having kraft paper glued on both sides of all contact areas with water-resistant adhesive are authorized provided tests prescribed in § 178.224-2 are successful. Joints of any type are authorized.

<sup>6</sup> Minimum thickness may be reduced to 2 1/2 inch for lumber dressed two sides.

§ 178.224-2 Type tests.

(c) \*\*\*

Maximum net weight	Maximum capacity (gallons)	Maximum inside diameter (inches)	Compression (pounds)	
			Static <sup>1</sup>	Dynamic <sup>2</sup>
60	5	11 1/2	1200	1600
60	20	18 1/2	1200	1600
115	20	18 1/2	1200	1600
115	75	23	1500	2000
250	75	23	1800	2400
400	75	23	2100	2800

<sup>1</sup> **Static test.** Compression as specified must be applied to full area to top cover of drum for period of 48 hours.

<sup>2</sup> **Dynamic test.** Compression as specified must be applied end to end. Speed of compression tester to be one-half inch or minus one-fourth inch per minute.

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§ 178.251-7 (Amended)

In § 178.251-7, paragraph (a), the entry for "Original test date" is revised to read "Original test date" or "Leakage test date".

\*\*\*

A new § 178.320 is added to subpart J to read as follows:

§ 178.320 General requirements applicable to all DOT specification cargo tank motor vehicles. (a) **Definitions.** (1) For the purposes of this subpart, "design type" means one or more cargo tanks which are made—

- (i) To the same specification;
- (ii) By the same manufacturer;
- (iii) To the same engineering drawings, and calculations;
- (iv) Of the same materials of construction;
- (v) To the same diameter;
- (vi) To a length varying by no more than five percent;
- (vii) With the volume varying by no more than five percent (due to a change in length only); and
- (viii) For the purposes of § 178.338 only, with the same insulation system.

(2) "Manufacturer" means any person engaged in the manufacture or assembly of a DOT specification cargo tank or cargo tank equipment. A manufacturer shall register with the Department in accordance with subpart F of Part 107 in subchapter B of this chapter.

(b) **Design certification.** (1) Each cargo tank design type shall be certified in conformance with the specification requirements by a design certifying engineer registered in accordance with Subpart F of Part 107.

(2) The design certifying engineer shall furnish to the manufacturer a certificate, including sketches, drawings, and calculations, to indicate compliance with the specification requirements. Each certificate shall be signed by the design certifying engineer.

(3) The manufacturer shall retain the design certificate at his principal place of business for as long as he manufactures DOT specification cargo tanks.

\*\*\*

In § 178.337, the heading is revised to read as follows:

§ 178.337 Specification MC 331; cargo tank motor vehicle primarily for transportation of compressed gases as defined in Subpart G of Part 173 of this subchapter.

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In § 178.337-1, paragraph (e) is revised to read as follows:

§ 178.337-1 General requirements.

\*\*\*

(e) **Insulation.** (1) Each tank required to be insulated must conform with the use and performance requirements contained in §§ 173.315(a) Table, Note 11 and 178.337-1(a)(3) and (e)(2) of this subchapter.

(2) Each tank intended for chlorine, carbon dioxide, refrigerated liquid, or nitrous oxide, refrigerated liquid service must have suitable insulation of such thickness that the overall thermal conductance is not more than 0.08 Btu per square foot per °F differential per hour. The conductance must be determined at 60 °F. Insulation material used on tanks for nitrous oxide, refrigerated liquid must be noncombustible. Insulating material used on tanks for chlorine must be corkboard or self-extinguishing polyurethane foam, with a minimum thickness of 4 inches.

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In § 178.337-2, paragraph (c) is revised to read as follows:

§ 178.337-2 Material.

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(c) A cargo tank in anhydrous ammonia service must be constructed of steel. The use of copper, silver, zinc or their alloys is prohibited. Baffles made from aluminum may be used only if joined to the tank by a process not requiring post weld heat treatment of the tank.

\*\*\*

Section 178.337-3 is revised to read as follows:

**§ 178.337-3 Structural Integrity.** (a) The maximum calculated design stress value may not exceed the maximum design stress values prescribed in Section VIII of the ASME Code or 25 percent of the minimum specified tensile strength of the metal at any point in the cargo tank. The calculated design stresses must take into account the weight of the tank, the maximum weight of lading, and the weight of structures supported by the cargo tank, but not including the weight of the structures supporting the tank in normal conditions. The stresses due to internal pressure and vertical loadings must be applied in all considerations. The accelerative, decelerative and lateral forces must be applied separately. The combination case which produces the maximum effective stress shall govern. Corrosion allowance material may not be used to satisfy the design requirements.

(1) The design and construction of each cargo tank must provide for all potential structural loadings, including but not limited to dynamic loads, superimposed loadings and the effect of temperature gradients resulting from lading and ambient temperature extremes. When dissimilar materials are used, their thermal coefficients must be considered in the calculation of the design stress value.

(2) Maximum concentrated stresses which might be created at pads, cradles or supports due to shear, bending and torsion shall also be considered and calculated in accordance with Appendix G of Section VIII of the ASME Code.

(b) Steel less than 3/4 inch or aluminum less than 0.270 inch thick may not be used for the shell or heads of the tank unless the tank is evacuated or has a load bearing jacket. Steel at least 0.110 inch thick may be used for the shell or heads for a tank that is evacuated or has a load bearing jacket. Steel less than 0.110 inch thick may not be used for the shell or head under any circumstance.

(c) Analyses of basic cargo tank structural integrity must be made using the conditions specified in paragraph (a) of this section. The stresses involved are not necessarily uniform throughout the cargo tank. Stress calculations must be made by the following formula:

$$S = 0.5(S_1 + S_2) \pm [0.25(S_1 - S_2)^2 + S_3^2]^{1/2}$$

where at any given point under consideration, and for the worst combination of loadings that can occur at the same time, the stress levels produced at the point being considered are:

S = Effective stress as limited by this requirement, in psi.

S<sub>1</sub> = The circumferential tensile stress due to internal pressure, in psi.

S<sub>2</sub> = The following tensile or compressive stresses, in psi, that apply.

(1) The longitudinal tensile stresses due to internal pressure;

(2) The tensile or compression stress generated by the axial load resulting from a decelerative force equal to twice the static weight of the fully loaded vehicle applied independently to each suspension assembly at the road surface;

(3) The tensile or compression stress generated by the bending moment resulting from a decelerative force equal to twice the static weight of the fully loaded vehicle applied independently to each suspension assembly at the road surface;

(4) The tensile or compression stress generated by the axial load resulting from an accelerative force equal to the static weight of the fully loaded vehicle applied to the horizontal pivot of the fifth wheel supporting the vehicle;

(5) The tensile or compression stress generated by the bending moment resulting from the accelerative force equal to the static weight of the fully loaded vehicle applied to the horizontal pivot of the fifth wheel supporting the vehicle;

(6) The tensile or compression stress due to a bending moment produced by a vertical force equal to three times the static weight of the fully loaded vehicle.

S<sub>3</sub> = The following shear stresses, in psi, that apply.

(1) The vertical shear stress due to a vertical force equal to three times the static weight of the tank and contents;

(2) The lateral shear stress due to a lateral accelerative force which will produce an overturn but not less than 0.75 times the static weight of the fully loaded vehicle, applied at the road surface; and

(3) The torsional shear stress due to a lateral accelerative force which will produce an overturn but not less than 0.75 times the static weight of the fully loaded vehicle, applied at the road surface.

(d) In addition to meeting the conditions specified in paragraph (a) of this section, the design calculations for the tank heads and shell must include the load resulting from the design pressure in combination with the dynamic pressure resulting from a longitudinal deceleration of 2 "g". For this loading condition, the design stress value used may not exceed the lesser of the yield strength or 75 percent of the ultimate tensile strength of the material of construction. The stress value requiring the greatest wall thickness derived from paragraphs (a), (b), (c) or (d) of this section must be used.

(e) A corrosion allowance of at least 20 percent of the minimum shell and head thickness or 0.100 inch, whichever is less, must be added to the thickness requirement for a cargo tank used in chlorine or sulfur dioxide service. The head and shell thickness for chlorine tanks must be at least 3/4 inch, including corrosion allowance.

(f) The design, construction, and installation of any appurtenance to the shell or heads of the cargo tank must minimize the possibility of appurtenance damage or failure adversely affecting the lading retention integrity of the tank. Where a tank support is attached to any part of the tank head, the stresses imposed must meet the requirements in paragraph (a) of this section.

(1) A lightweight attachment, such as a conduit clip, brakeline clip or placard holder, must be constructed of a material of lesser strength than the tank shell or head material and may not be more than 72 percent of the thickness of the tank shell or head to which it is attached. The attachment may be secured directly to the tank shell or head if the device is designed and installed in such a manner that if damaged it will not affect the lading retention integrity of the tank. The lightweight attachment must be secured to the tank shell or head by continuous weld or in such manner as to preclude formation of pockets, which may become sites for incipient corrosion. Attachments meeting the requirements of this paragraph are not authorized for cargo tanks constructed under paragraph UHT of the ASME Code.

(2) Except as prescribed in §§ 178.337-3(f)(1) and 173.337-13(d), the welding of any appurtenance to a shell or head must be made by attachment of a mounting pad so that there will be no adverse effect upon the lading retention integrity of the tank if any force is applied to the appurtenance, from any direction. The thickness of a mounting pad may not be less than that of the shell or head to which it is attached, and not more than 1.5 times the shell or head thickness. However, a pad not less than 0.250 inch thick may be used when the shell or head thickness is over 0.250 inch thick. If weep holes or test-tale holes are used, the pad must be drilled or punched at its lowest point before it is attached to the tank. Each pad must—

(i) Extend at least 2 inches in each direction from any point of attachment of an appurtenance;

(ii) Have rounded corners, or otherwise be shaped in a manner to minimize stress concentrations on the shell or head; and

(iii) Be attached by a continuous weld around the pad, except for a small gap at the lowest point for draining, using filler material conforming to the recommendations of the manufacturer of the head or shell material.

(3) Where any tank support is attached to any part of a tank head, the stresses imposed upon the head must be as required in paragraph (a) of this section and § 178.337-13 with respect to maximum concentrated stresses at pads and cradles.

**§ 178.337-4 Joints.** In § 178.337-4, the first sentence in paragraph (b) is revised to read as follows: "Welding procedure and welder performance must be in accordance with Section IX of the ASME Code."

In § 178.337-6, paragraph (a) is revised to read as follows:

**§ 178.337-6 Closure for manhole.** (a) Each cargo tank manufactured after December 12, 1989, must be provided with a manhole conforming to paragraph UG-46(g)(1) and other applicable requirements of the ASME Code, except that a cargo tank constructed of NQT steel having a capacity of 3500 water gallons or less may be provided with an inspection opening conforming to paragraph UG-46 and other applicable requirements of the ASME Code instead of a manhole.

In § 178.337-8, paragraphs (a)(2) and (b) are revised to read as follows:

**§ 178.337-8 Outlets.**

(a) With the exception of gauging devices, thermometer wells, and pressure relief valves, each opening in a cargo tank intended for use in transporting compressed gas (except carbon dioxide, refrigerated liquid) must be—

- (i) Closed with a plug, cap or bolted flange;
- (ii) Protected with an excess flow valve on product discharge openings or protected with a check valve on product inlet openings; or
- (iii) Fitted with an internal self-closing stop valve as specified in § 178.337-11(a).

(b) Outlets on chlorine cargo tanks must meet the requirements in § 178.337-1(c)(2).

In § 178.337-9, the section heading, the paragraph (a) heading, and paragraphs (b) and (d)(1) are revised to read as follows:

**§ 178.337-9 Pressure relief devices, piping, valves, hoses, and fittings.**

(a) **Pressure relief devices.** (1) The burst pressure of all piping, pipe fittings, hose and other pressure parts, except for pump seals and pressure relief devices, must be at least 4 times the design pressure of the tank. Additionally, the burst pressure may not be less



than 4 times any higher pressure to which each pipe, pipe fitting, hose or other pressure part may be subjected to in service. For chlorine service, see paragraph (b)(7) of this section.

(2) Pipe joints must be threaded, welded or flanged. If threaded pipe is used, the pipe and fittings must be Schedule 80 weight or heavier. Malleable metals must be used in the construction of valves and fittings. Where copper tubing is permitted, joints shall be brazed or be of equally strong metal union type. The melting point of the brazing material may not be lower than 1000°F. The method of joining tubing must not reduce the strength of the tubing, such as by the cutting of threads.

(3) Each hose coupling must be designed for a pressure of at least 120 percent of the hose design pressure and so that there will be no leakage when connected.

(4) Piping must be protected from damage due to thermal expansion and contraction, jarring, and vibration. Sfp joints are not authorized for this purpose.

(5) Piping and fittings must be grouped in the smallest practicable space and protected from damage as required by § 178.337-10.

(6) All piping, valves, and fittings on a cargo tank must be proved free from leaks. This requirement is met when such piping, valves, and fittings have been tested after installation with gas or air and proved leak tight at not less than the design pressure marked on the cargo tank. This requirement is applicable to all hoses used in a cargo tank, except that hose may be tested before or after installation on the tank.

(7) Chlorine cargo tanks. Cargo tanks used to transport chlorine must conform to the following:

(i) No hose, piping or tubing used for loading or unloading may be mounted or carried on the cargo tank motor vehicle.

(ii) Angle valves on chlorine cargo tank motor vehicles must conform to the standards of The Chlorine Institute, Inc., as follows:

(A) For a cargo tank manufactured before January 1, 1975, to either Drawing 104-4, dated May 5, 1958, or Drawing 104-5, dated September 1, 1972.

(B) For a cargo tank manufactured on or after January 1, 1975, to Drawing 104-5, dated September 1, 1972.

(iii) Before installation, each angle valve must be tested for leakage at not less than 225 psig using dry air or inert gas.

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(d) Refrigeration and heating coils. (1) Refrigeration and heating coils must be securely anchored with provisions for thermal expansion. The coils must be pressure tested externally to at least tank test pressure, and internally to either the tank test pressure or twice the working pressure of the heating refrigeration system, whichever is higher. A tank may not be placed in service if any leakage occurs or other evidence of damage is found. The refrigerant or heating medium to be circulated through the coils must not be capable of causing any adverse chemical reaction with the tank lading in the event of leakage. The unit furnishing refrigeration may be mounted on the motor vehicle.

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Section 178.337-11 is revised to read as follows:

§ 178.337-11 Emergency discharge control. (a) Excess flow valves, back flow check valves and stop valves. (1) When required by § 178.337-8(a)(2):

(i) Each internal self-closing stop valve and excess flow valve must automatically close if any of its attachments are sheared off or if any attached hoses or piping are separated.

(ii) Each self-closing stop valve, excess flow valve, or check valve must be located inside the tank or inside a welded nozzle which is an integral part of the tank. The valve seal must be located inside the tank or within a welded flange, its companion flange, a nozzle or coupling. The installation must be made so as to assure that any undue strain which causes a failure requiring the functioning of the valve will not impair the operation of the valve.

(iii) All parts of the valve inside the tank, or within a nozzle, flange, companion flange, or coupling must be made of material not subject to corrosion or other deterioration in the presence of the lading.

(iv) Any liquid level gauging device must be constructed so that the outward flow of the tank lading does not exceed the flow through a 0.060-inch diameter opening.

(v) Each excess flow valve must close automatically at the rated flow of gas or liquid as specified by the valve manufacturer. The flow rating of the piping, fittings, valves, and hose on each side of the excess flow valve must be at least equal to that of the excess flow valve. If branching or other restrictions are incorporated in the system so that the flow rating is reduced to less than that of the excess flow valve at the tank, additional excess flow valves must be located where the flow rates are reduced. The additional valves must have sufficient flow rating so that the total capacity equals or exceeds the excess flow valve capacity.

(vi) An excess flow valve may be designed with a bypass, not to exceed a 0.040-inch diameter opening, to allow equalization of pressures.

(2) Each liquid or vapor discharge opening in a cargo tank intended for the transportation of a flammable liquid, a flammable compressed gas, hydrogen chloride (refrigerated liquid), or anhydrous ammonia must be equipped with a remotely controlled internal self-closing stop-valve. For cargo tanks intended for use in chlorine service, see paragraph (a)(4) of this section.

(i) On a tank over 3,500 gallons water capacity, each internal self-closing stop valve must be provided with remote means of automatic closure, both mechanical and thermal, that are installed at the ends of the tank in at least two, diagonally opposite locations. Cable linkage between closures and remote operators must be corrosion resistant and effective in all types of environment and weather. If the loading/unloading connection at the tank is not in the general vicinity of one of the two locations specified above, one additional fusible element must be installed so that heat from a fire in the loading/unloading connection area will activate the emergency control system. Fusible elements must not have a melting point exceeding 250°F. The loading/unloading connection area is where hoses or hose reels are connected to the permanent metal piping.

(ii) On a tank of 3,500 gallons water capacity or less, each internal self-closing stop valve must be provided with at least one remote means of automatic closure, which may be mechanical, installed on the end of the tank furthest away from the loading/unloading connection area. The loading/unloading connection area is where hoses or hose reels are connected to the permanent metal piping.

(3) Unless otherwise specified in paragraph (c) of this section, each outlet of a cargo tank intended for the transportation of a nonflammable gas (except carbon dioxide, refrigerated liquid) must be provided with an internal self-closing stop-valve or an automatic excess flow valve.

(4) Excess flow valves on chlorine cargo tank motor vehicles must conform to the standards of The Chlorine Institute, Inc., as follows:

(i) For a cargo tank manufactured before January 1, 1975:

(A) A valve conforming to either Drawing 101-4, dated May 16, 1969, or Drawing 101-6, dated September 1, 1973, must be installed under each liquid angle valve.

(B) A valve conforming to either Drawing 106-3, dated May 16, 1973, or Drawing 106-5, dated September 1, 1973, must be installed under each gas angle valve.

(ii) For a cargo tank manufactured on or after January 1, 1975:

(A) A valve conforming to Drawing 101-6, dated September 1, 1973, must be installed under each liquid angle valve.

(B) A valve conforming to Drawing 106-5, dated September 1, 1973, must be installed under each gas angle valve.

(b) Shut-off valves. Each filling and discharge line must be provided with a manual stop valve located as close to the tank as practicable. However, if an internal self-closing stop valve is used, the manual stop valve must be located in the line between the self-closing stop valve and the hose connection. A single so-called "stop-check" or excess flow valve may not be used to satisfy the requirements of this paragraph, except as provided in paragraph (c) of this section.

(c) The requirements in paragraph (a) of this section do not apply to:

(1) A vapor or liquid discharge opening of less than 1 1/4 inch NPT equipped with an excess flow valve together with a manually operated external self-closing stop valve, in place of a remotely controlled internal self-closing stop valve.

(2) A vapor or liquid discharge opening of 1 1/4 inch NPT equipped with an excess flow valve together with a manually operated external stop valve installed before October 1, 1984.

(3) An engine fuel line, on a truck-mounted tank, of not over 3/4 inch NPT equipped with a valve having an integral excess flow valve.

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In § 178.337-14, paragraph (b) is revised to read as follows:

§ 178.337-14 Gauging devices.

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(b) Pressure gauges. (1) See § 173.315(h) of this subchapter. (2) Each cargo tank used in carbon dioxide, refrigerated liquid or nitrous oxide, refrigerated liquid service must be provided with a suitable pressure gauge. A shut-off valve must be installed between the pressure gauge and the tank.

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Section 178.337-15 is revised to read as follows:

§ 178.337-15 Pumps and compressors. (a) Liquid pumps or gas compressors if used, must be of suitable design, adequately protected against breakage by collision, and kept in good condition. They may be driven by motor vehicle power take-off or other mechanical, electrical, or hydraulic means. Unless they are of the centrifugal type, they shall be equipped with suitable pressure actuated by-pass valves permitting flow from discharge to suction or to the tank.

(b) A liquid chlorine pump may not be installed on a cargo tank intended for the transportation of chlorine.

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In § 178.338-18, the first and second sentences of paragraph (a) are revised to read as follows:

§ 178.337-18 **Certification.** (a) The tank vehicle manufacturer must supply and the owner must obtain, a tank manufacturer's data report as required by the ASME Code, and a certificate stating that the completed cargo tank motor vehicle conforms in all respects to Specification MC 331 and the ASME Code. The certificate must be signed by a responsible official of the manufacturer and a Registered Inspector. The manufacturer's and the Registered Inspector's registration number must appear on the certificate (See subpart F, Part 107 in subchapter B of this chapter.) \*\*\*

\*\*\*

Section 178.338-3 is revised to read and follows:

§ 178.338-3 **Structural Integrity.** (a) The maximum calculated design stress value may not exceed the maximum design stress values prescribed in Section VIII of the ASME Code or 25 percent of the minimum specified tensile strength of the metal at any point in the cargo tank. The calculated design stresses must take into account the weight of the tank, the maximum weight of loading, and the weight of structures supported by the cargo tank, but not including the weight of the structures supporting the tank in normal conditions. The stresses due to internal pressure and vertical loadings must be applied in all considerations. The accelerative, decelerative and lateral forces must be applied separately. The combination case which produces the maximum effective stress shall govern. Corrosion allowance material may not be used to satisfy the design requirements.

(1) The design and construction of each cargo tank must provide for all potential structural loadings, including but not limited to dynamic loads, superimposed loadings and the effect of temperature gradients resulting from loading and ambient temperature extremes. When dissimilar materials are used, their thermal coefficients must be considered in the calculation of the design stress value.

(2) Maximum concentrated stresses which might be created at pads, cracks or supports due to shear, bending and torsion shall also be considered and calculated in accordance with Appendix G of Section VIII of the ASME Code.

(b) Steel less than 3/16 inch or aluminum less than 0.270 inch thick may not be used for the shell or heads of the tank unless the tank is evacuated or has a load bearing jacket. Steel at least 0.110 inch thick may be used for the shell or heads for a tank that is evacuated or has a load bearing jacket. Steel less than 0.110 inch thick may not be used for the shell or head under any circumstance.

(c) Analyses of basic cargo tank structural integrity must be made using the conditions specified in paragraph (a) of this section. The stresses involved are not necessarily uniform throughout the cargo tank. Stress calculations must be made by the following formula:

$$S = 0.5(S_1 + S_2) \pm [0.25(S_1 \pm S_2)^2 + S_3^2]^{1/2}$$

where at any given point under consideration, and for the worst combination of loadings that can occur at the same time, the stress levels produced at the point being considered are:

S = Effective stress as limited by this requirement, in psi.

S<sub>1</sub> = The circumferential tensile stress due to internal pressure, in psi.

S<sub>2</sub> = The following tensile and/or compressive stresses, in psi, that apply.

(1) The longitudinal tensile stresses due to internal pressure;  
 (2) The tensile or compression stress generated by the axial load resulting from a decelerative force applied independently to each suspension assembly at the road surface using applicable static loadings specified in § 178.338-13(b) and (c);

(3) The tensile or compression stress generated by the bending moment resulting from a decelerative force applied independently to each suspension assembly at the road surface using applicable static loadings specified in § 178.338-13(b) and (c);

(4) The tensile or compression stress generated by the axial load resulting from an accelerative force applied to the horizontal pivot of the fifth wheel supporting the vehicle using applicable static loadings specified in § 178.338-13(b) and (c);

(5) The tensile or compression stress generated by the bending moment resulting from an accelerative force applied to the horizontal pivot of the fifth wheel supporting the vehicle using applicable static loadings specified in § 178.338-13(b) and (c);

(6) The tensile or compression stress due to a bending moment produced by a vertical force using applicable static loadings specified in § 178.338-13(b) and (c).

S<sub>3</sub> = The following shear stresses (in psi) that apply.

(1) The vertical shear stress due to a vertical force equal to three times the static weight of the tank and contents;

(2) The lateral shear stress due to a lateral accelerative force applied at the road surface which will produce an overturn but not less than 0.75 times the static weight of the fully loaded vehicle; and

(3) The torsional shear stress due to a lateral accelerative force applied at the road surface which will produce an overturn but not less than 0.75 times the static weight of the fully loaded vehicle.

(d) In addition to meeting the conditions specified in paragraph (a) of this section, the design calculations for the tank heads and shell must include the load resulting from the design pressure in combination with the dynamic pressure resulting from a longitudinal deceleration of 2 "g". For this loading condition, the design stress value used must not exceed the lesser of the yield strength or 75 percent of the ultimate tensile strength of the material of construction. The stress value requiring the greatest wall thickness derived from paragraph (a), (b), (c), or (d) of this section must be used.

(e) The design, construction, and installation of any appurtenance to the shell or heads of the cargo tank must minimize the possibility of appurtenance damage or failure adversely affecting the lading retention integrity of the tank. Where a tank support is attached to any part of the tank head, the stresses imposed must conform to the requirements of paragraph (a) of this section.

(1) A lightweight attachment, such as a conduit clip, brakeline clip or placard holder, must be constructed of a material of lesser strength than the tank shell or head material and may not be more than 72 percent of the thickness of the tank shell or head to which it is attached. The attachment may be secured directly to the tank shell or head if the device is designed and installed in such a manner that if damaged it will not affect the lading retention integrity of the tank. The light weight attachment must be secured to the tank shell or head by continuous weld or in such manner as to preclude formation of pockets, which may become sites for incipient corrosion. Attachments conforming with this paragraph are not authorized for cargo tanks constructed under paragraph UHT of the ASME Code.

(2) Except as prescribed in §§ 178.338.3(f)(1) and 173.318(a), the welding of any appurtenance to a shell or head must be made by attachment of a mounting pad so that there will be no adverse effect upon the lading retention integrity of the tank if any force is applied to the appurtenance, from any direction. The thickness of a mounting pad may not be less than that of the shell or head to which it is attached, and not more than 1.5 times the shell or head thickness. However, a pad not less than 3/16 inch thick may be used when the shell or head thickness is over 3/16 inch. If weep holes or tell-tale holes are used, the pad must be drilled or punched at its lowest point before it is attached to the tank. Each pad must:

- (i) Extend at least 2 inches in each direction from any point of attachment of an appurtenance;
- (ii) Be attached by a continuous weld around the pad except for a small gap at the lowest point for draining.

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In § 178.338-8, paragraph (b) is revised to read as follows:

§ 178.338-8 **Pressure relief devices, piping, valves, and fittings.**

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(b) \*\*\*

(1) The burst pressure of all piping, pipe fittings, hoses and other pressure parts, except for pump seals and pressure relief devices, must be at least 4 times the design pressure of the tank. Additionally, the burst pressure may not be less than 4 times any higher pressure to which each pipe, pipe fitting, hose or other pressure part may be subjected in service.

(2) Pipe joints must be threaded, welded or flanged. If threaded pipe is used, the pipe and fittings must be Schedule 80 weight or heavier. Malleable metals must be used in the construction of valves and fittings. Where copper tubing is permitted, joints shall be brazed or be of equally strong metal union type. The melting point of the brazing materials may not be lower than 1000°F. The method of joining tubing may not reduce the strength of the tubing, such as by the cutting of threads.

(3) Each hose coupling must be designed for a pressure of at least 120 percent of the hose design pressure and so that there will be no leakage when connected.

(4) Piping must be protected from damage due to thermal expansion and contraction, jarring, and vibration. Slip joints are not authorized for this purpose.

(5) All piping, valves and fittings on a cargo tank must be proved free from leaks. This requirement is met when such piping, valves, and fittings have been tested after installation with gas or air and proved leak tight at not less than the design pressure marked on the cargo tank. This requirement is applicable to all hoses used in a cargo tank, except that hose may be tested before or after installation on the tank.

(6) Each valve must be suitable for the tank design pressure at the tank design service temperature.

(7) All fittings must be rated for the maximum tank pressure and suitable for the coldest temperature to which they will be subjected in actual service.

(8) All piping, valves, and fittings must be grouped in the smallest practicable space and protected from damage as required by § 178.338-10.

(9) When a pressure-building coil is used on a tank designed to handle oxygen or flammable ladings, the vapor connection to that coil must be provided with a valve or check valve as close to the tank shell as practicable to prevent the loss of vapor from the tank in case of damage to the coil. The liquid connection to that coil must also be provided with a valve.

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Section 178.338-17 is revised to read as follows:

§ 178.338-17 Pumps and compressors. (a) Liquid pumps and gas compressors, if used, must be of suitable design, adequately protected against breakage by collision, and kept in good condition. They may be driven by motor vehicle power take-off or other mechanical, electrical, or hydraulic means. Unless they are of the centrifugal type, they shall be equipped with suitable pressure actuated by-pass valves permitting flow from discharge to suction to the tank.

(b) A valve or fitting made of aluminum with internal rubbing or abrading aluminum parts that may come in contact with oxygen in the cryogenic liquid form must not be installed on any cargo tank used to transport oxygen, cryogenic liquid.

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In § 178.340-8, paragraph (b) is revised to read as follows:

§ 178.340-8 Accident damage protection.

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(b) Rear-end Protection. Each cargo tank shall be provided with a rear accident damage protection device to protect the tank and piping in the event of a rear-end collision and reduce the likelihood of damage which could result in the loss of lading. The rear-end protection device must be in the form of a rear bumper or rear-end tank protection device meeting the following:

(1) Rear bumper (i) The bumper shall be located at least 6 inches to the rear of any vehicle component used for loading or unloading or that may contain lading while the vehicle is in transit.

(ii) The dimensions of the bumper shall conform to § 393.86 of this title.

(iii) The structure of the bumper shall be designed to withstand, without leakage of lading, the impact of the vehicle with rated payload, at a deceleration of 2 "g" using a safety factor of two based on the ultimate strength of the bumper material. Such impact shall be considered uniformly distributed and applied horizontally (parallel to the ground) from any direction at an angle not exceeding 30 degrees to the longitudinal axis of the vehicle.

(2) Rear-end tank protection device. (Nothing in this paragraph shall be construed to relieve a manufacturer of responsibility for complying with the requirements of § 393.86 of this title.)

(i) The inboard surface of the rear-end tank protection device shall be located at least 6 inches to the rear of any vehicle component used for loading or unloading or that may contain lading while the vehicle is in transit, in order to prevent the device from applying force upon the cargo tank or tank components in the event of an accident.

(ii) The dimensions of the rear-end tank protection device shall conform to the following:

(A) The bottom surface of the rear-end protection device must be at least 4 inches below the lower surface of any valve, fitting, or piping at the rear of the tank and not more than 60 inches from the ground with the vehicle empty.

(B) The maximum width of a notch, indentation, or separation between sections of a rear-end tank protection device may not exceed 24 inches. A notched, indented, or separated rear-end protection device may be used only when the piping at the rear of the tank is equipped with a sacrificial device outboard of a shutoff valve. (A sacrificial device is an element, such as a shear section, designed to fail under load in order to prevent damage to any lading retention part or device. The device must break under strain at no more than 70 percent of the strength of the weakest piping element between the tank and the sacrificial device. Operation of the sacrificial device must leave the remaining piping and its attachment to the tank intact and capable of retaining lading.)

(C) The widest part of the motor vehicle at the rear may not extend more than 18 inches beyond the outermost ends of the device or (if separated) devices on either side of the vehicle.

(iii) The structure of the rear-end tank protection device and its attachment to the vehicle must be designed to withstand, without leakage of lading, the impact of the cargo tank motor vehicle at

rated payload, at a deceleration of 2 "g" using a safety factor of two based on the ultimate strength of the materials used. Such impact shall be considered uniformly distributed and applied horizontally (parallel to the ground) from any direction at any angle not to exceed 30 degrees to the longitudinal axis of the vehicle.

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(Note: This change was published in the May 2, 1989, Federal Register. However, a subsequent document dated June 12, 1989, (change follows this note) removed § 178.340 in its entirety)

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Sections 178.340, 178.341, 178.342 and 178.343 are removed, and §§ 178.345 through 178.345-15, 178.346 through 178.346-15, 178.347 through 178.347-15 and 178.348 through 178.348-15 are added to subpart J to read as follows:

§ 178.345 General design and construction requirements applicable to Specification DOT 406 (§ 178.346), DOT 407 (§ 178.347), and DOT 412 (§ 178.348) cargo tank motor vehicles.

§ 178.345-1 General requirements. (a) Specification DOT 406, DOT 407 and DOT 412 cargo tank vehicles must conform to the requirements of this section in addition to the requirements of the applicable specification contained in §§ 178.346, 178.347 or 178.348.

(b) All specification requirements are minimum requirements.

(c) Definitions. The following terms apply to §§ 178.345, 178.346, 178.347 and 178.348.

"Appurtenance" means any cargo tank accessory attachment that has no lading retention or containment function and provides no structural support to the cargo tank.

"Baffle" means non-liquid-tight transverse partition device that deflects, checks or regulates fluid motion in a tank.

"Bulkhead" means a liquid-tight transverse closure at the ends of or between cargo tanks.

"Charging line" means a hose, tube, pipe, or similar device used to pressurize a tank with material other than the lading.

"Companion flange" means one of two mating flanges where the flange faces are in contact or separated only by a thin leak sealing gasket and are secured to one another by bolts or clamps.

"Connecting structure" means the structure joining two cargo tanks.

"Constructed and certified in conformance with the ASME Code" means the cargo tank is constructed and stamped in accordance with the ASME Code, and is inspected and certified by an Authorized Inspector.

"Constructed in accordance with the ASME Code" means the cargo tank is constructed in accordance with the ASME Code with the authorized exceptions (see §§ 178.346, 178.347, and 178.348) and is inspected and certified by a Registered Inspector.

"External self-closing stop-valve" means a self-closing stop-valve designed so that the self-stored energy source is located outside the tank and the welded flange.

"Flange" means the structural ring for guiding or attachment of a pipe or fitting with another flange (companion flange), pipe, fitting or other attachment. For size and shape, see ANSI B16.5.

"Inspection Pressure" means the pressure used to determine leak tightness of the tank when testing with pneumatic pressure.

"Internal self-closing stop-valve" means a self-closing stop-valve designed so that the self-stored energy source is located inside the tank or tank sump, or within the welded flange, and the valve seal is located within one inch of the external face of the welded flange or sump of the tank.

"Lading" means the hazardous material contained in a cargo tank.

"Loading/unloading connection" means the fitting in the loading/unloading line farthest from the loading/unloading outlet to which the loading/unloading hose or device is attached.

"Loading/unloading outlet" means the tank outlet used for normal loading/unloading operations.

"Loading/unloading stop-valve" means the stop valve farthest from the tank loading/unloading outlet to which the loading/unloading connection is attached.

"Maximum allowable working pressure" or "MAWP" See § 178.345-1(k).

"Multi-specification cargo tank motor vehicle" means a cargo tank motor vehicle equipped with two or more cargo tanks fabricated to more than one cargo tank specification.

"Nozzle" means the subassembly consisting of a pipe section with a welded or forged flange on one end in which the flange is an integral part of the neck extension.

"Outlet" means any opening in the shell or head of a tank, (including the means for attaching a closure), except that the following are not outlets: A threaded opening securely closed during transportation with a threaded plug, a flanged opening securely closed during transportation with a bolted or welded blank flange, a manhole, or gauging devices, thermometer wells, and safety relief devices.

"Outlet stop-valve" means the stop-valve at the tank loading/unloading outlet.

"Pipe coupling" means a fitting with internal or external threads on both ends.

"Rear Bumper" means the structure designed to prevent a vehicle or object from under-riding the rear of a motor vehicle. See § 393.86 of this title.

"Rear end tank protection device" means the structure designed to protect a cargo tank and any lading retention piping or devices in case of a rear end collision.

"Sacrificial Device" means an element, such as a shear section, designed to fail under load in order to prevent damage to any lading retention part or device. The device must break under strain at no more than 70 percent of the strength of the weakest piping element between the tank and the sacrificial device. Operation of the sacrificial device must leave the remaining piping and its attachment to the tank intact and capable of retaining lading.

"Self-closing stop-valve" means a stop-valve held in the closed position by means of self-stored energy, which opens only by application of an external force and which closes when the external force is removed.

"Shear section" means a sacrificial device fabricated in such a manner as to abruptly reduce the wall thickness of the adjacent piping or valve material by at least 30 percent.

"Shell" means the circumferential portion of a tank defined by the basic design radius excluding the closing heads.

"Stop-valve" means a valve that stops the flow of lading.

"Sump" means a protrusion from the bottom of a tank shell designed to facilitate complete loading and unloading of lading.

"Tank" means a container, consisting of a shell and heads, that forms a pressure tight vessel having openings designed to accept pressure tight fittings or closures, but excludes any appurtenances, reinforcements, fittings or closures.

"Test pressure" means the pressure to which a tank is subjected to determine pressure integrity.

"Toughness of material" means the capability of a material to absorb the energy represented by the area under the stress strain curve (indicating the energy absorbed per unit volume of the material) up to the point of rupture.

"Vacuum tank" means a tank that is loaded by reducing the pressure in the tank to below atmospheric pressure.

"Variable specification cargo tank" means a cargo tank that is constructed in accordance with one specification, but which may be altered to meet another specification by changing relief device, closures, lading discharge devices and other lading retention devices.

"Void" means the space between tank heads or bulkheads and a connecting structure.

"Welded flange" means a flange attached to the tank by a weld joining the tank shell to the cylindrical outer surface of the flange, or by a lifted weld joining the tank shell to a flange shaped to fit the shell contour.

(d) A manufacturer of a cargo tank must hold a current ASME certificate of authorization and must be registered with the Department in accordance with Part 107, Subpart F of this chapter.

(e) All construction must be certified by an Authorized Inspector or by a Registered Inspector as applicable to the cargo tank.

(f) Each cargo tank must be designed and constructed in conformance with the requirements of the applicable cargo tank specification. Each DOT 412 cargo tank with a maximum allowable working pressure greater than 15 psig, and each DOT 407 cargo tank with a maximum allowable working pressure greater than 35 psig must be constructed and certified in conformance with the ASME Code, except as limited or modified by the applicable cargo tank specification. Other cargo tanks must be constructed in accordance with the ASME Code, except as limited or modified by the applicable cargo tank specification.

(g) Requirements relating to parts and accessories on motor vehicles, which are contained in Part 393 of the Federal Motor Carrier Safety Regulations of this title, are incorporated into these specifications.

(h) Any additional requirements prescribed in Part 173, 177, or 180 of this subchapter that pertain to the transportation of specific lading are incorporated into these specifications.

(i) Cargo tank motor vehicle composed of multiple cargo tanks.

(1) A cargo tank motor vehicle composed of more than one cargo tank may be constructed with the cargo tanks made to the same specification or to different specifications. Each cargo tank must conform in all respects with the specification for which it is certified.

(2) The strength of the connecting structure joining multiple cargo tanks in a cargo tank motor vehicle must meet the structural design requirements in § 178.345-3. Any void within the connecting structure must be vented to the atmosphere by a drain of at least 1 inch inside diameter which shall be kept open at all times. The connecting structure must have inspection openings of sufficient size and number to permit proper visual internal inspection of the connecting structure and cargo tank surfaces. Each drainage and inspection opening must be accessible.

(j) Variable specification cargo tank. A cargo tank that may be physically altered to conform to another cargo tank specification must have the required physical alterations to convert from one specification to another clearly indicated on the variable specification plate.

(k) Maximum Allowable Working Pressure (MAWP). The MAWP for each cargo tank must be greater than or equal to the largest of the

following (The MAWP derived is the pressure to be used as prescribed in the ASME Code in the design of the tank):

(1) The pressure prescribed for the lading in Part 173;

(2) Vapor pressure of the most volatile lading, at 115°F (expressed in psig) plus the maximum static pressure exerted by the lading at a maximum lading density, plus any pressure exerted by a gas padding (including air in the ullage space or dome), if used; or

(3) The maximum pressure in the tank during loading or unloading.

§ 178.345-2 Material and material thickness. (a) All material for shell, heads, bulkheads, and baffles must be metal compatible with the lading intended to be transported therein and must conform to Section II, Parts A and B, of the ASME Code except as follows:

(1) ASTM A 676 or ASTM A 715 steels are also authorized for cargo tanks constructed in accordance with the ASME Code.

(2) Aluminum alloys suitable for fusion welding and conforming with the 0, H32 or H34 tempers of one of the following ASTM specifications may be used for cargo tanks constructed in accordance with the ASME Code:

ASTM B-209 Alloy 5052

ASTM B-209 Alloy 5086

ASTM B-209 Alloy 5154

ASTM B-209 Alloy 5254

ASTM B-209 Alloy 5454

ASTM B-209 Alloy 5654

All heads, bulkheads and baffles must be of O temper (annealed) or stronger tempers. All shell materials shall be of H32 or H34 tempers except that the lower ultimate strength tempers may be used if the minimum shell thicknesses in the tables are increased in inverse proportion to the lesser ultimate strength.

(b) Minimum thickness. The minimum thickness for the shell and heads must be such that the maximum stress levels specified in § 178.345-3(a), (b), (c), or (d) of this subpart are not exceeded. In no case may the shell or head thickness be less than that specified in the applicable specification.

(c) Corrosion or abrasion protection. A cargo tank or a part thereof, subject to thinning by corrosion or mechanical abrasion due to the lading, must be protected by the tank or part of the tank with a suitable increase in thickness of material, a lining or some other suitable method of protection.

(1) Corrosion allowance. Material added for corrosion allowance need not be of uniform thickness if different rates of attack can reasonably be expected for various areas of the tank.

(2) Lining. Lining material must consist of a nonporous, homogeneous material not less elastic than the parent metal and substantially immune to attack by the lading. The lining material must be bonded or attached by other appropriate means to the tank wall and must be impervious when applied. Any joint or seam in the lining must be made by fusing the materials together, or by other satisfactory means.

§ 178.345-3 Structural integrity. (a) The maximum calculated design stress value (the effective stress on the tank shell in any plane normal to the longitudinal axis) may not exceed the maximum design stress value prescribed in Section VII of the ASME Code or 25 percent of the minimum specified tensile strength of the metal at any point in the cargo tank. The forces, loads and stresses must take into account the weight of the tank, the maximum weight of lading and the weight of structures supported by the tank but not including the weight of the structures supporting the tank in normal conditions. The accelerative, decelerative and lateral forces must be applied separately. The combination case which produces the maximum effective stress shall govern. Corrosion allowance material may not be used to satisfy the design requirements.

(1) The design and construction of each cargo tank must provide for all potential structural loadings, including but not limited to dynamic loads, superimposed loadings, and the effect of temperature gradients resulting from lading and ambient temperature extremes. Thermal coefficients of dissimilar materials must be considered in the calculation of the design stress value.

(2) Maximum concentrated stresses which might be created at pads, cradles or supports due to shear, bending and torsion shall also be considered and calculated in accordance with Appendix G of Section VIII of the ASME Code.

(b) Analysis of basic cargo tank structural integrity must be made using the conditions specified in paragraph (a) of this section. The stresses involved are not uniform through the length of the tank. Calculation of the basic structural integrity must be made by the following formula:

$$S = 0.5(S_1 + S_2) \pm [0.25(S_1 - S_2)^2 + S_1^2]^{.5}$$

where at any given point under consideration, and for the worst combination of loadings that can occur at the same time, the stress levels produced at the point being considered are:

S = Effective stress as limited by this requirement, in psi.

S<sub>1</sub> = The circumferential tensile stress due to internal pressure, in psi.

S<sub>2</sub> = The following tensile or/and compressive stresses (in psi) that apply

- (1) The longitudinal tensile stresses due to internal pressure;
- (2) The tensile or compression stress generated by the axial load resulting from a decelerative force equal to 0.75 times the static weight of the fully loaded vehicle applied independently to each suspension assembly at the road surface;
- (3) The tensile or compression stress generated by the bending moment resulting from a decelerative force equal to 0.75 times the static weight of the fully loaded vehicle applied independently to each suspension assembly at the road surface;
- (4) The tensile or compression stress generated by the axial load resulting from an accelerative force equal to 0.75 times the static weight of the fully loaded vehicle applied to the horizontal pivot of the upper coupler (fifth wheel) supporting the vehicle;
- (5) The tensile or compression stress generated by the bending moment resulting from an accelerative force equal to 0.75 times the static weight of the fully loaded vehicle applied to the horizontal pivot of the upper coupler (fifth wheel) supporting the vehicle;
- (6) The tensile or compression stress due to a bending moment produced by a vertical force equal to 1.7 times the static weight of the tank and contents.

$S_s$  = The following shear stresses (in psi) that apply:

- (1) The vertical shear stress due to a vertical force equal to 1.7 times the static weight of the tank and contents;
  - (2) The lateral shear stress due to a lateral accelerative force equal to 0.4 times the static weight of the tank and contents applied at the road surface; and
  - (3) The torsional shear stress due to a lateral accelerative force equal to 0.4 times the static weight of the tank and contents applied at the road surface.
- (c) In addition to meeting the conditions specified in paragraph (a) of this section, the design calculations for the tank heads and shell must include the load resulting from the MAWP in combination with the dynamic pressure resulting from a longitudinal deceleration of 2 "g". For this loading, the design stress value used must not exceed the lesser of the yield strength or 75 percent of the ultimate tensile strength of the material of construction. The stress value requiring the greatest wall thickness derived from paragraph (a), (b), or (c) of this section must be used.

(d) If a tank is supported by a vehicle frame or other form of structural support, a tank shell or head thickness less than that specified in paragraph (c) of this section may be used provided that the effective stresses prescribed in paragraph (b) of this section are fully evaluated and considered.

(e) The design, construction, and installation of any appurtenance to the shell or head of the cargo tank must minimize the possibility of appurtenance damage or failure adversely affecting the lading retention integrity of the tank.

(1) Structural members, the suspension subframe, accident protection devices and external rings should be used as sites for attachment of appurtenances and other accessories to the cargo tank when practicable.

(2) A lightweight attachment, such as a conduit clip, brakeline clip, skirting structure, lamp mounting bracket or placard holder, must be constructed of a material of lesser strength than the tank shell or head material and may not be more than 72 percent of the thickness of the tank shell or head to which it is attached. The lightweight attachment may be secured directly to the tank shell or head if the device is designed and installed in such a manner that if damaged it will not affect the lading retention integrity of the tank. The attachment must be secured to the tank shell or head by continuous weld or in such manner as to preclude formation of pockets, which may become sites for incipient corrosion.

(3) Except as prescribed in paragraphs (e)(1) and (e)(2) of this section, the welding of any appurtenance to a shell or head must be made by attachment of a mounting pad so that there will be no adverse effect upon the lading retention integrity of the tank, if any force less than that prescribed in § 178.345-8(b)(1) is applied. The thickness of a mounting pad may not be less than that of the shell or head to which it is attached and not more than 1.5 times the shell or head thickness. However, a pad not less than 1/8 inch thick may be used when the shell or head is over 1/2 inch thick. If weep holes or tell-tale holes are used, the pad must be drilled or punched at its lowest point before it is attached to the tank. Each pad must:

- (i) extend at least 2 inches in each direction from any point of attachment of an appurtenance;
- (ii) have rounded corners, or otherwise be shaped in a manner to minimize stress concentrations on the shell or head; and
- (iii) be attached by a continuous weld around the pad except for a small gap at the lowest point for draining.

§ 178.345-4 Joints. (a) All joints between tank shell, heads, baffles, baffle attaching rings, and bulkheads must be welded in conformance with the ASME Code welding procedures.

(b) Where practical all welds must be easily accessible for inspection.

§ 178.345-5 Manhole assemblies. (a) Each cargo tank with capacity greater than 400 gallons must be accessible through a manhole at least 15 inches in diameter.

(b) Each manhole, fill opening and washout assembly must be structurally capable of withstanding, without leakage or permanent deformation that would affect its structural integrity, a static internal fluid pressure of at least 36 psig, or cargo tank test pressure, whichever is greater. The manhole assembly manufacturer shall verify compliance with this requirement by hydrostatically testing at least one percent (or one manhole closure, whichever is greater) of all manhole closures of each type produced each 3 months, as follows:

(1) The manhole, fill opening, or washout assembly must be tested with the venting devices blocked. Any leakage or deformation that would affect the product retention capability of the assembly shall constitute a failure.

(2) If the manhole, fill opening, or washout assembly tested fails, then five more covers from the same lot must be tested. If one of these five covers fails, then all covers in the lot from which the tested covers were selected are to be 100% tested or rejected for service.

(c) Each manhole, filler and washout cover must be fitted with a safety device that prevents the cover from opening fully when internal pressure is present.

(d) Each manhole and fill cover must be secured with fastenings that will prevent opening of the covers as a result of vibration under normal transportation conditions or shock impact due to a rollover accident on the roadway or shoulder where the fill cover is not struck by a substantial obstacle.

(e) Each manhole cover must be permanently marked by stamping or other means with:

- (1) Manufacturer's name;
- (2) Test pressure \_\_\_\_\_ psig;
- (3) A statement certifying that the manhole cover meets the requirements in § 178.345-5.

§ 178.345-6 Supports and anchoring. (a) A cargo tank with a frame not integral to the tank must have the tank secured by restraining devices to eliminate any motion between the tank and frame that may abrade the tank shell due to the stopping, starting, or turning of the vehicle. The design calculations of the support elements must include the stresses indicated in § 178.345-3(b). Such restraining devices must be readily accessible for inspection and maintenance, except that insulation and jacketing are permitted to cover the restraining devices.

(b) A cargo tank designed and constructed so that it constitutes, in whole or in part, the structural member used in lieu of a frame must be supported in such a manner that the resulting stress levels in the tank do not exceed those specified in § 178.345-3(a). The design calculations of the support elements must include the stresses indicated in § 178.345-3(b).

§ 178.345-7 Circumferential reinforcements. (a) A tank with a shell thickness of less than 3/8 inch must be circumferentially reinforced with bulkheads, baffles, ring stiffeners, or any combination thereof, in addition to the tank heads.

(1) Circumferential reinforcement must be located so that the thickness and tensile strength of the shell material in combination with the frame and reinforcement produces structural integrity at least equal to that prescribed in § 178.345-3(a) and (b) in such a manner that the maximum unreinforced portion of the shell does not exceed 60 inches. Circumferential reinforcement spacing of cargo tanks designed to be loaded by vacuum may exceed 60 inches provided the maximum unreinforced portion of the shell conforms with the requirements of Section VIII, Division 1 of the ASME Code.

(2) Circumferential reinforcement must be located within one inch of points where discontinuity in the longitudinal shell sheet alignment exceeds 10 degrees unless otherwise reinforced with structural members capable of maintaining shell stress levels authorized in § 178.345-3(a).

(b) Except for doubler plates and knuckle pads, no reinforcement may cover any circumferential joint.

(c) A baffle or baffle attachment ring, if used as a required reinforcement member, must produce structural integrity at least equal to that prescribed in § 178.345-3 and must be circumferentially welded to the tank shell. The welded portion must not be less than 50 percent of the total circumference of the tank and the length of any unwelded space on the joint shall not exceed 40 times the shell thickness.

(d) Stiffening rings. (1) Stiffening rings, when used to conform with this section, must be continuous around the circumference of the tank shell and must have a section modulus about the neutral axis of the ring section parallel to the shell at least equal to that determined as follows:

$$I_C (\text{min}) = 0.00027 \text{ WL for MS, HSLA and stainless steels}$$

$$I_C (\text{min}) = 0.000467 \text{ WL for aluminum alloys}$$

Where:

$I$  = Section modulus in inches  
 $W$  = Tank width or diameter in inches  
 $L$  = Ring spacing in inches; i.e., the maximum distance from the midpoint of the unsupported shell on one side of the ring stiffener to the midpoint of the unsupported shell on the opposite side of the ring stiffener.

(2) If a ring stiffener is welded to the tank shell, a portion of the shell may be considered as part of the ring section for purposes of computing the ring section modulus. This portion of the shell may be used provided at least 50 percent of the total circumference of the tank is welded and the length of any unwelded space on the joint does not exceed 40 times the shell thickness. The maximum portion of the shell to be used in these calculations is as follows:

Circumferential ring stiffener to tank shell welds	Distance between parallel circumferential ring stiffener to shell welds	Shell section
1	Less than 20t	20t
2	20t or more	20t + W
3		40t

where:

$t$  = Shell thickness.  
 $W$  = Distance between parallel circumferential ring stiffener to shell welds.

(3) Stiffening rings, when used to conform with the vacuum requirements of this section, must be as prescribed in the ASME Code.

(4) If configuration of internal or external ring stiffener encloses an air space, this air space shall be arranged for venting and be equipped with drainage facilities which shall be kept operative at all times.

(5) Stiffening rings must be of the type that can be visually inspected. Hat shaped or open channel rings which preclude visual inspection of the tank shell are prohibited on cargo tanks constructed of carbon steel.

**§ 178.345-8 Accident damage protection.** (a) *General.* Each cargo tank and its associated piping, closures and valves must be designed and constructed to minimize the potential for the loss of lading due to an accident. The cargo tank design and construction should take into consideration the potential for puncture, abrasion, crush, dynamic pressure, and impact and inertial loadings.

(1) Any dome, sump, or washout cover plate protecting from the cargo tank wall that retains lading in any tank orientation, must be as strong and tough as the tank wall and have a thickness at least equal to that specified by the appropriate cargo tank specification. Any such projection located in the lower one-third of the tank circumference (or cross section perimeter for non-circular tanks) that extends more than half its diameter at the point of attachment to the tank or more than 4 inches from the tank wall, or located in the upper 2/3 of the tank circumference for circular tanks (or the upper 2/3 of the cargo tank cross section perimeter for non-circular tanks) that extends more than one-fourth its diameter or 2 inches from the point of attachment to the tank must have accident damage protection devices that are:

- (i) As specified in this section;
- (ii) 125 percent as strong as the otherwise required accident damage protection device; or
- (iii) Attached to the cargo tank in accordance with the requirements of paragraph (a)(3) of this section.

(2) Outlets, valves, closures, piping, or any devices that if damaged in an accident could result in a loss of lading from the cargo tank must be protected by accident damage protection devices as specified in this section.

(3) Accident damage protection devices attached to the wall of a cargo tank must be designed, constructed, and installed so as to maximize the distribution of loads to the tank wall and minimize the possibility of adversely affecting the lading retention integrity of the cargo tank. Each accident damage protection device may be designed to prevent loss of the lading retention capability of the cargo tank by failure of the device from loads in excess of those required in this section. In this case, accident induced stresses resulting from the appropriate accident damage protection device requirements in combination with the stresses from the tank operating at the MAWP may not result in a tank wall stress greater than 75 percent of the ultimate strength of the tank material.

(4) Any piping that extends beyond an accident damage protection device must be equipped with a stop-valve and a sacrificial device such as a shear section. The sacrificial device must be located in the piping system outboard of the stop-valve and within the accident damage protection device to prevent any accidental loss of lading. The device must break at no more than 70 percent of the load that would be required to cause the failure of the protected lading retention device, part or tank wall. The failure of the sacrificial device must leave the protected lading retention device and its attachment to the tank wall intact and capable of retaining product.

(5) *Minimum road clearance.* The minimum allowable road clearance of any cargo tank component or protection device located between any two adjacent axles on a vehicle or vehicle combination shall be at least one-half inch for each foot separating such axles, and in no case less than 12 inches.

(b) *Bottom damage protection.* Each outlet, projection or piping located in the lower 1/4 of the tank circumference (or cross section perimeter for non-circular tanks) that could be damaged in an accident thereby resulting in the loss of lading must be protected by a bottom damage protection device, except as provided by § 178.345.8(a)(1).

(1) Any bottom damage protection device must be able to withstand or deflect away from the cargo tank a force of 155,000 pounds (based on the ultimate strength of the material) from the front, side, or rear, uniformly distributed over each surface of the device, over an area not to exceed 6 square feet, and a width not to exceed 6 feet. The device must extend an adequate distance, such that the piping or other component being protected will not be damaged, and in no case less than 6 inches beyond any component that may contain lading.

(2) A lading discharge opening equipped with an internal self-closing stop-valve need not conform to paragraph (b)(1) of this section provided it is protected so as to reasonably assure against the accidental loss of lading. This protection must be provided by a sacrificial device located outboard of each internal self-closing stop-valve and within 4 inches of the major radius of the tank shell or within 4 inches of a sump, but in no case more than 8 inches from the major radius of the tank shell. The device must break at no more than 70 percent of the load that would be required to cause the failure of the protected lading retention device, part or tank wall. The failure of the sacrificial device must leave the protected lading retention device or part and its attachment to the tank wall intact and capable of retaining product.

(c) *Rollover Damage Protection.* Each closure for openings, including but not limited to manhole, filling or inspection openings, and each valve, fitting, pressure relief device, vapor recovery system or other accessory located in the upper 2/3 of a cargo tank circumference for circular tanks (or the upper 2/3 of a cargo tank cross section perimeter for non-circular tanks) must be protected by being enclosed inside the body of the tank, by being enclosed inside a rollover damage protection device, or by being 125 percent as strong as the otherwise required damage protection device.

(1) A rollover damage protection device on a cargo tank motor vehicle must be designed and installed to withstand a load normal (perpendicular to the tank surface) and tangential from any direction (perpendicular to the normal load) to the tank shell equal to at least twice the weight of the loaded cargo tank motor vehicle, based on the ultimate strength of the material used. These design loads may be considered independently. If more than one rollover protection device is used, each device must be capable of carrying its proportionate share of the required loads and in each case at least one-fourth the required total tangential load. The design must be proven capable of carrying the required loads by calculations, tests or a combination of tests and calculations. Deformation of the protection device is acceptable provided the devices being protected are not damaged.

(2) A rollover damage protection device that would otherwise allow the accumulation of liquid on the top of the tank, must be provided with a drain that directs the liquid to a safe point of discharge away from any structural component of the cargo tank motor vehicle.

(d) *Rear-end protection.* Each cargo tank shall be provided with a rear accident damage protection device to protect the tank and piping in the event of a rear-end collision and reduce the likelihood of damage which could result in the loss of lading. The rear-end tank protection device must conform to the following requirements (Nothing in this paragraph shall be construed to relieve a manufacturer of responsibility for complying with the requirements of § 393.86 of this title):

(1) The inboard surface of the rear-end tank protection device shall be located at least 6 inches to the rear of any vehicle component used for loading or unloading or that may contain lading while the vehicle is in transit, in order to prevent the device from applying force upon the cargo tank or tank components in the event of an accident.

(2) The dimensions of the rear-end tank protection device shall conform to the following:

- (i) The bottom surface of the rear-end protection device must be at least 4 inches below the lower surface of any valve, fitting, or piping at the rear of the tank and not more than 60 inches from the ground with the vehicle empty.
- (ii) The maximum width of a notch, indentation, or separation between sections of a rear-end tank protection device may not exceed 24 inches. A notched, indented, or separated rear-end protection device may be used only when the piping at the rear of the tank is equipped with a sacrificial device outboard of a shut-off valve.
- (iii) The widest part of the motor vehicle at the rear may not extend more than 18 inches beyond the outermost ends of the device or (if separated) devices on either side of the vehicle.

(3) The structure of the rear-end tank protection device and its attachment to the vehicle must be designed to withstand, without leakage of lading, the impact of the cargo tank motor vehicle at rated payload, at a deceleration of 2 "g" using a safety factor of two based on the ultimate

strength of the materials used. Such impact shall be considered uniformly distributed and applied horizontally (parallel to the ground) from any direction at an angle not to exceed 30 degrees to the longitudinal axis of the vehicle.

**§ 178.345-9 Pumps, piping, hoses and connections.** (a) Each loading or unloading pump mounted on a cargo tank motor vehicle that may pressurize the cargo tank must be provided with an automatic means of closure to prevent internal pressure from exceeding the MAWP of the tank and tank-mounted equipment.

(b) Each hose, piping, stop-valve, lading retention fitting and closure for each cargo tank must be designed for a bursting pressure of at least 100 psig, and not less than four times the cargo tank MAWP. Each hose coupling must be designed for a bursting pressure of not less than 120 percent of the design bursting pressure of the hose and must be so designed that there will be no leakage when connected.

(c) Suitable provision must be made to allow for and prevent damage due to expansion, contraction, jarring, and vibration. Slip joints may not be used for this purpose.

(d) Any heating device, when installed, must be so constructed that the breaking of its external connections will not cause leakage of the tank lading.

(e) Any gauging, loading or charging device, including associated valves, must be provided with an adequate means of secure closure to prevent leakage.

(f) The attachment and construction of each loading/unloading or charging line must be of sufficient strength, or be protected by a sacrificial device, such that any load applied by loading/unloading or charging lines connected to the cargo tank cannot cause damage resulting in loss of lading from the cargo tank.

(g) Use of a nonmetallic pipe, valve or connection that is not as strong and heat resistant as the tank material is authorized only if such attachment is located outboard of the product retention system.

**§ 178.345-10 Pressure relief.** (a) Each cargo tank must be equipped with a pressure relief system and when required with a vacuum relief system in conformance with this section and the applicable individual specification. The pressure and vacuum relief system must be designed to operate and have sufficient capacity to prevent tank rupture or collapse due to over-pressurization or vacuum resulting from tank heating, cooling, loading or unloading.

(b) *Type and construction of relief systems and devices*

(1) Each cargo tank must be provided with a primary pressure relief system consisting of one or more reclosing pressure relief valves. A secondary pressure relief system consisting of another pressure relief valve in parallel with the primary pressure relief system may be used to augment the total venting capacity of the cargo tank. Non-reclosing pressure relief devices are not authorized in any cargo tank except when in series with a reclosing pressure relief device. Gravity actuated reclosing valves are not authorized on any cargo tank.

(2) If a frangible (rupture) disk is inserted in series with a reclosing pressure relief valve, the space between the frangible (rupture) disk and the valve must be provided with a suitable tell-tale indicator to permit detection of any frangible (rupture) disk pinholing or leakage which may cause a malfunction of the pressure relief system. The frangible (rupture) disk must rupture at a tank pressure within the range specified in paragraph (d)(1) of this section.

(3) Each pressure relief system must be designed to prevent loss of lading from the system in case of pressure surges, vehicle upset or accident, regardless of vehicle orientation. A pressure relief system designed to withstand a dynamic pressure surge of 50 psig applied for at least 300 milliseconds without leakage of liquid lading may be considered to be in compliance with this requirement. After June 6, 1994, each pressure relief system must be designed to withstand a dynamic pressure surge of 50 psig applied for at least 300 milliseconds without leakage of liquid lading regardless of vehicle orientation. Each pressure actuated relief system must function in the event of sustained pressure rise in excess of the prescribed set pressure. After June 12, 1991, each pressure actuated relief valve must be capable of reseating to a leak-tight condition, after a pressure surge and release of a lading volume of not more than one gallon. This requirement shall be considered to be met if the pressure relief valve successfully withstands the testing procedure outlined in TTMA RP No. 81—"Performance of Spring-Loaded Pressure Relief Valves on MC 306, MC 307, and MC 312 Tanks," except that in addition:

- (i) For this test, the drop height and cushioning must be calibrated to produce a measured pressure generated in the drop test vessel of not less than 50 psig for not less than 300 milliseconds with the pressure actuated relief valve blocked closed;
  - (ii) The total pressure resulting from static head and pad pressure, exerted on the pressure actuated relief valve immediately before and after the drop test must be not less than the MAWP of the cargo tank; and
  - (iii) The total volume of liquid released during the test shall not exceed one gallon.
- (4) Each reclosing pressure relief valve must be constructed and installed in such a manner that unauthorized adjustment of the relief setting can be detected and corrected.

(5) No shut-off valve or other device that could prevent venting through the pressure relief system may be installed in a pressure relief system.

(6) The pressure relief system must be mounted, shielded and drainable so as to minimize the accumulation of material that could impair the operation or discharge capability of the system by freezing, corrosion or blockage.

(c) *Location of relief devices.* Each pressure relief device must communicate with the vapor space of the tank in a position as near as possible to the longitudinal and transverse center of the tank. The discharge from any device must be unrestricted. Protective devices which deflect the flow of vapor are permissible provided the required vent capacity is maintained.

(d) *Settings of pressure relief system—(1) Primary pressure relief system.* Unless otherwise prescribed in the applicable individual specification, each primary pressure relief valve must be set to function at 120 percent of the MAWP and must start to open at not less than set pressure and not more than 110 percent of set pressure. The reclosing valve must reclose at a pressure not less than 90 percent of the set-to-discharge pressure and remain closed at lesser pressures, except as provided in § 178.346-10.

(2) *Secondary pressure relief system.* Each pressure relief valve used as a secondary relief device must be set-to-discharge at a pressure not less than 120 percent of the MAWP and be fully open at 150 percent of the MAWP.

(e) *Venting capacity of pressure relief systems.* The pressure relief system (primary and secondary, including any piping) in each tank, once fully opened, must have sufficient venting capacity to limit the tank internal pressure to a maximum of 150 percent of the tank's MAWP. This total venting capacity may not be less than that shown in Table 1 of this paragraph, except as provided in § 178.346-10.

**Table 1.—Minimum Emergency Vent Capacity**  
(In cubic feet free air hour at 60 °F and 1 atm)

Exposed area in square feet	Cubic feet free air per hour
20	15,800
30	23,700
40	31,600
50	39,500
60	47,400
70	55,300
80	63,300
90	71,200
100	79,100
120	94,900
140	110,700
160	126,500
180	142,300
200	158,100
225	191,300
250	203,100
275	214,900
300	225,100
350	245,700
400	265,000
450	283,200
500	300,600
550	317,300
600	333,300
650	348,800
700	363,700
750	378,200
800	392,200
850	405,900
900	419,300
950	432,300
1,000	445,000

Note 1: Interpolate for intermediate sizes.

(1) *Primary pressure relief system.* Unless otherwise specified in the applicable individual specification, the primary relief system must have a minimum venting capacity of 12,000 SCFH per 350 square feet of exposed tank area, but in any case at least one fourth the required total venting capacity for the cargo tank.

(2) *Secondary pressure relief system.* If the primary pressure relief system does not provide the required total venting capacity, additional capacity must be provided by a secondary pressure relief system.

(f) *Certification of pressure relief devices.* The manufacturer of any pressure relief device, including valves, frangible (rupture) disks, vacuum vents and combination devices must certify that the device model was designed and tested in accordance with this section and the appropriate cargo tank specification. The certificate must contain sufficient information to describe the device and its performance. The certificate must be signed by a responsible official of the manufacturer who approved the flow capacity certification.

(g) *Rated flow capacity certification test.* Each pressure relief device model must be successfully flow capacity certification tested prior to first

Use. Devices having one design, size and set pressure are considered to be one model. The testing requirements are as follows:

(1) At least 3 devices of each specific model must be flow capacity tested at a pressure not greater than 130 percent of the MAWP of the cargo tank. For a device model to be certified, the capacities of the devices tested must fall within a range of plus or minus 5 percent of the average for the devices tested.

(2) The rated flow capacity of a device model may not be greater than 90 percent of the average value for the devices tested.

(3) The rated flow capacity derived for each device model must be certified by a responsible official of the device manufacturer.

(h) Marking of pressure relief devices. Each pressure relief device must be permanently marked with the following:

- (1) Manufacturer's name;
  - (2) Model number;
  - (3) Set-to-discharge pressure, in psig;
- and
- (4) Rated flow capacity, in SCFH at the rating pressure, in psig.

**§ 178.345-11 Tank outlets.** Each tank outlet that may contain lading in any tank attitude must be equipped with a stop-valve or other leak tight closure in accordance with this section (such tank outlets, closures and associated piping must be protected in accordance with § 178.345.8).

(a) Each loading/unloading outlet must be equipped with an internal self-closing stop valve or with an external self-closing stop valve located as close as possible to the tank shell. Each self-closing valve system must be designed to close within 30 seconds of actuation. Each self-closing stop valve must be designed such that during transportation the valve is in a securely closed position such that if the actuating system is sheared off or damaged in an accident, the valve will remain closed and capable of retaining product. For external valves, the self-closing function is required only for emergency situations such as a fire or hose rupture. During normal loading/unloading operations the valve may be manually operated. In addition to normal means of closure, each internal or external self-closing stop valve must be fitted with a remotely activated means of closure located more than 10 feet from the stop valve, as specified below. Cable linkage to these closures must be corrosion resistant and effective in all types of environment and weather. Any loading/unloading connection extending beyond the self-closing stop valve must be fitted with another stop valve at the end of such connection.

(1) For cargo tanks intended for flammable, pyrophoric, oxidizing or Poison B liquids, the remote means of closure must be activated for closure by manual or mechanical means. In addition, in case of fire each stop valve must be activated for closure by an automatic heat activated means located as close as possible to the loading/unloading connection. Thermally activated closures must activate at a temperature not over 250 °F.

(2) For cargo tanks intended exclusively for a lading other than those mentioned in paragraph (a)(1) of this section the remote means of closure may be actuated by manual or mechanical means only.

(b) Each tank outlet that is not a loading/unloading outlet must be equipped with a stop-valve or other leak tight closure located as close as practicable to the tank outlet. Any connection extending beyond this closure must be fitted with another stop-valve at the end of such connection.

**§ 178.345-12 Gauging devices.** Each cargo tank except a tank intended to be filled by weight, must be equipped with a gauging device that indicates the maximum permitted liquid level to an accuracy of 0.5 percent. Gauge glasses are not permitted.

**§ 178.345-13 Pressure and leakage tests.** (a) Each tank must be pressure and leak tested in accordance with this section and §§ 178.346-13(a), 178.347-13(a) or 178.348-13(a), as applicable.

(b) Pressure test. Each tank or tank compartment must be tested hydrostatically or pneumatically. Each tank of a multi-tank cargo tank motor vehicle must be tested with the adjacent tanks empty and at atmospheric pressure. Each closure, except pressure relief devices and loading/unloading venting devices rated at less than the prescribed test pressure, must be in place during the test. If the venting device is not removed during the test, such device must be rendered inoperative by a clamp, plug or other equally effective restraining device, which may not prevent the detection of leaks, or damage the device. Restraining devices must be removed immediately after the test is completed.

(1) Hydrostatic method. Each tank, including its domes, must be filled with water or other liquid having similar viscosity, the temperature of which may not exceed 100 °F. The tank must then be pressurized as prescribed in the applicable specification. The pressure must be gauged at the top of the tank. The prescribed test pressure must be maintained for at least 10 minutes during which time the tank must be inspected for leakage, bulging, or other defect.

(2) Pneumatic method. A pneumatic test may be used in place of the hydrostatic test. The tank must be pressurized with air or similar gas. Test pressure must be reached gradually by increasing the pressure to one half of test pressure. Thereafter, the pressure must be increased in

steps of approximately one tenth of the test pressure until test pressure is reached. Test pressure must be held for at least 5 minutes. The pressure must then be reduced to inspection pressure which must be maintained while the entire cargo tank surface is inspected for leakage or other sign of defects. The inspection method must consist of coating the entire surface of the tank, particularly each joint, with a solution of soap and water or other equally sensitive method. Suitable safeguards must be provided to protect employees and other persons should a failure occur.

(c) The cargo tank with all its accessories in place and operable must be leak tested at not less than 80 percent of tank's MAWP with the pressure maintained for at least 5 minutes.

(d) Any cargo tank that leaks, bulges or shows any other sign of defect must be rejected. Rejected cargo tanks must be suitably repaired and retested successfully prior to being returned to service. The retest after any repair must use the same method of test under which the cargo tank was originally rejected.

**§ 178.345-14 Marking.** (a) General. The manufacturer shall certify that each cargo tank motor vehicle has been designed, constructed and tested in accordance with the applicable Specification DOT 406, DOT 407 or DOT 412 (§§ 178.345, 178.346, 178.347, 178.348 of this part) cargo tank requirements, and when applicable, with the ASME Code. The certification shall be accomplished by marking the tank as prescribed in paragraphs (b) and (c) of this section and by preparing the certificate prescribed in § 178.345-15. Metal plates prescribed by paragraphs (b), (c), (d) and (e) of this section must be permanently affixed to the tank or its integral supporting structure, by brazing, or welding around the plate perimeter. These plates must be affixed on the left side of the vehicle near the front of the cargo tank (or the front-most tank of a multi tank cargo tank motor vehicle), in a place readily accessible for inspection. The plates must be permanently and plainly marked in English by stamping, embossing or other means in characters at least 1/16 inch high.

(b) Nameplate. Each cargo tank must have a corrosion resistant nameplate permanently attached to it. The following information, in addition to that required by the ASME Code, must be marked on the tank nameplate (parenthetical abbreviations may be used):

- (1) DOT Specification number DOT XXX (DOT XXX), where "XXX" is replaced with the applicable specification number.
- (2) Original test date, month and year (Orig. Test Date).
- (3) Tank MAWP, in psig (MAWP).
- (4) Tank test pressure (Test P), in psig.
- (5) Tank design temperature range (Design temp. range), \_\_\_\_ °F to \_\_\_\_ °F.
- (6) Nominal capacity (Water cap.), in gallons.
- (7) Maximum design density of lading (Max. design lading dens.), in pounds per gallon.
- (8) Material specification number—shell (Mat. spec.—shell yyy \*\*\*), where "yyy" is replaced by the alloy designation and "\*\*\*\*" by the alloy type.
- (9) Material specification number—heads (Mat. spec.—heads yyy \*\*\*), where "yyy" is replaced by the alloy designation and "\*\*\*\*" by the alloy type.
- (10) Minimum thickness—shell (Min. thick.—shell), top \_\_\_\_ , side bottom \_\_\_\_ , in inches.
- (11) Minimum thickness—heads (Min. thick.—head), in inches.
- (12) Manufactured thickness—shell (Mfd. shell thick.), top \_\_\_\_ , side bottom \_\_\_\_ , in inches.
- (13) Manufactured thickness—heads (Mfd. heads thick.), in inches.
- (14) Weld material (Weld mat.).
- (15) Exposed surface area, in square feet.

(c) Specification plate. Each cargo tank motor vehicle must have an additional corrosion resistant metal specification plate attached to it. The specification plate must contain the following information (parenthetical abbreviations may be used):

- (1) Cargo tank motor vehicle manufacturer (CTM veh. mfr.).
- (2) Cargo tank motor vehicle certification date (CTM veh. cert. date), if different from the cargo tank certification date.
- (3) Cargo tank manufacturer (CT mfr.).
- (4) Cargo tank date of manufacture (CT date of mfr.), month and year.
- (5) Maximum weight of lading (Max. payload), in pounds.
- (6) Maximum loading rate in gallons per minute (Max. load. rate, GPM) at maximum loading pressure \_\_\_\_ psig.
- (7) Maximum unloading rate in gallons per minute (Max. unload. rate, GPM), at maximum unloading pressure \_\_\_\_ psig.
- (8) Lining material (Lining).
- (9) Heating system design pressure (Heating sys. press.), in psig, if applicable.
- (10) Heating system design temperature (Heating sys. temp.), in °F, if applicable.

(d) Multi-tank cargo tank motor vehicle. For a cargo tank motor vehicle having one cargo tank or having all its cargo tanks not separated by any void space, the information required by paragraphs (b) and (c) of this section may be combined on one specification plate. When separated by a void space, each cargo tank must have an individual nameplate as required in paragraph (b) of this section. The cargo tank motor



vehicle may have a combined nameplate and specification plate. When only one plate is used, the plate must be visible and not covered by any insulation and the required information must be listed on the plate from front to rear in the order of the corresponding cargo tank location.

(e) Variable specification cargo tank. Each variable specification cargo tank must have a corrosion resistant metal variable specification plate attached to it. The mounting of this variable specification plate must be such that only the plate identifying the applicable specification under which the tank is being operated is legible.

(1) The following information must be included (parenthetical abbreviations are authorized):

Specification DOT XXX (DOT XXX), where "XXX" is replaced with the applicable specification number.

Equipment required	Required rating <sup>1</sup>
Pressure relief devices:	
Pressure actuated type	.....
Fusible type	.....
Frangible type	.....
Leaking discharge devices	.....
Top	.....
Bottom	.....
Pressure unloading fitting	.....
Closures:	
Manhole	.....
Fill openings	.....
Discharge openings	.....

<sup>1</sup> Required rating—to meet the applicable specification.

(2) If no change of information in the specification plate is required, the letters "NC" must follow the rating required. If the cargo tank is not so equipped, the word "None" must be inserted.

(3) Those parts to be changed or added must be stamped with the appropriate MC or DOT Specification markings.

(4) The alterations that must be made in order for the tank to be modified from one specification to another must be clearly indicated on the manufacturer's certificate and on the variable specification plate.

**§ 178.345-15 Certification.** (a) The manufacturer of a cargo tank motor vehicle made to any of these specifications must furnish the owner, at or before the time of delivery, the following:

(1) A certificate signed by a responsible official of the manufacturer and a Registered Inspector certifying that the cargo tank motor vehicle is constructed, tested and completed in conformance with the applicable specification. The manufacturer's and the Registered Inspector's registration number must appear on the certificate (See Subpart F, Part 107 in subchapter B of this chapter).

(2) For a variable specification cargo tank, a certificate signed by a responsible official of the manufacturer and a Registered Inspector that the cargo tank is constructed for variable specification service. The certificate must include all the information required and marked on the variable specification plate.

(b) In the case of a cargo tank motor vehicle manufactured in two or more stages, each manufacturer who performs a manufacturing operation on the incomplete vehicle or portion thereof shall furnish to the

succeeding manufacturer, at or before the time of delivery, a certificate covering the particular operation performed by that manufacturer and any certificate(s) received from previous manufacturers including the certificate received from the Design Certifying Engineer. The certificate(s) must include sufficient sketches or drawings, and other information to indicate the make, size, model and location of each valve and pressure relief device, and the arrangement of all piping associated with the tank. Each certificate must be signed by a responsible official of the manufacturing firm for the portion of the complete cargo tank motor vehicle represented thereby, such as basic tank fabrication, insulation, jacket, lining or piping. The final manufacturer shall furnish the owner with all certificates, excluding sketches and drawings.

**§ 178.346 Specification DOT 406; cargo tank motor vehicle.**

**§ 178.346-1 General requirements.** (a) Each Specification DOT 406 cargo tank motor vehicle must meet the general design and construction requirements in § 178.345, in addition to the specific requirements contained in this section.

(b) *Maximum Allowable Working Pressure:* The MAWP of each cargo tank must be no lower than 2.65 psig and no higher than 4 psig.

(c) Vacuum loaded cargo tanks must not be constructed to this specification.

(d) Each cargo tank must be "constructed in accordance with the ASME Code" except as modified herein:

(1) The record-keeping requirements contained in the ASME Code Section VIII, Division I do not apply. Parts UG-90 thru 94 of Section VIII, Division I do not apply. Inspection and certification must be made by an inspector registered in accordance with Subpart F of Part 107.

(2) Loadings must be as prescribed in § 178.346-3.

(3) Formed heads must have a knuckle radius of at least 3 times the material thickness, and in no case less than one-half inch. Inserted or stuffed head attachment to the shell by fillet weld is authorized when such head is of a thickness authorized by UG-32 and § 178.346-2. Shell sections of cargo tanks designed with a non-circular cross-section need not be given a preliminary curvature, as prescribed in UG-79.

(4) Marking, certification, data reports, and nameplates must be as prescribed in §§ 178.345-14, 178.346-14, 178.345-15, and 178.346-15.

(5) Manhole closure assemblies must conform to §§ 178.345-5 and 178.346-5.

(6) Pressure relief devices must be as prescribed in §§ 178.345-10 and 178.346-10.

(7) The hydrostatic or pneumatic test must be as prescribed in §§ 178.345-13 and 178.346-13.

(8) The following parts of the ASME Code, Section VIII, Division I do not apply: UG-12, UG-34, UG-77, UG-80, UG-81, and UG-96.

**§ 178.346-2 Material and thickness of material.** (a) The type and thickness of material for DOT 406 cargo tanks must conform to § 178.345-2 of this Part, but may in no case be less than that indicated in Tables I and II below.

Table I—Minimum Thickness of Heads (or Bulkheads and Baffles When Used as Tank Reinforcement) Using Mild Steel (MS), High Strength Low Alloy Steel (HSLA), Austenitic Stainless Steel (SS) or Aluminum (AL)—Expressed in Decimals of an Inch After Forming

Material	Volume capacity in gallons per inch of length								
	14 or less			Over 14 to 22			23 and over		
	MS	HSLA SS	AL	MS	HSLA SS	AL	MS	HSLA SS	AL
Thickness	.100	.100	.160	.115	.115	.173	.129	.129	.187

Table II—Minimum Thickness of Shell Using Mild Steel (MS), High Strength Low Alloy Steel (HSLA), Austenitic Stainless Steel (SS) or Aluminum (AL)—Expressed in Decimals of an Inch After Forming<sup>1</sup>

Rated capacity (gallons)	MS	SS/HSLA	AL
More than 0 to at least 4,500	0.100	0.100	0.151
More than 4,500 to at least 8,000	0.115	0.100	0.160
More than 8,000 to at least 14,000	0.129	0.129	0.173
More than 14,000	0.143	0.143	0.187

<sup>1</sup> Maximum distance between bulkheads, baffles, or ring stiffeners shall not exceed 60 inches.

**§ 178.346-3 Structural Integrity.** The structural integrity of each cargo tank motor vehicle must conform to § 178.345-3.

**§ 178.346-4 Joints.** All joints in the fabrication of each cargo tank must conform to § 178.345-4.

**§ 178.346-5 Manhole assemblies.** Each manhole assembly must conform to § 178.345-5.

**§ 178.346-6 Supports and anchoring.** Supports and anchoring on each cargo tank motor vehicle must conform to § 178.345-6.

**§ 178.346-7 Circumferential reinforcement.** The circumferential reinforcement on each cargo tank must conform to § 178.345-7.

**§ 178.346-8 Accident damage protection.** Each cargo tank motor vehicle must be protected from accident damage in accordance with § 178.345-8.

**§ 178.346-9 Pumps, piping, hoses and connections.** Each pump and all piping, hoses and connections on each cargo tank motor vehicle must conform to § 178.345-9.

**§ 178.346-10 Pressure relief.** (a) Each cargo tank must be equipped with a pressure relief system in accordance with § 178.345-10 and this section.

(b) **Type and construction.** In addition to the pressure relief devices required in § 178.345-10: (1) Each cargo tank must be equipped with one or more vacuum relief devices; and

(2) Each cargo tank may be equipped with one or more normal vents set to open at not less than 1 psig. Each normal vent must be designed to prevent loss of lading through the device in case of cargo tank motor vehicle overturn. Cargo tanks equipped with a normal vent may be used only for those loadings meeting the requirements of § 173.33(c)(1)(i)(c).

(c) **Pressure settings of relief valves.**  
(1) Notwithstanding the requirements of § 178.345-10, each pressure relief valve must:

(i) Be set to function at 125 percent of the MAWP and not less than 3.3 psig;

(ii) Function at a pressure not greater than 110 percent of the set pressure and not less than the set pressure;

(iii) Reclose at a pressure not less than 80 percent of the set-to-discharge pressure.

(2) Each vacuum relief device must be set to open at not more than 6 ounces vacuum.

(d) **Venting capacities.**

(1) The total venting capacity of the pressure relief system must limit the cargo tank pressure to not greater than cargo tank test pressure. The total venting capacity rated at no greater than cargo tank test pressure, must be at least that specified in the table in § 178.345-10(e).

(2) The primary pressure relief valve must have a minimum venting capacity of at least 6,000 SCFH of free air, rated at not greater than the tank test pressure.

(3) Each vacuum relief system must have sufficient capacity to limit the vacuum to 1 psig.

(4) If pressure loading or unloading devices are provided, the relief system must have adequate vapor and liquid capacity to limit the tank pressure to 130 percent of MAWP at maximum loading or unloading rate. The maximum loading and unloading rates must be included on the metal specification plate.

§ 178.346-11 **Outlets.** (a) All outlets on each tank must conform to § 178.345-11 and this section.

(b) External self-closing stop-valves are not authorized as an alternative to internal self-closing stop-valves on loading/unloading outlets.

§ 178.346-12 **Gauging devices.** Any gauging devices on DOT 406 cargo tanks must conform to § 178.345-12.

§ 178.346-13 **Pressure and leakage tests.** (a) Each cargo tank must be tested in accordance with § 178.345-13 and this section.

(b) **Pressure test.** Test pressure must be as follows:

(1) Using the hydrostatic test method, the test pressure must be the greater of 5.0 psig or 1.5 times the cargo tank MAWP.

(2) Using the pneumatic test method, the test pressure must be the greater of 5.0 psig or 1.5 times the cargo tank MAWP; and the inspection pressure must be the cargo tank MAWP.

(c) **Leakage test.** Where applicable, the Environmental Protection Agency's "Method 27—Determination of Vapor Tightness of Gasoline

Delivery Tank Using Pressure-Vacuum Test" 40 CFR Part 60 Appendix A, is an acceptable alternate leakage test.

§ 178.346-14 **Marking.** Each cargo tank motor vehicle must be marked in accordance with § 178.345-14.

§ 178.346-15 **Certification.** Each cargo tank motor vehicle must be certified in accordance with § 178.345-15.

**§ 178.347 Specification DOT 407; cargo tank motor vehicle.**

§ 178.347-1 **General requirements.** (a) Each specification DOT 407 cargo tank motor vehicle must conform to the general design and construction requirements in § 178.345 in addition to the specific requirements contained in this section.

(b) Each tank must be of a circular cross-section and have an MAWP of at least 25 psig.

(c) Any cargo tank built to this specification with a MAWP greater than 35 psig and each tank designed to be loaded by vacuum must be "constructed and certified in accordance with the ASME Code". The external design pressure for a cargo tank loaded by vacuum must be at least 15 psi.

(d) Each cargo tank built to this specification with MAWP less than 35 psig must be "constructed in accordance with the ASME Code" except as modified herein:

(1) The record-keeping requirements contained in the ASME Code, Section VIII, Division I, do not apply. The inspection requirements of parts UG-90 thru 94 do not apply. Inspection and certification must be made by an inspector registered in accordance with Subpart F of Part 107.

(2) Loadings must be as prescribed in § 178.347-3.

(3) Formed heads must have a knuckle radius of at least 3 times the material thickness, and in no case less than one-half inch. Inserted or shuffed head attachment to the shell by fillet weld is authorized when such head is of a thickness authorized by UG-32 and § 178.347-2.

(4) Marking, certification, data reports and nameplates must be as prescribed in §§ 178.345-14, 178.347-14, 178.345-15, and 178.347-15.

(5) Manhole closure assemblies must conform to §§ 178.345-5 and 178.347-5.

(6) Pressure relief devices must be as prescribed in §§ 178.345-10 and 178.347-10.

(7) The hydrostatic or pneumatic test must be as prescribed in §§ 178.345-13 and 178.347-13.

(8) The following parts of the ASME Code do not apply: UG-12, UG-34, UG-77, UG-80, and UG-81, and UG-96.

§ 178.347-2 **Material and thickness of material.** (a) The type and thickness of material for DOT 407 specification cargo tanks must conform to § 178.345-2 and this section. In no case may the thickness be less than that indicated in Tables I and II below.

Table I—Minimum Thickness of Heads, Bubbheads and Baffles When Used as Tank Reinforcement Using Mild Steel (MS), High Strength Low Alloy Steel (HSLA), Austenitic Stainless Steel (SS) and Aluminum (AL)—Expressed in Decimals of an Inch

Volume capacity in gallons per inch	10 or less	Over 10 to 14	Over 14 to 18	Over 18 to 22	Over 22 to 26	Over 26 to 30	Over 30
Thickness (MS)	0.100	0.100	0.115	0.129	0.129	0.143	0.156
Thickness (HSLA)	0.100	0.100	0.115	0.129	0.129	0.143	0.156
Thickness (SS)	0.100	0.100	0.115	0.129	0.129	0.143	0.156
Thickness (AL)	0.160	0.160	0.173	0.187	0.194	0.216	0.237

Table II—Minimum Thickness of Shell Using Mild Steel (MS), High Strength Low Alloy Steel (HSLA), Austenitic Stainless Steel (SS) and Aluminum (AL)—Expressed in Decimals of an Inch

Volume capacity in gallons per inch	10 or less	Over 10 to 14	Over 14 to 18	Over 18 to 22	Over 22 to 26	Over 26 to 30	Over 30
Thickness (MS)	0.100	0.100	0.115	0.129	0.129	0.143	0.156
Thickness (HSLA)	0.100	0.100	0.115	0.129	0.129	0.143	0.156
Thickness (SS)	0.100	0.100	0.115	0.129	0.129	0.143	0.156
Thickness (AL)	0.151	0.151	0.160	0.173	0.194	0.216	0.237

§ 178.347-3 **Structural Integrity.** The structural integrity of each cargo tank motor vehicle must conform to § 178.345-3.

§ 178.347-4 **Joints.** All joints in the fabrication of each cargo tank must conform to § 178.345-4.

§ 178.347-5 **Manhole assemblies.** Each manhole assembly must conform to § 178.345-5, except that each manhole assembly must be capable of withstanding internal fluid pressures of 40 psig or test pressure of the tank, whichever is greater.

§ 178.347-6 **Supports and anchoring.** Supports and anchoring on each cargo tank motor vehicle must be in conformance with § 178.345-6.

§ 178.347-7 **Circumferential reinforcement.** The circumferential reinforcement on each cargo tank must conform to § 178.345-7.

§ 178.347-8 **Accident damage protection.** Each cargo tank motor vehicle must be protected from accident damage in accordance with § 178.345-8.

**§ 178.347-9 Pumps, piping, hoses and connections.** Each pump and all piping, hoses and connections on each cargo tank motor vehicle must conform to § 178.345-9.

**§ 178.347-10 Pressure relief.** (a) Each cargo tank must be equipped with a pressure and vacuum relief system in accordance with § 178.340-10 and this section.

(b) **Type and construction.** Vacuum relief devices are not required for cargo tanks designed to be loaded by vacuum.

(c) **Pressure settings of relief valves.** The setting of pressure relief valves must be in accordance with § 178.345-10(d).

(d) **Venting capacities.**  
 (1) The total venting capacity of the pressure relief system must limit the cargo tank pressure to not greater than 150 percent of the cargo tank MAWP. The total venting capacity, rated at no greater than 150 percent of the cargo tank MAWP, must be at least that specified in the table in § 178.345-10(e).

(2) The vacuum relief system must limit the vacuum to less than 80 percent of the design vacuum capability of the cargo tank.

(3) If pressure loading or unloading devices are provided, the relief system must have adequate vapor and liquid capacity to limit the tank pressure to 130 percent of the MAWP at maximum loading or unloading rate. The maximum loading or unloading rate must be included on the metal specification plate.

**§ 178.347-11 Outlets.** All outlets on each tank must conform to § 178.345-11.

**§ 178.347-12 Gauging devices.** Any gauging device on DOT 407 cargo tanks must conform to § 178.345-12.

**§ 178.347-13 Pressure and leakage test.** (a) Each cargo tank must be tested in accordance with § 178.345-13 and this section.

(b) **Pressure test.** Test pressure must be as follows:

(1) Using the hydrostatic test method, the test pressure must be at least 40 psig or 1.5 times tank MAWP, whichever is greater.

(2) Using the pneumatic test method, the test pressure must be 40 psig or 1.5 times tank MAWP, whichever is greater, and the inspection pressure is tank MAWP.

**§ 178.347-14 Marking.** Each cargo tank motor vehicle must be marked in accordance with § 178.345-14.

**§ 178.347-15 Certification.** Each cargo tank motor vehicle must be certified in accordance with § 178.345-15.

**§ 178.348 Specification DOT 412; cargo tank motor vehicle.**

**§ 178.348-1 General requirements.** (a) Each specification DOT 412 cargo tank motor vehicle must conform to the general design and construction requirements in § 178.345 in addition to the specific requirements of this section.

(b) The MAWP of each cargo tank must be at least 5 psig.

(c) The MAWP for each cargo tank designed to be loaded by vacuum must be at least 25 psig internal and 15 psig external.

(d) Each cargo tank having a MAWP greater than or equal to 15 psig must be of circular cross-section.

(e) Each cargo tank having a—

(i) MAWP greater than or equal to 15 psig must be "constructed and certified in conformance with the ASME Code"; or

(ii) MAWP less than 15 psig must be "constructed in accordance with the ASME Code," except as modified herein:

(i) The record-keeping requirements contained in the ASME Code, Section VIII, Division I, do not apply. Parts UG-90 thru 94 of Section VIII, Division I do not apply. Inspection and certification must be made by an inspector registered in accordance with Subpart F of Part 107.

(ii) Loadings must be as prescribed in § 178.348-3.

(iii) Formed heads must have a knuckle radius of at least 3 times the material thickness, and in no case less than one-half inch. Inserted or stuffed head attachment to the shell by fillet weld is authorized when such head is of a thickness authorized by UG-32 and § 178.348-2. Shell sections of cargo tanks designed with a non-circular cross-section need not be given a preliminary curvature as prescribed in UG-79.

(iv) Marking, certification, data reports, and nameplates must be as prescribed in §§ 178.345-14, 178.348-14, 178.345-15, and 178.348-15.

(v) Manhole closure assemblies must conform to §§ 178.345-5 and 178.348-5.

(vi) Pressure relief devices must be as prescribed in §§ 178.345-10 and 178.348-10.

(vii) The hydrostatic or pneumatic test must be as prescribed in §§ 178.345-13 and 178.348-13.

(viii) The following parts of the ASME Code, Section VIII, Division I do not apply: UG-12, UG-34, UG-77, UG-80, UG-81, and UG-96.

**§ 178.348-2 Material and thickness of material.** (a) The type and thickness of material for DOT 412 cargo tanks must conform to § 178.345-2 of this Part, but in no case may the thickness be less than that indicated in Tables I and II below.

Table I.—Minimum Thickness of Heads (and Bulkheads and Baffles When Used as Tank Reinforcement) Using Mild Steel (MS), High Strength Low Alloy Steel (HSLA), Austenitic Stainless Steel (SS) or Aluminum Expressed in Decimals of an Inch

Volume capacity (gallons per inch)	10 or less				Over 10 to 14				Over 14 to 18				18 and over		
	10 lbs and less	Over 10 to 13 lbs	Over 13 to 16 lbs	Over 16 to 26 lbs	10 lbs and less	Over 10 to 13 lbs	Over 13 to 16 lbs	Over 16 lbs	10 lbs and less	Over 10 to 13 lbs	Over 13 to 16 lbs	Over 16 lbs	10 lbs and less	Over 10 to 13 lbs	Over 13 to 16 lbs
Lading density at 60 °F in pounds per gallon															
Thickness (inch), steel	.100	.129	.157	.187	.129	.157	.187	.250	.157	.250	.250	.157	.250	.312	.312
Thickness (inch), aluminum	.144	.187	.227	.270	.187	.227	.270	.360	.227	.360	.360	.227	.360	.450	.450

Table II.—Minimum Thickness of Shell Using Mild Steel (MS), High Strength Low Alloy Steel (HSLA) or Austenitic Stainless Steel (SS)—Expressed in Decimals of an Inch

Volume capacity in gallons per inch	10 or less				Over 10 to 14				Over 14 to 18				18 and over		
	10 lbs	Over 10 to 13 lbs	Over 13 to 16 lbs	Over 16 lbs	10 lbs	Over 10 to 13 lbs	Over 13 to 16 lbs	Over 16 lbs	10 lbs	Over 10 to 13 lbs	Over 13 to 16 lbs	Over 16 lbs	10 lbs	Over 10 to 13 lbs	Over 13 to 16 lbs
Lading density at 60 °F in pounds per gallon															
Thickness (inch), steel	.100	.129	.157	.187	.129	.157	.187	.250	.157	.250	.250	.157	.250	.312	.312
Thickness (inch), aluminum	.144	.187	.227	.270	.187	.227	.270	.360	.227	.360	.360	.227	.360	.450	.450
Thickness (steel):															
Distances between heads (and bulkheads/baffles and ring stiffeners when used as tank reinforcement):															
36 in. or less	.100	.129	.157	.187	.100	.129	.157	.187	.100	.129	.157	.129	.157	.187	.187
Over 36 in. to 54 inches	.100	.129	.157	.187	.100	.129	.157	.187	.129	.157	.187	.157	.250	.250	.250
Over 54 in. to 60 inches	.100	.129	.157	.187	.129	.157	.187	.250	.157	.250	.250	.187	.250	.312	.312
Thickness (aluminum):															
Distances between heads (and bulkheads/baffles and ring stiffeners when used as tank reinforcement):															
36 in. or less	.144	.187	.227	.270	.144	.187	.227	.270	.144	.187	.227	.187	.227	.270	.270
Over 36 in. to 54 inches	.144	.187	.227	.270	.144	.187	.227	.270	.187	.227	.270	.157	.360	.360	.360
Over 54 in. to 60 inches	.144	.187	.227	.270	.187	.227	.270	.360	.227	.360	.360	.270	.360	.450	.450

Note: Thickness of aluminum material = Steel thickness from tables I and II times (3 × 10<sup>4</sup> divided by E) %; where E = modulus of elasticity of material to be used

**§ 178.348-3 Structural integrity.** The structural integrity of each cargo tank motor vehicle must conform to § 178.345-3.

**§ 178.348-4 Joints.** All joints in the fabrication of each cargo tank must conform to § 178.345-4.

**§ 178.348-5 Manhole assemblies.** Each manhole assembly must conform to § 178.345-5.

**§ 178.348-6 Supports and anchoring.** Supports and anchoring on each cargo tank motor vehicle must be in conformance with § 178.345-6.

§ 178.348-7 Circumferential reinforcement. The circumferential reinforcement on each cargo tank must conform to § 178.345-7.

§ 178.348-8 Accident Damage Protection. Each cargo tank motor vehicle must be protected from accident damage in accordance with § 178.345-8.

§ 178.348-9 Pumps, piping, hoses and connections. Each pump and all piping, hoses and connections on each cargo tank motor vehicle must conform to § 178.345-9.

§ 178.348-10 Pressure relief. (a) Each cargo tank must be equipped with a pressure and vacuum relief system in accordance with § 178.340-10 and this section.

(b) Type and construction. Vacuum relief devices are not required for cargo tanks designed to be loaded by vacuum.

(c) Pressure settings of relief valves. The setting of the pressure relief devices must be in accordance with § 178.345-10(d), except as provided in paragraph (d)(3) of this section.

(d) Venting capacities. (1) The vacuum relief system must limit the vacuum to less than 80 percent of the design vacuum capability of the cargo tank.

(2) If pressure loading or unloading devices are provided, the pressure relief system must have adequate vapor and liquid capacity to limit tank pressure to the cargo tank test pressure at the maximum loading or unloading rate. The maximum loading and unloading rates must be included on the metal specification plate.

(3) Cargo tanks used in dedicated service for materials classed as corrosive material, with no secondary hazard, may have a total venting capacity which is less than required by § 178.345-10(e). The total venting capacity for these cargo tanks must be determined in accordance with the formula contained in § 178.270-11(d)(3).

§ 178.348-11 Outlets. All outlets on each tank must conform to § 178.345-11 and this section.

§ 178.348-12 Gauging devices. Any gauging device must conform to § 178.345-12.

§ 178.348-13 Pressure and leakage test. (a) Each cargo tank must be tested in accordance with § 178.345-13 and this section.

(b) Pressure test. Test pressure must be as follows:

(1) Using the hydrostatic test method, the test pressure must be at least 1.5 times MAWP.

(2) Using the pneumatic test method, the test pressure must be at least 1.5 times tank MAWP, and the inspection pressure is tank MAWP.

§ 178.348-14 Marking. Each cargo tank motor vehicle must be marked and certified in accordance with § 178.345-14.

§ 178.348-15 Certification. Each cargo tank motor vehicle must be certified in accordance with § 178.345-15.

## PART 179—SPECIFICATIONS FOR TANK CARS

Section 179.14, is revised to read as follows:

§ 179.14 Coupler vertical restraint system (a) Performance standard. Each tank car shall be equipped with couplers capable of sustaining, without disengagement or material failure, vertical loads of at least 200,000 pounds (90,718.5 kg) applied in upward and downward directions in combination with buff loads of 2,000 pounds (907.2 kg), when coupled to cars which may or may not be equipped with couplers having this vertical restraint capability.

(b) Test verification. Except as provided in paragraph (d) of this section, compliance with the requirements of paragraph (a) of this section shall be achieved by verification testing of the coupler vertical restraint system in accordance with paragraph (c) of this section.

(c) Coupler vertical restraint tests. A coupler vertical restraint system shall be tested under the following conditions:

(1) The test coupler shall be tested with a mating coupler (or simulated coupler) having only frictional vertical force resistance at the mating interface; or a mating coupler (or simulated coupler) having the capabilities described in paragraph (a) of this section;

(2) The testing apparatus shall simulate the vertical coupler performance at the mating interface and may not interfere with coupler failure or otherwise inhibit failure due to force applications and reactions; and

(3) The test shall be conducted as follows:

(i) A minimum of 200,000 pounds (90,718.5 kg) vertical downward load shall be applied continuously for at least 5 minutes to the test coupler head simultaneously with the application of a nominal 2,000 pounds (907.2 kg) buff load;

(ii) The procedures prescribed in paragraph (c)(3)(i) of this section shall be repeated with a minimum vertical upward load of 200,000 pounds (90,718.5 kg); and

(iii) A minimum of three consecutive successful tests shall be performed for each load combination prescribed in paragraphs (c)(3)(i) and (ii) of this section. A test is successful when a vertical disengagement or material failure does not occur during the application of any of the loads prescribed in this subparagraph.

(d) Authorized couplers. As an alternative to the test verifications in paragraph (c) of this section, the following couplers are authorized:

(1) E double shell couplers designated by the Association of American Railroads' Catalog Nos., SE60CHT, SE60CC, SE60CHTE, SE60CE, SE60DC, SE60DE, SE67CC, SE67CE, SE67BHT, SE67BC, SE67BHT, SE67BE, SE68BHT, SE68BC, SE68BHT, SE68BE, SE68AHT, and SE69AE.

(2) F double shell couplers designated by the Association of American Railroads' Catalog Nos., SF70CHT, SF70CC, SF70CHTE, SF70CE, SF73AC, SF73AE, SF73AHT, SF73AHT, SF79CHT, SF79CC, SF79CHTE, and SF79CE.

\*\*\*

In § 179.100-13, paragraph (d) is revised to read as follows:

§ 179.100-13 Venting, loading and unloading valves, measuring and sampling devices.

\*\*\*

(d) An excess flow valve as referred to in this specification, is a device which closes automatically against the outward flow of the contents of

the tank in case the external closure valve is broken off or removed during transit. Excess flow valves may be designed with a by-pass to allow the equalization of pressures.

\*\*\*

In § 179.100-15, paragraph (c) is revised to read as follows:

§ 179.100-15 Safety relief valves.

\*\*\*

(c) When a safety relief valve is used in combination with a frangible disc, the frangible disc must be designed to burst at a pressure of 75 percent of the tank test pressure and the safety relief valve must be set for a start-to-discharge pressure of 71 percent of the tank test pressure, as prescribed in § 179.101. A device must be installed to detect any accumulation of pressure between the frangible disc and the safety relief valve. The detection device must be a needle valve, Injrock, left-tale indicator or other approved device. The detection device must be closed during transportation. Alternative pressures for certain commodities are permitted in accordance with § 179.102-11. The tolerance on the valve start-to-discharge pressure is  $\pm 3$  psi for 100 psi test pressure tanks and  $\pm 3$  percent for all higher test pressure tanks. The minimum vapor tight pressure is 80 percent of the valve start-to-discharge pressure.

\*\*\*

In § 179.100-23, paragraph (c) is added to read as follows:

§ 179.100-23 Alternative requirements for tank head puncture resistance systems.

\*\*\*

(c) A head shield that was installed on a tank car before December 31, 1987, and that is in the size and shape of the head of the tank car tank (except for any portion of the tank car tank that is below the top of the center sill of the tank car) need not comply with paragraph (a)(2) of this section.

\*\*\*

§ 179.105-6 [Removed and Reserved]

§ 179.105-9 [Removed]

Section 179.105-6 is removed and reserved, and the designation for § 179.105-9 which is currently reserved is removed.

\*\*\*

In § 179.200-18, paragraph (b) is revised, and paragraph (c) is added to read as follows:

§ 179.200-18 Safety relief devices.

\*\*\*

(b) Safety Vents: (1) When permitted in § 179.201-1, a safety vent, having an inside diameter of at least 1 1/4 inches and an approved design to prevent interchange with other fixtures may be installed in place of a safety relief valve on tank cars or compartments used for the transporta-

tion of corrosive materials, flammable solids, oxidizing materials, or poisonous liquids or solids.

- (2) The safety vent shall be closed with a frangible disc which:
  - (i) Is compatible with the lading;
  - (ii) Is not subject to rapid deterioration by the lading;
  - (iii) Is designed to rupture at 100 percent of the tank test pressure, and manufactured and marked in accordance with Appendix A of the AAR Specifications for Tank Cars;
  - (iv) Is provided with a means for holding the frangible disc in place that will prevent distortion or damage to the disc when properly applied.
- (3) A cover, with suitable means of preventing misplacement, shall be provided for the safety vent that will direct any discharge of the lading downward.

(4) All tanks equipped with safety vents shall be stenciled "NOT FOR FLAMMABLE LIQUIDS".

(c) When a safety relief valve is used in combination with a frangible disc on a 100 psi-test pressure tank, the frangible disc must be designed to burst at 75 psi and the safety relief valve must be set for a start-to-discharge pressure of 71 psi. On 60 psi-test pressure tanks, the frangible disc must be designed to burst at 45 psi and the safety relief valve must be set for a start-to-discharge pressure of 35 psi. Provision must be made to detect accumulation of pressure between the frangible disc and the safety relief valve. The detection device shall be a needle valve, try-cock, tell-tale indicator or other approved device. The detection device must be closed during transportation. The tolerance on the valve start-to-discharge pressure is  $\pm 3$  psi. The minimum vapor tight pressure is 80 percent of the valve start-to-discharge pressure.

\*\*\*

§ 179.201-1 [Amended]

In § 179.201-1(a) Table, under the column heading "111A60W2", the entry "Special references" is amended by adding "§§ 179.201-8, 179.202-11, and 179.202-16."

\*\*\*

§ 179.203-1 [Amended]

In § 179.203-1(c), the reference to "§ 173.8" is revised to read "§ 171.12a."

In § 179.203-1(d), the reference to "§ 173.9" is revised to read "§ 171.12a."

\*\*\*

In § 179.300-7, paragraph (a) is revised to read as follows:

§ 179.300 General specifications applicable to multi-unit tank car tanks designed to be removed from the car structure for filling and emptying (Classes DOT 106A and 110A-W).

§ 179.300-7 Materials. (a) Steel plate material used to fabricate tanks having heads fusion welded to the tank shell must conform with the following specifications with the indicated minimum tensile strength and elongation in the welded condition. The maximum allowable carbon content for carbon steel must be 0.31 percent when the individual specification allows carbon content greater than this amount. The plates may be clad with other approved materials:

Specifications	Tensile strength (psi) welded condition <sup>1</sup> (minimum)	Elongation in 2 inches (percent) welded condition <sup>1</sup> (longitudinal) (minimum)
ASTM A 240 type 304	75,000	25
ASTM A 240 type 304L	70,000	25
ASTM A 240 type 316	75,000	25
ASTM A 240 type 316L	70,000	25
ASTM A 230 type 321	75,000	25

<sup>1</sup> Maximum stresses to be used in calculations.

\*\*\*

§§ 179.105-1, 179.105-2, 179.105-3, 179.106-1 through 179.106-4, and 179.203-2 [Amended]

In Part 179, reference to "§ 179.105-6" is removed and "§ 179.11" is inserted in its place in the following sections:

- § 179.105-1(c)(1)
- 179.105-2(a)
- 179.105-2(b)(1)
- 179.105-2(c)(1)
- 179.105-3(a)
- 179.105-3(b)
- 179.106-1(c)
- 179.106-2(a)
- 179.106-2(b)(1)
- 179.106-2(c)(1)
- 179.106-3(a)
- 179.106-3(b)(1)
- 179.106-3(c)(1)
- 179.106-4(a)
- 179.106-4(b)
- 179.203-2(a)(1)

**PART 180— CONTINUING QUALIFICATION AND MAINTENANCE OF PACKAGES**

In the Table of Contents, a new Part 180 is added to read as follows:

**Part 180— CONTINUING QUALIFICATION AND MAINTENANCE OF PACKAGINGS**

**Subpart A— General**

- Sec.
- 180.1 Purpose and scope
- 180.2 Applicability
- 180.3 General Requirements.

**Subpart B— D [Reserved]**

**Subpart E— Qualification and Maintenance of Cargo Tanks**

- 180.401 Applicability.
- 180.403 Definitions.
- 180.405 Qualification of cargo tanks.
- 180.407 Requirements for test and inspection of cargo tanks.
- 180.409 Minimum qualifications for inspectors and testers.
- 180.411 Acceptable results of test and inspections.
- 180.413 Repair, modification, stretching, or rebarrelling of cargo tanks.
- 180.415 Test and inspection markings.
- 180.417 Reporting and record retention requirements.

\*\*\*

A new part 180 is added to Subchapter C of Title 49 to read as follows:

## PART 180—CONTINUING QUALIFICATION AND MAINTENANCE OF PACKAGES

### SUBPART A

#### GENERAL

**§ 180.1 Purpose and scope.** This part prescribes requirements pertaining to the maintenance, reconditioning, repair, inspection and testing of packagings, and any other function having an effect on the continuing qualification and use of a packaging under the requirements of this subchapter.

**§ 180.2 Applicability.** (a) Any person who performs a function prescribed in this part shall perform that function in accordance with this part.

(b) Any person who performs a function prescribed in this part is considered subject to the regulations of this subchapter when that person—

(1) Makes any representation indicating compliance with one or more of the requirements of this part; or

(2) Reintroduces a packaging into commerce that bears markings indicating compliance with this part.

**§ 180.3 General requirements.** (a) No person may represent, mark, certify, sell, or offer a packaging or container as meeting the requirements of this part, or an exemption pertaining to this part issued under Subchapter B of this chapter, whether or not the packaging or

container is intended to be used for the transportation of a hazardous material, unless it is marked, maintained, reconditioned, repaired, or retested, as appropriate, in accordance with this part, an approval issued thereunder, or an exemption issued under Subchapter B of this chapter.

(b) The representations, markings, and certifications subject to the prohibitions of paragraph (a) of this section include:

(1) Identifications that include the letters "DOT", "MC", "ICC", or "UN";

(2) Exemption, approval, and registration numbers that include the letters "DOT";

(3) Test dates displayed in association with specification, registration, approval or exemption markings indicating conformance to a test or retest requirement of this subchapter, an approval issued thereunder, or an exemption issued under Subchapter B of this chapter.

(4) Documents indicating conformance to the testing, inspection, maintenance or other continuing qualification requirements of this part; and

(5) Sales literature, including advertising, indicating that the packaging or container represented therein conforms to requirements contained in Subchapter B or C of this chapter.

### SUBPARTS B-D

[RESERVED]

### SUBPART E

#### QUALIFICATION AND MAINTENANCE OF CARGO TANKS

**§ 180.401 Applicability.** This subpart prescribes requirements, in addition to those contained in Parts 171, 172, 173 and 178 of this subchapter, applicable to any person responsible for the continuing qualification, maintenance or periodic testing of a cargo tank.

**§ 180.403 Definitions.** In addition to the definitions contained in §§ 171.8 and 178.345-1 of this subchapter, the following definitions apply to this subpart:

"Modification" means any change to a cargo tank's original design and construction which would affect the structural integrity or lading retention capability of the cargo tank. Changes to appurtenances, such as lender attachments, lighting brackets, and ladder brackets, are excluded from this definition. Replacement of components such as valves, vents, and fittings with a component of a similar design and the same size is not considered a modification. For the purposes of this Subpart, "stretching" is not considered a modification.

"Owner" means the owner of a cargo tank motor vehicle used for the transportation of hazardous materials, or his authorized agent.

"Rebarrelling" means replacing more than 50 percent of the combined shell and head material of a cargo tank.

"Repair" means any welding on pressure parts done to return a cargo tank to its original design and construction, or to a condition prescribed for that cargo tank specification in effect at the time of repair.

"Stretching" means any change in length, width or diameter of the cargo tank, or any change to a cargo tank motor vehicle's undercarriage that may affect the cargo tank's structural integrity.

**§ 180.405 Qualification of cargo tanks.** (a) General. Unless otherwise provided in this subpart, each cargo tank used for the transportation of hazardous material must be an authorized packaging.

(b) Cargo tank specifications. To qualify as an authorized packaging, each cargo tank must conform to this subpart, the applicable requirements specified in part 173 of this subchapter for the specific lading, and an applicable specification in effect on the date the initial construction began: MC 300, MC 301, MC 302, MC 303, MC 304, MC 305, MC 306, MC 307, MC 310, MC 311, MC 312, MC 330, MC 331, MC 338, DOT 406, DOT 407, or DOT 412 (§ 178.337, § 178.338, § 178.345, § 178.346, § 178.347, § 178.348 of this subchapter). However, construction of MC 306, MC 307, or MC 312 cargo tanks meeting the requirements of the applicable specification in effect on June 12, 1989, is authorized until December 5, 1990.

(c) Cargo tank specifications no longer authorized for construction.

(1) A cargo tank made to a specification listed in Column 1 may be used when authorized in this Part, provided tank construction began before the date listed in Column 2.

Column 1	Column 2
MC 300	Sept. 2, 1967
MC 301	June 12, 1961
MC 302, MC 303, MC 304, MC 305, MC 310, MC 311	Sept. 2, 1967
MC 330	May 15, 1967
MC 306, MC 307, MC 312	Dec. 5, 1990

(2) A cargo tank of a specification listed in paragraph (c)(1) of this section may have its pressure relief devices and outlets modified as follows:

- (i) A Specification MC 300, MC 301, MC 302, MC 303, or MC 305 cargo tank, to conform with a Specification MC 306 or DOT 406 cargo tank (See §§ 178.346-10 and 178.346-11 of this subchapter).
- (ii) A Specification MC 306 cargo tank to conform to a Specification DOT 406 cargo tank (§§ 178.346-10 and 178.346-11 of this subchapter).
- (iii) A Specification MC 304 or cargo tank, to conform with a Specification MC 307 or DOT 407 cargo tank (See §§ 178.347-10 and 178.347-11 of this subchapter).
- (iv) A Specification MC 307 cargo tank, to conform with a Specification DOT 407 cargo tank (See §§ 178.347-10 and 178.347-11 of this subchapter).
- (v) A Specification MC 310 or MC 311 cargo tank, to conform with a Specification MC 312 or DOT 412 cargo tank (See §§ 178.348-10 and 178.348-11 of this subchapter).
- (vi) A Specification MC 312 cargo tank, to conform with a Specification DOT 412 cargo tank (See §§ 178.348-10 and 178.348-11 of this subchapter).
- (vii) A Specification MC 330 cargo tank, to conform with a Specification MC 331 cargo tank (See §§ 178.337-8 and 178.337-9 of this subchapter).

(d) *MC 338 cargo tank.* The owner of a cargo tank that conforms to and was used under the terms of an exemption issued before October 1, 1984, that authorizes the transportation of a cryogenic liquid shall remove the exemption number stenciled on the cargo tank and stamp the specification plate (or a plate placed adjacent to the specification plate) "DOT MC 338" followed by the exemption number, for example, "DOT MC 338-E \* \* \* \*". (Asterisks to be replaced by the exemption number.) The cargo tank must be remarked prior to the expiration date of the exemption. During the period the cargo tank is in service, the owner of a cargo tank that is remarked in this manner must retain at its principal place of business a copy of the last exemption in effect. No new construction of cargo tanks pursuant to such exemption is authorized.

(1) The holding time must be determined, as required in § 178.338-9 of this subchapter, on each cargo tank or on at least one cargo tank of each design. Any subsequent cargo tank manufactured to the same design type (see § 178.320), if not individually tested, must have the optional test regimen performed during the first shipment (see §§ 178.338-9(b) and (c) of this subchapter).

(2) The holding time determined by test for one authorized cryogenic liquid may be used as the basis for establishing the holding time for other authorized cryogenic liquids.

(e) *MC 331 cargo tanks.* The owner of a MC 331 (§ 178.337 of this subchapter) cargo tank that conforms to and was used under an exemption issued before October 1, 1984, that authorizes the transportation of ethane, refrigerated liquid; ethane-propane mixture, refrigerated liquid; or hydrogen chloride, refrigerated liquid shall remove the exemption number stenciled on the cargo tank and stamp the exemption number on the specification plate (or a plate placed adjacent to the specification plate) immediately after the DOT Specification, for example, "DOT MC 331-E \* \* \* \*". (Asterisks to be replaced by the exemption number.) The cargo tank must be remarked prior to the expiration date of the exemption. During the period the cargo tank is in service, the owner of a cargo tank that is remarked in this manner must retain at its principal place of business a copy of the last exemption in effect.

(f) *MC 306, MC 307, MC 312 cargo tanks.* A Registered Inspector and the owner of a MC 306, MC 307 or MC 312 cargo tank motor vehicle constructed in accordance with and used under an exemption issued before December 12, 1989, that authorizes a condition specified in this paragraph shall examine the cargo tank motor vehicle and its design to determine if it meets the requirements of the applicable MC 306, MC 307 or MC 312 specification in effect at the time of manufacture, except as specified herein.

(1) A cargo tank motor vehicle constructed after August 1, 1981, or the date specified in the applicable exemption, in conformance with the following conditions that apply, may be remarked and certified in accordance with paragraphs (f)(5) and (6) of this section:

- (i) A vacuum-loaded cargo tank must have an ASME Code stamped specification plate marked with a minimum internal design pressure of 25 psig, and be designed for a minimum external design pressure of 15 psig.
- (ii) A cargo tank having an outlet equipped with an external self-closing stop valve must have the stop valve and associated piping protected within the vehicle's rear-end tank protection device, the vehicle frame or an equally adequate accident

damage protection device (See §§ 178.345-8 of this subchapter.) The external self-closing stop valve must be equipped with a remotely actuated means of closure consisting as follows:

(A) For a cargo tank used in other than corrosive service, the remote means of closure must be activated for closure by manual or mechanical means and, in case of fire, by an automatic heat activated means.

(B) For a cargo tank used in corrosive service, the remote means of closure may be actuated by manual or mechanical means only.

(iii) A cargo tank having an unreinforced portion of the shell exceeding 60 inches must have the circumferential reinforcement located so that the thickness and tensile strength of shell material in combination with the frame and circumferential reinforcement produces a structural integrity at least equal to that prescribed in § 178.345-3 of the specification in effect at time of manufacture.

(iv) A cargo tank having a projection from the tank shell or head that may contain lading in any tank position is authorized, provided such projection is as strong as the tank shell or head and is located within the motor vehicle's rear-end tank protection or other appropriate accident damage protection device.

(v) A cargo tank may be constructed of nickel, titanium, or other ASME sheet or plate materials in accordance with an exemption.

(2) A vacuum-loaded cargo tank constructed after August 1, 1981, or the date specified in the applicable exemption, in conformance with paragraph (f)(1) of this section, except that an outlet is equipped with an external valve which is not equipped with a self-closing feature:

- (i) Must be equipped with a self-closing valve prior to June 12, 1992.
- (ii) May be remarked and certified in accordance with paragraphs (f)(5) and (6) of this section after the cargo tank motor vehicle has been equipped with the self-closing valve.

(3) A vacuum-loaded cargo tank constructed prior to August 1, 1981, in conformance with paragraph (f)(1) of this section, except for paragraph (f)(1)(i), may be remarked and certified in accordance with paragraphs (f)(5) and (6) of this section.

(4) A vacuum-loaded cargo tank constructed prior to August 1, 1981, in conformance with paragraph (f)(1) of this section, except for paragraph (f)(1)(i), and an outlet is equipped with an external valve which is not equipped with a self-closing feature:

- (i) Must be equipped with a self-closing valve prior to June 12, 1992.
- (ii) May be remarked and certified in accordance with paragraphs (f)(5) and (6) of this section after the cargo tank motor vehicle has been equipped with the self-closing valve.

(5) The owner of a cargo tank for which a determination has been made that the cargo tank is in conformance with paragraph (f)(1), (2), (3), or (4) of this section shall complete a written certification, in English, signed by the owner and containing at least the following information:

- (i) A statement certifying that each cargo tank conforms to § 180.405(f)(1), (2), (3), or (4);
- (ii) The applicable DOT exemption number, the applicable specification number and the owner's and manufacturer's serial number for the cargo tank;
- (iii) A statement setting forth any modifications made to bring the cargo tank into conformance with § 180.405(f)(1), (2), (3), or (4), or the applicable specification;
- (iv) A statement identifying the person certifying the cargo tank and the date of certification.

(6) The owner of a certified cargo tank shall remove the exemption number stenciled on the cargo tank and must durably mark the specification plate (or a plate placed adjacent to the specification plate) "MC + + -E \* \* \* \* # # # # # (where "+ + -E \* \* \* \* # # # # #" is to be replaced by the applicable specification number, \* \* \* \* by the exemption number and # # # # # by the alloy).

(7) During the period the cargo tank is in service, and for one year thereafter, the owner of a cargo tank that is certified and remarked in this manner must retain on file at its principal place of business a copy of the certificate and the last exemption in effect.

(g) *Cargo tank manhole assemblies.* (1) On or before June 13, 1994, each owner of a cargo tank manufactured prior to December 12, 1989, authorized for the transportation of a hazardous material, must have the cargo tank equipped with manhole assemblies conforming with § 178.345-5 except for the marking requirements in § 178.345-5(e) and the hydrostatic testing requirement in 178.345-5(b) of this section. Manhole assemblies installed on an MC 300, MC 301, MC 302, MC 303, MC 305, or MC 306 cargo tank prior to December 12, 1989, which are marked or certified in writing as conforming to TTMA RP No. 61 may be considered to be in compliance with this paragraph. Any manhole assembly installed on a cargo tank after December 12, 1989, must meet the requirements in § 178.345-5.

(2) The owner of an MC 300, MC 301, MC 302, MC 303, MC 305, or MC 306 cargo tank manufactured prior to December 12, 1989, which is not certified in conformance with TTMA RP No. 61 may have them certified in accordance with the Recommended Practice by the manufacturer of the manhole closure. Those manhole closures which the manufacturer cannot identify and certify, or for which the manufacturer cannot be identified, may be tested and certified in accordance with TTMA TB No. 107. These certifications must be performed on or before June 13, 1994.

(3) The owner of five or more DOT specification cargo tanks requiring retrofit or certification of the manhole closure must retrofit or certify at least 20 percent of the affected cargo tanks each year beginning in 1990 until all affected manhole closures on cargo tanks have been retrofitted or certified. The owner of fewer than 5 DOT specification cargo tanks has until June 13, 1994 to retrofit or certify the manhole closures.

(h) **Pressure Relief System.** After June 12, 1991, any reclosing pressure relief valve installed on any cargo tank must be capable of reseating to a leak-tight condition, after a pressure surge and release of a lading volume of not more than one gallon. This requirement shall be considered to be met if the pressure relief valve successfully withstands the testing procedure outlined in TTMA RP No. 81.89 "Performance of Spring Loaded Pressure Relief Valves on MC 306, MC 307, and MC 312 Tanks," with the exceptions noted in § 178.345-10(b)(3). After June 13, 1994, any pressure relief system installed on a DOT 406, DOT 407, or DOT 412 cargo tank must meet the requirements in § 178.345-10(b).

(i) **Flammable cryogenic liquids.** Each cargo tank used to transport a flammable cryogenic liquid must be examined after each shipment to determine its actual holding time (See § 173.318(g)(3) of this subchapter.)

(j) **Withdrawal of certification.** A specification cargo tank that for any reason no longer meets the applicable specification may not be used to transport hazardous materials unless the cargo tank is repaired and retested in accordance with §§ 180.413 and 180.407 prior to being returned to hazardous materials service. If the cargo tank is not in conformance with the applicable specification requirements, the specification plate on the cargo tank must be removed, obliterated or securely covered. The details of the conditions necessitating withdrawal of the certification must be recorded and signed on the written certificate for that cargo tank. The vehicle owner shall retain the certificate for at least 1 year after withdrawal of the certification.

(k) **DOT specification cargo tank with no marked design pressure or a marked design pressure of less than 2.65 psig.** The owner of an MC 300, MC 301, MC 302, MC 303, MC 305, MC 306 or MC 312 cargo tank, which has a pressure relief system set at 3 psig, shall mark or remark the cargo tank with an MAWP or design pressure of not greater than 2.65 psig.

(l) **MC 300, MC 301, MC 302, MC 303, MC 305, MC 306 cargo tank—Rear accident damage protection.** (1) Notwithstanding the requirements in § 180.405(b), the applicable specification requirement for a rear bumper or rear-end tank protection device on MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 cargo tanks does not apply to a cargo tank truck (power unit) until July 1, 1992, if the cargo tank truck—

- (i) Was manufactured before July 1, 1989;
- (ii) Is used to transport gasoline or any other petroleum distillate product; and
- (iii) Is operated in combination with a cargo tank full trailer. However, an empty cargo tank truck, without a cargo tank full trailer attached, may be operated without the required rear bumper or rear-end tank protection device on a one-time basis while being transported to a repair facility for installation of a rear bumper or rear-end protection device.

(2) Each cargo tank shall be provided with a rear accident damage protection device to protect the tank and piping in the event of a rear-end collision and reduce the likelihood of damage which could result in the loss of lading. The rear-end protection device must be in the form of a rear-end tank protection device meeting the requirements of § 178.345-8(d) of a rear bumper meeting the following:

- (i) The bumper shall be located at least 6 inches to the rear of any vehicle component used for loading or unloading or that may contain lading while the vehicle is in transit.
- (ii) The dimensions of the bumper shall conform to § 393.86 of this title.
- (iii) The structure of the bumper shall be designed to withstand, without leakage of lading, the impact of the vehicle with rated payload, at a deceleration of 2 "g" using a safety factor of two based on the ultimate strength of the bumper material. Such impact shall be considered uniformly distributed and applied horizontally (parallel to the ground) from any direction at an angle not exceeding 30 degrees to the longitudinal axis of the vehicle.

§ 180.407 **Requirements for test and inspection of cargo tanks.** (a) **General.** (1) A cargo tank constructed in accordance with a DOT specification for which a test or inspection specified in this section has become due, may not be filled and offered for shipment until the test or inspection has been successfully completed. This paragraph does not apply to any cargo tank filled prior to the test or inspection due date.

(2) Except during a pressure test, a cargo tank may not be subjected to a pressure greater than its design pressure or MAWP.

(3) A person witnessing or performing a test or inspection specified in this section must meet the minimum qualifications prescribed in § 180.409.

(4) Each cargo tank which has successfully passed a test or inspection specified in this section must be marked in accordance with § 180.415.

(5) A cargo tank which fails a prescribed test or inspection must:

- (i) Be repaired and retested in accordance with § 180.413; or

(ii) Be removed from hazardous materials service and the specification plate removed, obliterated or covered in a secure manner.

(b) **Conditions requiring test and inspection of cargo tanks.** Without regard to any other test or inspection requirements, a cargo tank must be tested and inspected in accordance with this section prior to further use if:

- (1) The cargo tank shows evidence of bad dents, corroded or abraded areas, leakage, or any other condition that might render it unsafe for transportation service.
- (2) The cargo tank has been in an accident and has been damaged to an extent that may adversely affect its lading retention capability.
- (3) The cargo tank has been out of hazardous materials transportation service for a period of one year or more.
- (4) The cargo tank has been modified from its original design specification.
- (5) The Department so requires based on the existence of probable cause that the cargo tank is in an unsafe operating condition.

(c) **Periodic test and inspection.** Each cargo tank must be tested and inspected as specified in the following table by an inspector meeting the qualifications in § 180.409.

Test or inspection	Cargo tank, configuration, and service	Period
Inspections	All cargo tanks designed to be loaded by vacuum with full opening head	6 mos.
Internal visual	All other cargo tanks	1 yr.
	All insulated cargo tanks except MC 330, MC 331, MC 338	1 yr.
Lining cladding	All cargo tanks transporting lading corrosive to the tank	1 yr.
	All other cargo tanks except MC 338	5 yr.
Leakage Tests	All lined or clad cargo tanks transporting lading corrosive to the tank	1 yr.
	Pressure (hydrostatic or pneumatic) (See Notes 1 and 2)	1 yr.
Thickness over entire tank	All cargo tanks except MC 338	2 yrs.
	All cargo tanks which are insulated with no manhole or insulated and lined, except MC 338	1 yr.
	All cargo tanks designed to be loaded by vacuum with full opening rear head	2 yrs.
	MC 330 and MC 331 cargo tanks in chlorine service	2 yrs.
	All other cargo tanks	5 yr.
	All unlined cargo tanks in corrosive service, except MC 338	2 yr.

Note 1: Pressure testing is not required for MC 330 and MC 331 cargo tanks in dedicated sodium metal service.

Note 2: Pressure testing is not required for uninsulated lined or clad cargo tanks, with a design pressure or MAWP less than 15 psig, which receive an external visual inspection and lining inspection at least once each year.

(d) **External visual inspection and testing.** (1) Where insulation precludes external visual inspection, the cargo tank shall receive a visual internal inspection in accordance with § 180.407(e). Where visual inspection is precluded by both internal coating and external insulation, or when the cargo tank is not equipped with a manhole or inspection opening, the tank shall be hydrostatically or pneumatically tested in accordance with § 180.407(c) and § 180.407(g).

(2) The external visual inspection and testing must include as a minimum the following:

- (i) The tank shell and heads must be inspected for corroded or abraded areas, dents, distortions, defects in welds and any other conditions, including leakage, that might render the tank unsafe for transportation service;
- (ii) The piping, valves, and gaskets must be carefully inspected for corroded areas, defects in welds, and other conditions, including leakage, that might render the tank unsafe for transportation service;
- (iii) All devices for tightening manhole covers must be operative and there must be no evidence of leakage at manhole covers or gaskets;
- (iv) All emergency devices and valves including self-closing stop valves, excess flow valves and remote closure devices must be free from corrosion, distortion, erosion and any external damage that will prevent safe operation. Remote closure devices and self-closing stop valves must be functioned to demonstrate proper operation;
- (v) Missing bolts, nuts and fusible links must be replaced, and loose bolts and nuts must be tightened;
- (vi) All required markings on the cargo tank must be legible;
- (vii) The cargo tank motor vehicle must conform to Part 393 of this title (the Federal Motor Carrier Safety Regulations) and, where appropriate, Part 571 of this title (the Federal Motor Vehicle Safety Standards);
- (viii) All major appurtenances on the cargo tank including, but not limited to, the upper coupler (fifth wheel) assembly, suspension system attachments, and connecting structures, must be in-



spected for any corrosion or damage which might prevent safe operation.

(3) All reclosing pressure relief valves must be externally inspected for any corrosion or damage which might prevent safe operation. All reclosing pressure relief valves on cargo tanks carrying loading corrosive to the valve must be removed from the cargo tank for inspection and testing. Each reclosing pressure relief valve required to be removed and tested must open at the required set pressure and reseal to a leak-tight condition at 90 percent of the set-to-discharge pressure or the pressure prescribed for the applicable cargo tank specification.

(4) Corroded or abraded areas must be thickness tested in accordance with the procedures set forth in paragraphs (i)(2), (3), (5) and (6) of this section.

(5) The gaskets on any full opening rear head must be:

(i) visually inspected for cracks or splits caused by weather or wear; and  
(ii) replaced if cuts or cracks which are likely to cause leakage, or are of a depth one-half inch or more, are found.

(6) The inspector must record the results of the external visual examination as specified in §180.417(b).

(e) **Internal visual inspection.** (1) When the cargo tank is not equipped with a manhole or inspection opening, the tank shall be hydrostatically or pneumatically tested in accordance with §180.407(c) and §180.407(g).

(2) The internal visual inspection must include as a minimum the following:

(i) The tank shell and heads must be inspected for corroded and abraded areas, dents, distortions, defects in welds, and any other condition that might render the tank unsafe for transportation service.

(ii) If lined, the lining material must be inspected for defects. Tank liners must be inspected as specified in §180.407(f).

(3) At the time of the internal inspection, tank head and shell areas covered by the upper skid plate must be inspected for corroded and abraded areas, dents, distortions, defects in welds, and any other condition that might render the tank unsafe for transportation service.

(4) Corroded or abraded areas must be thickness tested in accordance with paragraphs (i)(2), (3), (5) and (6) of this section.

(5) Degraded or defective areas of the tank liner must be removed and tank shell or head below the defect must be inspected. Corroded areas must be thickness tested in accordance with §180.407(f).

(6) The inspector must record the results of the internal visual inspection as specified in §180.417(b).

(f) **Lining inspection.** The integrity of the lining on all lined cargo tanks, when lining is required by this Subchapter, must be verified at least once each year as follows:

(i) Rubber (elastomeric) lining must be tested for leaks as follows:  
(i) Equipment shall consist of: (A) a high frequency spark tester capable of producing sufficient voltage to insure proper calibration;

(B) A probe with an "L" shaped 1/2 inch diameter wire with up to a 12-inch bottom leg or equally sensitive probe; and

(C) A steel calibration block with a known leak, equivalent to a puncture caused by a 22 gauge hypodermic needle, lined with the same material as that to be tested.

(ii) The probe shall be passed over the surface of calibration block in a constant uninterrupted manner until the leak is found. The leak is detected by the white or light blue spark formed. (A leak-free lining causes a dark blue or purple spark). The voltage shall be adjusted to the lowest setting that will produce a minimum 0.5 inch spark measured from the top of the lining to the probe. The spark tester shall be calibrated periodically using a test calibration block, using the same power source, probe and cable length, and to assure that the setting on the probe has not changed.

(iii) After calibration, the probe must be passed over the lining in an uninterrupted stroke.

(iv) Leaks that are found shall be marked for repair using chalk.

(2) Linings made of other than rubber (elastomeric material) must be tested using equipment and procedures prescribed by the lining manufacturer.

(g) **Pressure relief.** (1) **Test Procedures—(i)** As part of the pressure test, the inspector must perform an external and internal visual inspection, except that on an MC 338 cargo tank, or a cargo tank not equipped with a manhole or inspection opening, an internal inspection is not required.

(ii) All reclosing pressure relief valves must be:  
(A) Removed from the cargo tank for inspection and testing. Each reclosing pressure relief valve must open at the required set pressure and reseal to a leak-tight condition at 90 percent of the set-to-discharge pressure or the pressure prescribed for the applicable cargo tank specification; or,

(B) Replaced.

(iii) Each cargo tank must be tested hydrostatically or pneumatically to the minimum internal pressure specified in the following table:

Specification	Test pressure
MC 300, 301, 302, 303, 305, 306	3 psig or design pressure, whichever is greater.
MC 304, 307	40 psig or 1.5 times the design pressure, whichever is greater.
MC 310, 311, 312	3 psig or 1.5 times the design pressure, whichever is greater.
MC 330, 331	1.5 times either the MAWP or the re-rated pressure, whichever is applicable.
MC 338	1.25 times either the MAWP or the re-rated pressure, whichever is applicable.
DOT 406	5 psig or 1.5 times the MAWP, whichever is greater.
DOT 407	40 psig or 1.5 times the MAWP, whichever is greater.
DOT 412	1.5 times the MAWP.

(iv) Each owner of 5 or more MC 300, MC 301, MC 302, MC 303, MC 304, MC 305, MC 306, MC 307, MC 310, MC 311, or MC 312 cargo tanks must pressure test at least 20 percent of the cargo tanks in his ownership each year beginning in 1999. The owner of fewer than five MC specification cargo tanks has until June 13, 1994, to pressure test these units.

(v) Each cargo tank of a multi-tank cargo tank motor vehicle must be tested with the adjacent cargo tanks empty and at atmospheric pressure.

(vi) All closures except pressure relief devices must be in place during the test. All prescribed loading and unloading venting devices rated at less than test pressure may be removed during the test. If retained, the devices must be rendered inoperative by clamps, plugs, or other equally effective restraining devices. Restraining devices may not prevent detection of leaks or damage the venting devices and must be removed immediately after the test is completed.

(vii) **Hydrostatic test method.** Each tank, including its domes, must be filled with water or other liquid having similar viscosity, at a temperature not exceeding 100°F. The tank must then be pressurized to not less than the pressure specified in paragraph (g)(1)(iii) of this section. The tank, including its closures, must hold the prescribed test pressure for at least 10 minutes during which time it shall be inspected for leakage, bulging or any other defect.

(viii) **Pneumatic test method.** The tank must be pressurized with air or a similar gas. The pneumatic test pressure in the tank must be reached by gradually increasing the pressure to one-half of the test pressure. Thereafter, the pressure must be increased in steps of approximately one-tenth of the test pressure until the required test pressure has been reached. The test pressure must be held for at least 5 minutes. The pressure must then be reduced to the MAWP, which must be maintained during the time the entire tank surface is inspected. During the inspection, a suitable method must be used for detecting the existence of leaks. This method must consist either of coating the entire surface of all joints under pressure with a solution of soap and water, or using other equally sensitive methods. When a pneumatic test is performed, suitable safeguards should be provided to protect employees and other persons should a failure occur.

(2) When testing an insulated cargo tank, the insulation and jacketing need not be removed unless it is otherwise impossible to reach test pressure and maintain a condition of pressure equilibrium after test pressure is reached, or the vacuum integrity cannot be maintained in the insulation space. If an MC 338 cargo tank used for the transportation of a flammable gas or oxygen, refrigerated liquid is opened for any reason, the cleanliness must be verified prior to closure using the procedures contained in §178.338-15 of this subchapter.

(3) Each MC 330 and MC 331 cargo tank constructed of quenched and tempered steel (Part UHT of the ASME Code), or constructed of other than quenched and tempered steel but without postweld heat treatment, used for the transportation of anhydrous ammonia, or any other hazardous materials that may cause corrosion stress cracking, must be internally inspected by the wet fluorescent magnetic particle method immediately prior to and in conjunction with the performance of the pressure test prescribed in this section. Each MC 330 and MC 331 cargo tank constructed of quenched and tempered steel (Part UHT of the ASME Code) used for the transportation of liquefied petroleum gas must be internally inspected by the wet fluorescent magnetic particle method immediately prior to and in conjunction with the performance of the pressure test prescribed in this section. The wet fluorescent magnetic particle inspection must be in accordance with Section V of the ASME Code and CGA Technical Bulletin TB-2. This paragraph does not apply

to cargo tanks that do not have manholes. (See § 180.417(c) for reporting requirements.)

(4) All pressure bearing portions of a cargo tank heating system employing a medium such as, but not limited to, steam or hot water for heating the lading must be hydrostatically pressure tested at least once every 5 years. The test pressure must be at least 1.5 times the heating system design pressure and must be maintained for five minutes. A heating system employing fuels for heating the lading must be tested to ensure against leaking into the fuels or into the atmosphere.

(5) Exceptions. (i) Pressure testing is not required for MC 330 and MC 331 cargo tanks in dedicated sodium metal service.

(ii) Pressure testing is not required for uninsulated lined or clad cargo tanks, with a design pressure or MAWP less than 15 psig, which receive an external visual inspection and a lining inspection at least once each year.

(6) Acceptance criteria. A cargo tank that leaks, fails to retain test pressure or pneumatic inspection pressure, shows distortion, excessive permanent expansion, or other evidence of weakness that might render the cargo tank unsafe for transportation service, may not be returned to service.

(7) The inspector must record the results of the pressure test as specified in § 180.417(b).

(b) Leakage test. (1) Each cargo tank shall be leak tested in accordance with § 180.407(c). The cargo tank, with all valves and accessories in place and operative, must be tested at not less than 80 percent of the tank design pressure or MAWP, whichever is marked on the certification or specification plate. The pressure must be maintained for at least 5 minutes. The leakage test must include product piping. MC 330 and MC 331 cargo tanks may be leak tested with the hazardous materials contained in the tank during the test. Suitable safeguards shall be provided to protect employees and other persons should a failure occur.

(2) Where applicable, the Environmental Protection Agency's "Method 27—Determination of Vapor Tightness of Gasoline Delivery Tank Using Pressure-Vacuum Test," 40 CFR Part 60 Appendix A, is an acceptable alternative test.

(3) A cargo tank that fails to retain leakage test pressure may not be returned to service as a specification cargo tank.

(4) The inspector must record the results of the leakage test as specified in § 180.417(b).

(i) Thickness testing. (1) The shell and head thickness of all unlined cargo tanks used for the transportation of materials corrosive to the tank must be measured at least once every 2 years, except that cargo tanks measuring less than the sum of the minimum prescribed thickness, plus one-fifth of the original corrosion allowance, must be tested annually.

(2) Measurements must be made using a device capable of accurately measuring thickness to 0.002 of an inch.

(3) Any person performing ultrasonic thickness testing must be trained in the proper use of the thickness testing device used.

(4) Thickness testing must be performed in the following areas, as a minimum:

- (i) Areas of the tank shell and heads and shell and head area around any piping that retains lading;
- (ii) Areas of high shell stress such as the bottom center of the tank;
- (iii) Areas near openings;
- (iv) Areas around weld joints;
- (v) Shell reinforcements;
- (vi) Appurtenance attachments;
- (vii) Upper coupler (fifth wheel) assembly attachments;
- (viii) Suspension system attachments and connecting structures; and
- (ix) Known thin areas in the tank shell and nominal liquid level lines.

(5) An owner of a cargo tank that no longer conforms with the minimum prescribed thickness may not return the cargo tank to hazardous materials service. The tank's specification plate must be removed, obliterated or covered in a secure manner.

(6) The inspector must record the results of the thickness test as specified in § 180.417(b).

§ 180.409 Minimum qualifications for inspectors and testers. (a) Any person performing or witnessing the inspections and tests specified in 180.407(c) must be familiar with the cargo tank and skilful in the use of the inspection and testing equipment needed.

(b) Additional requirements. (1) Thickness test. Persons performing thickness testing must be trained in the use of the thickness testing device used in accordance with the thickness testing device manufacturer's instruction.

(2) Pressure test. Persons performing the pressure test must be trained and experienced in conducting a pressure test in accordance with the requirements in the ASME Code. The person performing the pressure test may be a Registered Inspector or an employee of a carrier or cargo tank owner. If the person performing the pressure test is not a Registered Inspector:

(i) The employer of the tester must submit the following information to the Director, Office of Hazardous Materials Transportation, Attn: (DHM-32), Research and Special Programs Administration, Department of Transportation, 400 Seventh Street, SW, Washington, DC 20590:

- (A) Name; and
  - (B) Street address, mailing address and telephone number of each facility where pressure testing will be performed.
- (i) A copy of the tester's qualifications must be retained with the documents required by § 180.417(b).

§ 180.411 Acceptable results of tests and inspections. (a) Corroded or abraded areas. The minimum thickness may not be less than that prescribed in the applicable specification.

(b) Dents, cuts, digs and gouges. (See CGA Pamphlet C-6 for evaluation procedures.)

(1) For dents at welds or that include a weld, the maximum allowable depth is 1/8 inch. For dents away from welds, the maximum allowable depth is 1/4 of the greatest dimension of the dent, but in no case may the depth exceed one inch.

(2) The minimum thickness remaining beneath a cut, dig, or gouge may not be less than that prescribed in the applicable specification.

(c) Weld or structural defects. Any cargo tank with a weld defect such as a crack, pinhole, or incomplete fusion, or a structural defect must be taken out of hazardous materials service until repaired.

(d) Leakage. All sources of leakage must be properly repaired prior to returning a tank to hazardous materials service.

(e) Relief valves. Any pressure relief valve that fails to open and reclose at the prescribed pressure must be repaired or replaced.

(f) Liner integrity. Any defect shown by the test must be properly repaired.

(g) Pressure test. Any tank that fails to meet the acceptance criteria found in the individual specification that applies must be properly repaired.

§ 180.413 Repair, modification, stretching, or rebarrelling of cargo tanks. (a) Any repair, modification, stretching, or rebarrelling of a cargo tank must be performed in conformance with the requirements of this section. Except for work performed on a MC 300, MC 301, MC 303, MC 304, MC 305, MC 306, MC 307, MC 311, or MC 312 before December 5, 1990, the repair, modification, stretching or rebarrelling must be performed by:

(1) A cargo tank manufacturer holding a valid ASME Certificate of Authorization for the use of the ASME "U" stamp and registered in accordance with Subpart F of Part 107 of Subchapter B of this Chapter, or

(2) A repair facility holding a valid National Board Certificate authorizing the use of the "R" stamp and registered in accordance with Subpart F of Part 107 of Subchapter B of this Chapter.

(b) Repair and Modification. (1) A cargo tank may be repaired or modified in accordance with the following:

(i) DOT 406, DOT 407, and DOT 412 cargo tanks must be repaired or modified in accordance with the specification requirements in effect at the time of manufacture or at the time of repair;

(ii) MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 cargo tanks must be repaired or modified in accordance with the original specification or with the DOT 406 specification in effect at the time of repair;

(iii) MC 304 and MC 307 cargo tanks must be repaired or modified in accordance with the original specification or with the DOT 407 specification in effect at the time of repair;

(iv) MC 310, MC 311, or MC 312 cargo tanks must be repaired or modified in accordance with the original specification or with the DOT 412 specification in effect at the time of repair;

(v) MC 338 cargo tanks must be repaired or modified in accordance with the specification requirements in effect at the time of manufacture or at the time of repair; and

(vi) MC 300 and MC 331 cargo tanks must be repaired or modified as follows:

(A) Repairs must be in accordance with the repair procedures described in CGA Technical Bulletin TB-2 and the National Board Inspection Code—Provisions for Repair of Pressure Vessels. Each cargo tank having cracks and defects requiring welded repairs must meet all of the requirements of § 178.337-16 of this subchapter, except that postweld heat treatment after minor weld repairs is not required. When any repair is made of defects revealed by the wet fluorescent magnetic particle inspection, including those by grinding, the cargo tank must again be examined by the wet fluorescent magnetic particle method after hydrostatic testing to assure that all defects have been removed.

(B) Modifications must be performed in accordance with the original specification or with the MC 331 specification requirements in effect at the time of repair.

(2) Prior to any repair work or modification the cargo tank must be emptied of any hazardous material lading. Cargo tanks containing flammable or toxic lading must be purged.

(3) Any repair or modification of a cargo tank involving welding on the shell or head must be certified by a Registered Inspector. Any repair or modification of an ASME Code "U" stamped cargo tank must be in accordance with the National Board Inspection Code.

(4) The suitability of any repair or modification affecting the structural integrity of the cargo tank must be determined by the testing prescribed in the applicable specification.

(5) Each owner of a cargo tank must retain at its principal place of business all records of repairs or modifications made to each tank during the time the tank is in service and for one year thereafter.

(c) **Repair or replacement of piping, valves, hoses or fittings.** In the event of repair or replacement, any piping, valve, or fitting must be tested in accordance with the provisions of the applicable specification before the cargo tank is returned to hazardous materials service. Piping, valves and fittings must be tested after installation, hoses may be tested either before or after installation on the cargo tank.

(d) **Stretching and rebarrelling.** Stretching or rebarrelling of a cargo tank is authorized if:

(1) All new material and equipment, and equipment affected by the stretching or rebarrelling conforms with the requirements of the specification in effect at the time of such work. Stretching and rebarrelling must be performed as follows:

- (i) For Specification MC 300, MC 301, MC 302, MC 303, MC 305 and MC 306 cargo tanks in accordance with Specification DOT 406;
- (ii) For Specification MC 304 and MC 307 cargo tanks in accordance with Specification DOT 407;
- (iii) For Specification MC 310, MC 311, and MC 312 cargo tanks in accordance with Specification DOT 412;
- (iv) For Specification MC 330 cargo tanks in accordance with Specification MC 311.

(2) The person performing the stretching or rebarrelling must:

- (i) Have knowledge of the original design concept, particularly with respect to structural design analysis, material and welding procedures;
- (ii) Assure compliance with the rebuilt cargo tank's structural integrity, venting, and accident damage protection requirements;
- (iii) Assure compliance with all applicable Federal Motor Carrier Safety regulations for any newly installed safety equipment;
- (iv) Pressure retest each cargo tank in accordance with § 180.407(g);
- (v) Change the existing specification plate to reflect the cargo tank as modified, or remove the existing specification plate and attach a new specification plate to the cargo tank;
- (vi) On a variable specification cargo tank, install a new variable specification plate.

(3) The design of the rebarrelled or stretched cargo tank must be certified by a design certifying engineer registered in accordance with Subpart F of Part 107. The person performing the stretching or rebarrelling and a Registered Inspector must certify that the rebarrelled or stretched cargo tank has been constructed and tested in accordance with the applicable specification by issuing a new manufacturer's certificate. The registration number of the Registered Inspector must be entered on the certificate.

**§ 180.415 Test and inspection markings.** Each cargo tank successfully completing the test and inspection requirements contained in § 180.407 must be marked as specified in this section. Each cargo tank must be durably and legibly marked, in English, with the test date (month and year) followed by the type of test or inspection. The marking must be in letters and numbers at least 1/4 inches high, on the front head or the tank shell near the specification plate. The type of test or inspection may be abbreviated as follows: V for external visual inspection and test; I for internal visual inspection; P for pressure retest; L for lining test; K for leakage test; and T for thickness test. For example, the marking "10-85 P, V, L" would indicate that in October 1985 the cargo tank received and passed the prescribed pressure retest, external visual inspection and test, and the lining inspection.

**§ 180.417 Reporting and record retention requirements.** (a) **Vehicle certification.** (1) Each owner of a cargo tank shall retain the manufacturer's data report or certificate and related papers certifying that the cargo tank identified in the documents was manufactured and tested in accordance with the applicable specification. The owner shall retain the documents throughout his ownership of the cargo tank and for one year thereafter. In the event of change of ownership, the prior owner shall retain non-fading photo copies of these documents for at least one year.

(2) Each motor carrier who uses a specification cargo tank must obtain a copy of the manufacturer's certificate and related papers or the alternative report authorized in paragraph (a)(3)(i) or (j) of this section and retain the documents as specified in this paragraph. A motor carrier who is not the owner of a cargo tank must retain a copy of the vehicle certification report at its principal place of business for as long as the cargo tank motor vehicle is used by that carrier and for one year thereafter. Upon a written request to, and with the approval of the Regional Director, Office of Motor Carrier Safety, Federal Highway Administration for the region in which a motor carrier has its principal place of business, a motor carrier may retain the certificate and related papers required by this paragraph at a regional or terminal office. The addresses and jurisdictions of the various regional Motor Carrier Safety Offices are provided in § 390.40 of this title. The provisions of this section do not apply to a motor carrier leasing a cargo tank for less than 30 days.

(3) **DOT Specification cargo tanks manufactured before December 12, 1989—**

(i) **Non-ASME Code stamped cargo tanks—**If an owner does not have a manufacturer's certificate for a cargo tank and he wishes to certify it as a specification cargo tank, the owner must perform appropriate tests and inspections, under the direct supervision of a Registered Inspector, to determine if the cargo tank conforms with the applicable specification. Both the owner and the Registered Inspector must certify that the cargo tank fully conforms to the applicable specification. The owner must retain the certificate, as specified in this section.

(ii) **ASME Code stamped cargo tanks.** If the owner does not have the manufacturer's certificate and data report required by the specification, the owner may contact the National Board for a copy of the manufacturer's data report, if the cargo tank was registered with the National Board, or copy the information contained on the cargo tank's identification and ASME Code plates. Additionally, both the owner and the Authorized Inspector must certify that the cargo tank fully conforms to the specification. The owner must retain such documents, as specified in this section.

(b) **Test or inspection reporting.** Each cargo tank which is tested or inspected as specified in § 180.407 must have a written report, in English, prepared in accordance with this paragraph.

(1) The test or inspection report must include the following:

- (i) Type of test or inspection performed and a listing of all items either tested or inspected (a checklist is acceptable);
- (ii) Owner's and manufacturer's serial numbers;
- (iii) DOT Specification;
- (iv) Test Date (Month and year);
- (v) Location of defects found and method used to repair each defect;
- (vi) Name and address of person performing the test;
- (vii) Disposition statement, such as "Cargo tank returned to service" or "Cargo tank withdrawn from service"; and
- (viii) Dated signature of Inspector and owner.

(2) The owner and the motor carrier, if not the owner, must each retain a copy of the test and inspection reports until the next test or inspection of the same type is successfully completed. This requirement does not apply to a motor carrier leasing a cargo tank for less than 30 days.

(c) **Additional requirements for Specification MC 330 and MC 331 cargo tanks.** (1) After completion of the pressure test specified in § 180.407(g)(3), each motor carrier operating a Specification MC 330 or MC 331 cargo tank in anhydrous ammonia, liquefied petroleum gas, or any other service that may cause stress corrosion cracking, must make a written report containing the following information:

- (i) Carrier's name, address of principal place of business, and telephone number;
- (ii) Complete identification plate data required by Specification MC 330 or MC 331, including data required by ASME Code;
- (iii) Carrier's equipment number;
- (iv) A statement indicating whether or not the tank was stress relieved after fabrication;
- (v) Name and address of the person performing the test and the date of the test;
- (vi) A statement of the nature and severity of any defects found. In particular, information must be furnished to indicate the location of defects detected, such as in weld, heat-affected zone, the liquid phase, the vapor phase, or the head-to-shell seam. If no defect or damage was discovered, the fact must be reported;
- (vii) A statement indicating the methods employed to make repairs, who made the repairs, and the date they were completed. Also, a statement of whether or not the tank was stress relieved after repairs and, if so, whether full or local stress relieving was performed;
- (viii) A statement of the disposition of the cargo tank, such as "cargo tank scrapped" or "cargo tank returned to service"; and
- (ix) A statement of whether or not the cargo tank is used in anhydrous ammonia, liquefied petroleum gas, or any other service that may cause stress corrosion cracking. Also, if the cargo tank has been used in anhydrous ammonia service since the last report, a statement indicating whether each shipment of ammonia was certified by its shipper as containing 0.2 percent water by weight.

(2) A copy of the report must be retained by the carrier at its principal place of business during the period the tank is in the carrier's service and for one year thereafter. Upon a written request to, and with the approval of the Director, Regional Office of Motor Carrier Safety, Federal Highway Administration for the region in which a motor carrier has its principal place of business, the carrier may maintain the reports at a regional or terminal office.

(3) The requirement in paragraph (c)(1) of this section does not apply to a motor carrier leasing a cargo tank for less than 30 days.

(d) **Supplying reports.** Each carrier offering a DOT Specification cargo tank for sale or lease must make available for inspection a copy of the most recent report made under this section to each purchaser or lessee. Copies of such reports must be provided to the purchaser, or the lessee if the cargo tank is leased for more than 30 days.

SUPPLEMENT I TO ATA IIIJ

**EXPLANATION OF ABBREVIATIONS, DEFINITIONS AND REFERENCE MARKS**  
(See §171.8 Definitions and Abbreviations)

Abbreviation or Reference Mark	EXPLANATION	Abbreviation or Reference Mark	EXPLANATION
°C	degree Centigrade (Celsius)	‡	This tariff, as amended, is applicable in connection with California intrastate rates only where tariffs making reference hereto specifically so provide. Effective April 22, 1990. (Issued on five days' notice under the following authority: On interstate traffic, 49 CFR 1312.39(b); on Georgia intrastate traffic, GPSC letter of February 9, 1963; on Missouri intrastate traffic, MoPSC Authority 11,909; on New York intrastate traffic, NYDOT Order MV-2522; on North Carolina intrastate traffic, Docket T-696; on Ohio intrastate traffic, Permission No. T-4337; on Wisconsin intrastate traffic, PSO Wisconsin Approval MV-4611-D). @ Except as noted. The carrier "alpha" codes listed herein represent only those carriers participating in the ATA Hazardous Materials Tariff. For a complete listing of all assigned alpha codes, see the Directory of Standard Multi-Modal Carrier and Tariff Agents Codes, ICO NMF 101, published by the National Motor Freight Traffic Association, Inc., 2200 Mill Road, Alexandria, VA 22314.
DOT	Department of Transportation	•	
d/b/a	doing business as	⊙	
etc.	et cetera (and other things, or the rest; and so forth)	⊗	
°F	degree Fahrenheit	‡	
FMC	Federal Maritime Commission	⊕	
ICC	Interstate Commerce Commission	⊖	
oz.	ounces	‡	
I/d/b/a	trading and doing business as	‡	
U.S.	United States	‡	
viz.	namely	‡	
vol.	volume	‡	
°	degree	‡	
%	Indicates percent	‡	
⊕	Indicates water carrier operating under ICC jurisdiction	‡	
⊖	Indicates railroad	‡	
⊙	Carrier's participation canceled; no further application.	‡	
⊗	Indicates freight forwarder	‡	
‡	Indicates "Section" number.	‡	
†	Indicates "Part" number.	‡	

—finis—