USDA ENVIRONMENTAL COMPLIANCE

49 CFR 172 Hazardous Materials Tables, Communication Requirements, and Emergency Response Information

49 CFR 172.1 Purpose and scope.

This Part lists and classifies those materials which the Department of Transportation has designated as hazardous materials for purposes oftransportation and prescribes the requirements for shipping papers,package marking, labeling, and transport vehicle placarding applicable to the shipment and transportation of those hazardous materials.

49 CFR 172.3 Applicability.

49 CFR 172.3(a) This Part applies to (1) Each person who offers a hazardous material for transportation, and

49 CFR 172.3(a)(2) Each carrier by air, highway, rail, or water who transportsa hazardous material.

49 CFR 172.3(b) When a person, other than one of those provided for inparagraph (a) of this section, performs a packaging labeling or marking function required by this part, that person shall perform the function in accordance with this part.

49 CFR 172.101(a) Hazardous materials table

(a) The Hazardous Materials Table (Table) in this section designates the materials listed therein as hazardous materials for the purpose of transportation of those materials. For each listed material, the Table identifies the hazard class or specifies that the material is forbidden in transportation, and gives the proper shipping name or directs the user to the preferred proper shipping name. In addition, the Table specifies or references requirements in this subchapter pertaining to labeling, packaging, quantity limits aboard aircraft and stowage of hazardous materials aboard vessels.

49 CFR 172.101(b) Column 1: Symbols. Column 1 of the Table contains five symbols ("+", "A", "D", "I", and "W"), as follows:

49 CFR 172.101(b)(1) The plus (+) fixes the proper shipping name, hazard class and packing group for that entry without regard to whether the material meets the definition of that class or packing group or meets any other hazard class definition. An appropriate alternate proper shipping name and hazard class may be authorized by the Associate Administrator for Hazardous Materials Safety.

49 CFR 172.101(b)(2) The letter "A" restricts the application of requirements of this subchapter to materials offered or intended for transportation by aircraft, unless the material is a hazardous substance or a hazardous waste.

49 CFR 172.101(b)(3) The letter "D" identifies proper shipping names which are appropriate for describing materials for domestic transportation but may be inappropriate for international transportation under the provisions of international regulations (e.g., IMO, ICAO). An alternate proper shipping name may be selected when either domestic or international transportation is involved.

49 CFR 172.101(b)(4) The letter "I" identifies proper shipping names which are appropriate for

describing materials in international transportation. An alternate proper shipping name may be selected when only domestic transportation is involved.

49 CFR 172.101(b)(5) The letter "W" restricts the application of requirements of this subchapter to materials offered or intended for transportation by vessel, unless the material is a hazardous substance or a hazardous waste.

49 CFR 172.101(c) Column 2: Hazardous materials descriptions and proper shipping names. Column 2 lists the hazardous materials descriptions and proper shipping names of materials designated as hazardous materials. Modification of a proper shipping name may otherwise be required or authorized by this section. Proper shipping names are limited to those shown in Roman type (not italics).

49 CFR 172.101(c)(1) Proper shipping names may be used in the singular or plural and in either capital or lower case letters. Words may be alternatively spelled in the same manner as they appear in the ICAO Technical Instructions or the IMDG Code. For example "aluminum" may be spelled "aluminium" and "sulfur" may be spelled "sulphur". However, the word "inflammable" may not be used in place of the word "flammable".

49 CFR 172.101(c)(2) Punctuation marks and words in italics are not part of the proper shipping name, but may be used in addition to the proper shipping name. The word "or" in italics indicates that terms in the sequence may be used as the proper shipping name, as appropriate.

49 CFR 172.101(c)(3) The word "poison" or "poisonous" may be used interchangeably with the word "toxic" when only domestic transportation is involved. The abbreviation "n.o.i." or "n.o.i.b.n." may be used interchangeably with "n.o.s."

[Amended at 59 FR 67407 , Dec. 29, 1994, effective Oct. 1, 1995]

49 CFR 172.101(c)(4) Except for hazardous wastes, when qualifying words are used as part of the proper shipping name, their sequence in the package markings and shipping paper description is optional. However, the entry in the Table reflects the preferred sequence.

49 CFR 172.101(c)(5) When one entry references another entry by use of the word "see", if both names are in Roman type, either name may be used as the proper shipping name (e.g., Ethyl alcohol, see Ethanol).

49 CFR 172.101(c)(6) When a proper shipping name includes a concentration range as part of the shipping description, the actual concentration, if it is within the range stated, may be used in place of the concentration range. For example, an aqueous solution of hydrogen peroxide containing 30 percent peroxide may be described as "Hydrogen peroxide, aqueous solution with not less than 20 percent but not more than 40 percent hydrogen peroxide" or "Hydrogen peroxide, aqueous solution with 30 percent hydrogen peroxide".

49 CFR 172.101(c)(7) Use of the prefix "mono" is optional in any shipping name, when appropriate. Thus, Iodine monochloride may be used interchangeably with Iodine chloride. In "Glycerol alpha-monochlorohydrin" the term "mono" is considered a prefix to the term "chlorohydrin" and may be deleted.

49 CFR 172.101(c)(8) Hazardous substances. The appendix to this section lists materials which are listed or designated as hazardous substances under section 101(14) of the Comprehensive

Environmental Response, Compensation, and Liability Act (CERCLA). Proper shipping names for hazardous substances (see Appendix A to this section and 171.8 of this subchapter) shall be determined as follows:

[56 FR 66162, Dec. 20, 1991, effective Oct. 1, 1991; 59 FR 49132, Sept. 26, 1994]

49 CFR 172.101(c)(8)(i) If the hazardous substance appears in the Table by technical name, then the technical name is the proper shipping name.

49 CFR 172.101(c)(8)(ii) If the hazardous substance does not appear in the Table and is not a forbidden material, then an appropriate generic, or "n.o.s.", shipping name shall be selected corresponding to the hazard class (and packing group, if any) of the material as determined by the defining criteria of this subchapter (see §§ 173.2 and 173.2a of this subchapter). For example, a hazardous substance which is listed in Appendix A but not in the Table and which meets the definition of a flammable liquid might be described as "Flammable liquid, n.o.s." or other appropriate shipping name corresponding to the flammable liquid hazard class.

[Revised at 59 FR 49132, Sept. 26, 1994]

49 CFR 172.101(c)(9) Hazardous wastes. If the word "waste" is not included in the hazardous material description in Column 2 of the Table, the proper shipping name for a hazardous waste (as defined in 171.8 of this subchapter), shall include the word "Waste" preceding the proper shipping name of the material. For example: Waste acetone.

[56 FR 66162, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.101(c)(10) Mixture and solutions.

[56 FR 66162, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.101(c)(10)(i) A mixture or solution not identified specifically by name comprised of a hazardous material identified in the Table by technical name and non-hazardous material, shall be described using the proper shipping name of the hazardous material and the qualifying word "mixture" or "solution", as appropriate, unless

[56 FR 66162, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.101(c)(10)(i)(A) Except as provided in § 172.101(i)(4) the packaging specified in Column 8 is inappropriate to the physical state of the material;

49 CFR 172.101(c)(10)(i)(B) The shipping description indicates that the proper shipping name applies only to the pure or technically pure hazardous material;

49 CFR 172.101(c)(10)(i)(C) The hazard class, packing group, or subsidiary hazard of the mixture or solution is different from that specified for the entry;

[56 FR 66162, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.101(c)(10)(i)(D) There is a significant change in the measures to be taken in emergencies;

[56 FR 66162, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.101(c)(10)(i)(E) The material is identified by special provision in Column 7 of the § 172.101 Table as a material poisonous by inhalation; however, it no longer meets the definition of poisonous by inhalation or it falls within a different hazard zone than that specified in the special provision; or

[56 FR 66162, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.101(c)(10)(i)(F) The material can be appropriately described by a shipping name that describes its intended application, such as "Coating solution", "Extracts, flavoring" or "Compound, cleaning liquid".

[56 FR 66162, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.101(c)(10)(ii) If one or more of the conditions specified in paragraphs (c)(10)(i) of this section are satisfied, then a proper shipping name shall be selected as prescribed in paragraph (c)(12)(ii) of this section.

[56 FR 66162, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.101(c)(11) Except for a material subject to or prohibited by §§ 173.21, 173.51, 173.56(d), 173.56(e)(1), 173.124(a)(2)(iii) or 173.128(c) of this subchapter, a material for which the hazard class is uncertain and must be determined by testing or a material that is a hazardous waste may be assigned a tentative shipping name, hazard class, identification number, and packing group, based on the shipper's tentative determination according to

[Amended at 59 FR 67408 , Dec. 29, 1994, effective Oct. 1, 1995]

49 CFR 172.101(c)(11)(i) Defining criteria in this subchapter;

49 CFR 172.101(c)(11)(ii) The hazard precedence prescribed in § 173.2a of this subchapter; and

49 CFR 172.101(c)(11)(iii) The shipper's knowledge of the material.

49 CFR 172.101(c)(12) Except when the proper shipping name in the Table is preceded by a plus (+)

49 CFR 172.101(c)(12)(i) If it is specifically determined that a material meets the definition of a hazard class, packing group or hazard zone other than the class, packing group or hazard zone shown in association with the proper shipping name, or does not meet the defining criteria for a subsidiary hazard shown in Column 6 of the Table, the material shall be described by an appropriate proper shipping name listed in association with the correct hazard class, packing group, hazard zone, or subsidiary hazard for the material.

[56 FR 66162, Dec. 20, 1991, effective Oct. 1, 1991; 58 FR 50231, Sept. 24, 1993, effective Oct. 1, 1993]

49 CFR 172.101(c)(12)(ii) Generic or n.o.s. descriptions. If an appropriate technical name is not shown in the Table, selection of a proper shipping name shall be made from the generic or n.o.s. descriptions corresponding to the specific hazard class, packing group, hazard zone, or subsidiary hazard, if any, for the material. The name that most appropriately describes the material shall be used; e.g., an alcohol not listed by its technical name in the Table shall be described as "Alcohol, n.o.s." rather than "Flammable liquid, n.o.s.". Some mixtures may be more appropriately described

according to their application, such as "Coating solution" or "Extracts, flavoring, liquid", rather than by an n.o.s. entry, such as "Flammable liquid, n.o.s." It should be noted, however, that an n.o.s. description as a proper shipping name may not provide sufficient information for shipping papers and package markings. Under the provisions of subparts C and D of this part, the technical name of the constituent which makes the product a hazardous material may be required in association with the proper shipping name.

[56 FR 66162, Dec. 20, 1991, effective Oct. 1, 1991; 58 FR 50231, Sept. 24, 1993, effective Oct. 1, 1993]

49 CFR 172.101(c)(12)(iii) Multiple hazard materials. If a material meets the definition of more than one hazard class, and is not identified in the Table by a specific description, the hazard class of the material shall be determined by using the precedence specified in § 173.2a of this subchapter, and an appropriate shipping description (e.g., "Flammable liquid, corrosive n.o.s.") shall be selected as described in paragraph (c)(12)(ii) of this section.

[56 FR 66162, Dec. 20, 1991, effective Oct. 1, 1991; 59 FR 67408 , Dec. 29, 1994, effective Oct. 1, 1995]

49 CFR 172.101(c)(12)(iv) If it is specifically determined that a material is not a forbidden material and does not meet the definition of any hazard class, the material is not a hazardous material.

49 CFR 172.101(c)(13) Self-reactive materials and organic peroxides. A generic proper shipping name for a self-reactive material or an organic peroxide, as listed in Column 2 of the Table, must be selected based on the material's technical name and concentration, in accordance with the provisions of §§ 173.224 or 173.225 of this subchapter, respectively.

[Amended at 59 FR 67408 , Dec. 29, 1994, effective Oct. 1, 1995]

49 CFR 172.101(d) Column 3: Hazard class or D iviion. Column 3 contains a designation of the hazard class or division corresponding to each proper shipping name, or the word "Forbidden".

49 CFR 172.101(d)(1) A material for which the entry in this column is "Forbidden" may not be offered for transportation or transported. This prohibition does not apply if the material is diluted, stabilized or incorporated in a device and it is classed in accordance with the definitions of hazardous materials contained in part 173 of this subchapter.

49 CFR 172.101(d)(2) When a reevaluation of test data or new data indicates a need to modify the "Forbidden" designation or the hazard class or packing group specified for a material specifically identified in the Table, this data should be submitted to the Associate Administrator for Hazardous Materials Safety.

49 CFR 172.101(d)(3) A basic description of each hazard class and the section reference for class definitions appear in § 173.2 of this subchapter.

49 CFR 172.101(d)(4) Each reference to a Class 3 material is modified to read "Combustible liquid" when that material is reclassified in accordance with § 173.150(e) or (f)of this subchapter or has a flash point above 60.5°C (141°F) but below 93°C (200°F).

[56 FR 66162, Dec. 20, 1991, effective Oct. 1, 1991; 59 FR 49132, Sept. 26, 1994]

49 CFR 172.101(e) Column 4: Identification number. Column 4 lists the identification number assigned to each proper shipping name. Those preceded by the letters "UN" are associated with proper shipping names considered appropriate for international transportation as well as domestic transportation. Those preceded by the letters "NA" are associated with proper shipping names not recognized for international transportation, except to and from Canada. Identification numbers in the "NA9000" series are associated with proper shipping names not appropriately covered by international hazardous materials (dangerous goods) transportation standards, or not appropriately addressed by international transportation standards for emergency response information purposes, except for transportation between the United States and Canada.

49 CFR 172.101(f) Column 5: Packing group. Column 5 specifies one or more packing groups assigned to a material corresponding to the proper shipping name and hazard class for that material. Classes 2 and 7 materials and ORM-D materials do not have packing groups. Packing Groups I, II and III indicate the degree of danger presented by the material is either great, medium or minor, respectively. If more than one packing group is indicated for an entry, the packing group for the hazardous material is determined using the criteria for assignment of packing groups specified in subpart D of part 173. When a reevaluation of test data or new data indicates a need to modify the specified packing group(s), the data should be submitted to the Associate Administrator for Hazardous Materials Safety. Each reference in this column to a material which is a hazardous waste or a hazardous substance, and whose proper shipping name is preceded in Column 1 of the Table by the letter "A" or "W", is modified to read "III" on those occasions when the material is offered for transportation or transported by a mode in which its transportation is not otherwise subject to requirements of this subchapter.

[56 FR 66162, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.101(g) Column 6: Labels. Column 6 specifies the hazard warning label(s) required for a package filled with a material conforming to the associated hazard class and proper shipping name, unless the package is otherwise excepted from labeling by provisions in subpart E of part 172, or part 173 of this subchapter. The first label shown for each entry is indicative of the primary hazard of the material, additional labels are indicative of subsidiary hazards. Provisions in § 172.402 of this part may require that a label other than that specified in Column 6 be affixed to the package in addition to that specified in Column 6. No label is required for a material classed as a combustible liquid or for a Class 3 material that is reclassed as a combustible liquid.

[Revised at 59 FR 49132, Sept. 26, 1994; 59 FR 67408 , Dec. 29, 1994, effective Oct. 1, 1995]

49 CFR 172.101(h) Column 7: Special provisions. Column 7 specifies codes for special provisions applicable to hazardous materials. When Column 7 refers to a special provision for a hazardous material, the meaning and requirements of that special provision are as set forth in 172.102 of this subpart.

49 CFR 172.101(i) Column 8: Packaging authorizations. Columns 8A, 8B and 8C specify the applicable sections for exceptions, non- bulk packaging requirements and bulk packaging requirements, respectively, in part 173 of this subchapter. Columns 8A, 8B and 8C are completed in a manner which indicates that 173." precedes the designated numerical entry. For example, the entry "202" in Column 8B associated with the proper shipping name "Gasoline" indicates that for this material conformance to non-bulk packaging requirements prescribed in 173.202 of this subchapter is required. When packaging requirements are specified, they are in addition to the standard

requirements for all packagings prescribed in 173.24 of this subchapter and any other applicable requirements in subparts A and B of part 173 of this subchapter.

49 CFR 172.101(i)(1) Exceptions. Column 8A contains exceptions from some of the requirements of this subchapter. The referenced exceptions are in addition to those specified in subpart A of part 173 and elsewhere in this subchapter. A "None" in this column means no packaging exceptions are authorized, except as may be provided by special provisions in Column 7.

49 CFR 172.101(i)(2) Non-bulk packaging. Column 8B references the section in part 173 of this subchapter which prescribes packaging requirements for non-bulk packagings. A "None" in this column means non-bulk packagings are not authorized, except as may be provided by special provisions in Column 7. Each reference in this column to a material which is a hazardous waste or a hazardous substance, and whose proper shipping name is preceded in Column 1 of the Table by the letter "A" or "W", is modified to include "173.203" or "173.213," as appropriate for liquids and solids, respectively, on those occasions when the material is offered for transportation or transported by a mode in which its transportation is not otherwise subject to the requirements of this subchapter.

49 CFR 172.101(i)(3) Bulk packaging. Column 8C specifies the section in part 173 of this subchapter which prescribes packaging requirements for bulk packagings, subject to the limitations, requirements and additional authorizations of Column 7. A "None" in this column means bulk packagings are not authorized, except as may be provided by special provisions in Column 7. Additional authorizations and limitations for use of IM portable tanks are set forth in Column 7. For each reference in this column to a material which is a hazardous waste or a hazardous substance, and whose proper shipping name is preceded in Column 1 of the Table by the letter "A" or "W" and which is offered for transportation or transported by a mode in which its transportation is not otherwise subject to the requirements of this subchapter:

[56 FR 66162, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.101(i)(3)(i) The column reference is 173.240 or 173.241, as appropriate.

[56 FR 66162, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.101(i)(3)(ii) For a solid material, the exception provided in Special provision B54 is applicable.

49 CFR 172.101(i)(3)(iii) For a Class 9 material which meets the definition of an elevated temperature material, the column reference is 173.247.

[56 FR 49987, Oct. 2, 1991, effective March 30, 1992]

49 CFR 172.101(i)(4) For a hazardous material which is specifically named in the Table and whose packaging sections specify packagings not applicable to the form of the material (e.g., packaging specified is for solid material and the material is being offered for transportation in a liquid form) the following table should be used to determine the appropriate packaging section:

[56 FR 66162, Dec. 20, 1991, effective Oct. 1, 1991]

Packaging section reference for Corresponding packaging section for

solid materials liquid materials

173.187 §173.181

173.211 §173.201

173.212 §173.202

173.213 §173.203

173.240 §173.241

173.242 §173.243

[60 FR 49108 , Sept. 21, 1995, effective Oct. 1, 1995]

49 CFR 172.101(j) Column 9: Quantity limitations. Columns 9A and 9B specify the maximum quantities that may be offered for transportation in one package by passenger-carrying aircraft or passenger-carrying rail car (Column 9A) or by cargo aircraft only (Column 9B), subject to the following:

49 CFR 172.101(j)(1) "Forbidden" means the material may not be offered for transportation or transported in the applicable mode of transport.

49 CFR 172.101(j)(2) The quantity limitation is "net" except where otherwise specified, such as for "Consumer commodity" which specifies "30 kg gross."

49 CFR 172.101(j)(3) When articles or devices are specifically listed by name, the net quantity limitation applies to the entire article or device (less packaging and packaging materials) rather than only to its hazardous components.

49 CFR 172.101(j)(4) A package offered or intended for transportation by aircraft and which is filled with a material forbidden on passenger-carrying aircraft but permitted on cargo aircraft only, or which exceeds the maximum net quantity authorized on passenger-carrying aircraft, shall be labelled with the CARGO AIRCRAFT ONLY label specified in 172.448 of this part.

49 CFR 172.101(k) Column 10: Vessel stowage requirements. Column 10A [Vessel stowage] specifies the authorized stowage locations on board cargo and passenger vessels. Column 10B [Other provisions] specifies codes for stowage requirements for specific hazardous materials. The meaning of each code in Column 10B is set forth in 176.84 of this subchapter. Section 176.63 of this subchapter sets forth the physical requirements for each of the authorized locations listed in Column 10A. (For bulk transportation by vessel, see 46 CFR parts 30 to 40, 70, 98, 148, 151, 153 and 154.) The authorized stowage locations specified in Column 10A are defined as follows:

49 CFR 172.101(k)(1) Stowage category "A" means the material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.

[Revised at 59 FR 67408 , Dec. 29, 1994, effective Oct. 1, 1995]

49 CFR 172.101(k)(2) Stowage category "B" means

[Revised at 59 FR 67408 , Dec. 29, 1994, effective Oct. 1, 1995]

49 CFR 172.101(k)(2)(i) The material may be stowed "on deck" or "under deck" on a cargo vessel

and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each three meters of overall vessel length; and

49 CFR 172.101(k)(2)(ii) "On deck only" on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.

49 CFR 172.101(k)(3) Stowage category "C" means the material must be stowed "on deck only" on a cargo vessel and on a passenger vessel.

[Revised at 59 FR 67408 , Dec. 29, 1994, effective Oct. 1, 1995]

49 CFR 172.101(k)(4) Stowage category "D" means the material must be stowed "on deck only" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers or one passenger per each three meters of overall vessel length, but the material is prohibited on passenger vessels in which the limiting number of passengers is exceeded.

[Revised at 59 FR 67408 , Dec. 29, 1994, effective Oct. 1, 1995]

49 CFR 172.101(k)(5) Stowage category "E" means the material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each three meters of overall vessel length, but is prohibited from carriage on passenger vessels in which the limiting number of passengers is exceeded.

[Revised at 59 FR 67408 , Dec. 29, 1994, effective Oct. 1, 1995]

49 CFR 172.101(l) Changes to the Table.(1) Unless specifically stated otherwise in a rule document published in the Federal Register amending the Table

49 CFR 172.101(l)(1)(i) Such a change does not apply to the shipment of any package filled prior to the effective date of the amendment; and

49 CFR 172.101(l)(1)(ii) Stocks of preprinted shipping papers and package markings may be continued in use, in the manner previously authorized, until depleted or for a one- year period, subsequent to the effective date of the amendment, whichever is less.

49 CFR 172.101(l)(2) Except as otherwise provided in this section, any alteration of a shipping description or associated entry which is listed in the § 172.101 Table must receive prior written approval from the Associate Administrator for Hazardous Materials Safety.

[56 FR 66162, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.102 Special provisions.

[55 FR 52582, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.102(a) General. When Column 7 of the 172.101 Table refers to a special provision for a hazardous material, the meaning and requirements of that provision are as set forth in this section. When a special provision specifies packagings or packaging requirements, they are in addition to the standard requirements for all packagings prescribed in 173.24 of this subchapter and any other applicable packaging requirements in subparts A and B of part 173 of this subchapter. When a special provision specifies packaging or packaging requirements

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.102(a)(1) The special provision is in addition to the standard requirements for all packagings prescribed in 173.24 of this subchapter and any other applicable packaging requirements in subparts A and B of part 173 of this subchapter; and

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.102(a)(2) To the extent a special provision imposes limitations or additional requirements on the packaging provisions set forth in Column 8 of the Sec. 172.101 Table, packagings must conform to the requirements of the special provision.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.102(b) Description of codes for special provisions. Special provisions contain packaging provisions, prohibitions, exceptions from requirements for particular quantities or forms of materials and requirements or prohibitions applicable to specific modes of transportation, as follows:

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.102(b)(1) A code consisting only of numbers (for example, "11") is multi-modal in application and may apply to bulk and non- bulk packagings.

49 CFR 172.102(b)(2) A code containing the letter "A" refers to a special provision which applies only to transportation by aircraft.

49 CFR 172.102(b)(3) A code containing the letter "B" refers to a special provision which applies only to bulk packaging requirements. Unless otherwise provided in this subchapter, these special provisions do not apply to IM portable tanks.

49 CFR 172.102(b)(4) A code containing the letter "H" refers to a special provision which applies only to transportation by highway.

49 CFR 172.102(b)(5) A code containing the letter "N" refers to a special provision which applies only to non-bulk packaging requirements.

49 CFR 172.102(b)(6) A code containing the letter "R" refers to a special provision which applies only to transportation by rail.

49 CFR 172.102(b)(7) A code containing the letter "T" refers to a special provision which applies only to transportation in IM portable tanks.

49 CFR 172.102(b)(8) A code containing the letter "W" refers to a special provision which applies only to transportation by water.

49 CFR 172.102(c) Tables of special provisions. The following tables list, and set forth the requirements of, the special provisions referred to in Column 7 of the § 172.101 Table.

49 CFR 172.102(c)(1) Numeric provisions. These provisions are multi-modal and apply to bulk and non-bulk packagings:

Code/Special Provisions

1 This material is poisonous by inhalation (see 171.8 of this subchapter) in Hazard Zone A (see 173.116(a) or 173.133(a) of this subchapter), and must be described as an inhalation hazard under the provisions of this subchapter.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

2 This material is poisonous by inhalation (see 171.8 of this subchapter) in Hazard Zone B (see 173.116(a) or 173.133(a) of this subchapter), and must be described as an inhalation hazard under the provisions of this subchapter.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

3 This material is poisonous by inhalation (see 171.8 of this subchapter) in Hazard Zone C (see 173.116(a) of this subchapter), and must be described as an inhalation hazard under the provisions of this subchapter.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

4 This material is poisonous by inhalation (see 171.8 of this subchapter) in Hazard Zone D (see 173.116(a) of this subchapter), and must be described as an inhalation hazard under the provisions of this subchapter.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991; 57 FR 45458, Oct. 1, 1992]

5 If this material meets the definition for a material poisonous by inhalation (see 171.8 of this subchapter), a shipping name must be selected which identifies the inhalation hazard, in Division 2.3 or Division 6.1, as appropriate.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

6 This material is poisonous-by-inhalation and must be described as an inhalation hazard under the provisions of this subchapter.

7 An ammonium nitrate fertilizer is a fertilizer formulation, containing 90% or more ammonium nitrate and no more than 0.2% organic combustible material (calculated as carbon), which does not meet the definition and criteria of a Class 1 (explosive) material (See 173.50 of this subchapter).

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

8 A hazardous substance that is not a hazardous waste may be shipped under the shipping description "Other regulated substances, liquid or solid, n.o.s.", as appropriate. In addition, for solid materials, special provision B54 applies.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

9 Packaging for certain PCBs for disposal and storage is prescribed by EPA in 40 CFR 761.60 and 761.65.

10 An ammonium nitrate mixed fertilizer is a fertilizer formulation, containing less than 90% ammonium nitrate and other ingredients, which does not meet the definition and criteria of a Class 1

(explosive) material (See 173.50 of this subchapter).

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

11 The hazardous material must be packaged as either a liquid or a solid, as appropriate, depending on its physical form at 55°C (131°F) at atmospheric pressure.

12 In concentrations greater than 40 percent, this material has strong oxidizing properties and is capable of starting fires in contact with combustible materials. If appropriate, a package containing this material must conform to the additional labeling requirements of 172.402 of this subchapter.

[57 FR 45458, Oct. 1, 1992; 58 FR 51531, Oct. 1, 1993]

13 The words "Inhalation Hazard" shall be entered on each shipping paper in association with the shipping description, shall be marked on each non-bulk package in association with the proper shipping name and identification number, and shall be marked on two opposing sides of each bulk package. Size of marking on bulk package must conform to 172.302(b) of this subchapter. The requirements of 172.203(m) and 172.505 of this subchapter do not apply.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

14 Motor fuel antiknock mixtures are:

a. Mixtures of one or more organic lead mixtures (such as tetraethyl lead, triethylmethyl lead, diethyldimethyl lead, ethyltrimethyl lead, and tetramethyl lead) with one or more halogen compounds (such as ethylene dibromide and ethylene dichloride), hydrocarbon solvents or other equally efficient stabilizers; or

[Revised at 59 FR 49133, Sept. 26, 1994]

b. tetraethyl lead.

[58 FR 51531, Oct. 1, 1993]

15 Chemical kits include boxes, cases, etc., containing small amounts of various compatible dangerous goods which are used for medical, analytical or testing purposes and for which exceptions are provided in this subchapter. Inner packagings must not exceed 250 mL for liquids or 250 g for solids and must be protected from other materials in the kit. For transportation by aircraft, any dangerous goods forbidden in passenger aircraft may not be included in these kits. Kits must be packed in wooden boxes (4C1, 4C2), plywood boxes (4D), reconstituted wood boxes (4F), fiberboard boxes (4G) or plastic boxes (4H1, 4H2) which must be marked "Chemical kits.' Each package shall be classified for the material contained therein; if two or more different classes of material are present the class of the package shall be determined in accordance with § 173.2a of this subchapter. Each package must be labeled according to each substance contained in the package; this includes the primary hazard label and any subsidiary risk labels applicable to each individual substance within the kit. The total quantity of dangerous goods in any one kit must not exceed either 1 L or 1 kg. The total quantity of dangerous goods in any one package must not exceed either 10 L or 10 kg. The packing group assigned to the kit as a whole must be the most stringent packing group assigned to any individual substance contained in the kit.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

16 This description applies to smokeless powder and other solid propellants that are used as powder for small arms and have been classed as Division 1.3 and 4.1 in accordance with 173.56 of this subchapter.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991; 59 FR 67485 , Dec. 29, 1994, effective Oct. 1, 1995]

17 Aqueous solutions of hydrogen peroxide containing less than 8 percent hydrogen peroxide are not subject to the requirements of this subchapter.

[Provision 18 removed at 60 FR 26805, May 18, 1995, effective Oct. 1, 1995]

19 For domestic transportation only, the identification number "UN1075" may be used in place of the identification number specified in Column (4) of the 172.101 Table. The identification number used must be consistent on package markings, shipping papers and emergency response information.

[57 FR 45458, Oct. 1, 1992]

20 The transport of this substance, when in concentrations of greater than 10% nitroglycerin, is prohibited. Concentra tions of below 5% nitroglycerin may be transported as a Class 3 material; see UN 1204 and UN 3064.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

21 This material must be stabilized by appropriate means (e.g., addition of chemical inhibitor, purging to remove oxygen) to prevent dangerous polymerization (see 173.21(f) of this subchapter).

[57 FR 45458, Oct. 1, 1992]

22 If the hazardous material is in dispersion in organic liquid, the organic liquid must have a flash point above 50°C (122°F).

23 This material may be transported under the provisions of Division 4.1 only if it is so packed that the percentage of diluent will not fall below that stated in the shipping description at any time during transport.

[Added at 59 FR 67485 , Dec. 29, 1994, effective Oct. 1, 1995]

24 Alcoholic beverages containing more than 70 percent alcohol by volume must be transported as materials in Packing Group II. Alcoholic beverages containing more than 24 percent but not more than 70 percent alcohol by volume must be transported as materials in Packing Group III.

[Added at 59 FR 67485 , Dec. 29, 1994, effective Oct. 1, 1995]

[Provision 25 removed at 59 FR 67485 , Dec. 29, 1994, effective Oct. 1, 1995]

26 This entry does not include ammonium permanganate, the transport of which is prohibited except when approved by the Associate Administrator for Hazardous Materials Safety.

[Added at 59 FR 67485 , Dec. 29, 1994, effective Oct. 1, 1995]

27 Sodium carbonate peroxyhydrate is considered non-hazardous.

28 The dihydrated sodium salt of dichloroisocyanuric acid is not subject to the requirements of this subchapter.

[57 FR 45458, Oct. 1, 1992; 58 FR 51531, Oct. 1, 1993]

29 Lithium cells and batteries and equipment containing or packed with lithium cells and batteries which do not comply with the provisions of § 173.185 of this subchapter may be transported only if they are approved by the Associate Administrator for Hazardous Materials Safety.

[58 FR 50235, Sept. 24, 1993, effective Oct. 1, 1993; 60 FR 26805, May 18, 1995, effective Oct. 1, 1995]

30 Sulfur which is transported domestically is not subject to the requirements of this subchapter if transported in a non-bulk packaging or is formed to a specific shape (e.g., prills, granules, pellets, pastilles, or flakes).

[58 FR 50235, Sept. 24, 1993, effective Oct. 1, 1993]

31 Materials which have undergone sufficient heat treatment to render them non-hazardous are not subject to the requirements of this subchapter.

[57 FR 45458, Oct. 1, 1992]

32 These beads are made from polystyrene, poly(methyl methacrylate) or other polymeric material.

[Added at 59 FR 67485 , Dec. 29, 1994, effective Oct. 1, 1995]

33 Ammonium nitrites and mixtures of an inorganic nitrite with an ammonium salt are prohibited.

34 The commercial grade of calcium nitrate fertilizer, when consisting mainly of a double salt (calcium nitrate and ammonium nitrate) containing not more than 10 percent ammonium nitrate and at least 12 percent water of crystallization, is not subject to the requirements of this subchapter.

[Added at 59 FR 67485 , Dec. 29, 1994, effective Oct. 1, 1995]

35 Antimony sulphides and oxides which do not contain more than 0.5 percent of arsenic calculated on the total mass do not meet the definition of Division 6.1.

[Added at 59 FR 67485 , Dec. 29, 1994, effective Oct. 1, 1995; 60 FR 26805, May 18, 1995, effective Oct. 1, 1995]

36 The maximum net quantity per package is 5 liters (1 gallon) or 5 kg (11 pounds).

[Added at 59 FR 67485 , Dec. 29, 1994, effective Oct. 1, 1995]

37 Unless it can be demonstrated by testing that the sensitivity of the substance in its frozen state is no greater than in its liquid state, the substance must remain liquid during normal transport conditions. It must not freeze at temperatures above -15°C (5°F).

[Added at 59 FR 67485 , Dec. 29, 1994, effective Oct. 1, 1995]

38 If this material shows a violent effect in laboratory tests involving heating under confinement, the labeling requirements of Special Provision 53 apply, and the material must be packaged in

accordance with packing method OP6B in 173.225 of this subchapter. If the SADT is higher than 75° C, the technically pure substance and formulations derived from it are not self-reactive materials.

[Added at 60 FR 26805 , May 18, 1995, effective Oct. 1, 1995]

39 This substance may be carried under provisions other than those of Class 1 only if it is so packed that the percentage of water will not fall below that stated at any time during transport. When phlegmatized with water and inorganic inert material, the content of urea nitrate must not exceed 75 percent by mass and the mixture should not be capable of being detonated by test 1(a)(i) or test 1(a)(ii) in the UN Recommendations Tests and Criteria.

[Added at 59 FR 67485 , Dec. 29, 1994, effective Oct. 1, 1995]

40 Polyester resin kits consist of two components: a base material (Class 3, Packing Group II or III) and an activator (organic peroxide), each separately packed in an inner packaging. The organic peroxide must be type D, E, or F, not requiring temperature control, and be limited to a quantity of 125 ml (4.22 ounces) per inner packaging if liquid, and 500 g (1 pound) if solid. The components may be placed in the same outer packaging provided they will not interact dangerously in the event of leakage. Packing group will be II or III, according to the criteria for Class 3, applied to the base material.

[Added at 59 FR 67485 , Dec. 29, 1994, effective Oct. 1, 1995]

[Provision 41 removed at 59 FR 67485 , Dec. 29, 1994, effective Oct. 1, 1995]

[Provision 42 removed at 59 FR 49133, Sept. 26, 1994]

43 The nitrogen content of the nitrocellulose must not exceed 11.5 percent. Each single filter sheet must be packed between sheets of glazed paper. The portion of glazed paper between the filter sheets must not be less than 65 percent, by mass. The membrane filters/paper arrangement must not be liable to propagate a detonation as tested by one of the tests described in the UN Recommendations, Tests and Criteria, Part I, Test series 1 (a).

[Added at 59 FR 67486 , Dec. 29, 1994, effective Oct. 1, 1995]

44 The formulation must be prepared so that it remains homogeneous and does not separate during transport. Formula tions with low nitrocellulose contents and neither showing dangerous properties when tested for their ability to detonate, deflagrate or explode when heated under defined confinement by the appropriate test methods and criteria in the UN Recommendations, Tests and Criteria, nor being a flammable solid when tested in accordance with Appendix E to Part 173 of this subchapter (chips, if necessary, crushed and sieved to a particle size of less than 1.25 mm) are not subject to this subchapter.

[Added at 59 FR 67486 , Dec. 29, 1994, effective Oct. 1, 1995]

45 Temperature should be maintained between 18°C (64.4°F) and 40°C (104°F). Tanks containing solidified methacrylic acid must not be reheated during transport.

[Added at 59 FR 67486 , Dec. 29, 1994, effective Oct. 1, 1995]

46 This material must be packed in accordance with packing method OP6B (see § 173.225 of this subchapter). During transport, it must be protected from direct sunshine and stored (or kept) in a cool

and well-ventilated place, away from all sources of heat.

[Added at 59 FR 67486 , Dec. 29, 1994, effective Oct. 1, 1995]

47 Mixtures of solids which are not subject to this subchapter and flammable liquids may be transported under this entry without first applying the classification criteria of Division 4.1, provided there is no free liquid visible at the time the material is loaded or at the time the packaging or transport unit is closed. Each packaging must correspond to a design type that has passed a leakproofness test at the Packing Group II level.

[Added at 59 FR 67486 , Dec. 29, 1994, effective Oct. 1, 1995]

48 Mixtures of solids which are not subject to this subchapter and toxic liquids may be transported under this entry without first applying the classification criteria of Division 6.1, provided there is no free liquid visible at the time the material is loaded or at the time the packaging or transport unit is closed. Each packaging must correspond to a design type that has passed a leakproofness test at the Packing Group II level. This entry may not be used for solids containing a Packing Group I liquid.

[Added at 59 FR 67486 , Dec. 29, 1994, effective Oct. 1, 1995]

49 Mixtures of solids which are not subject to this subchapter and corrosive liquids may be transported under this entry without first applying the classification criteria of Class 8, provided there is no free liquid visible at the time the material is loaded or at the time the packaging or transport unit is closed. Each packaging must correspond to a design type that has passed a leakproofness test at the Packing Group II level.

[Added at 59 FR 67486 , Dec. 29, 1994, effective Oct. 1, 1995]

50 Cases, cartridge, empty with primer which are made of metallic or plastic casings and meeting the classification criteria of Division 1.4 are not regulated for domestic transportation.

[Added at 59 FR 67486 , Dec. 29, 1994, effective Oct. 1, 1995]

51 This description applies to items previously described as "Toy propellant devices, Class C" and includes reloadable kits. Model rocket motors containing 30 grams or less propellant are classed as Division 1.4S and items containing more than 30 grams of propellant but not more than 62.5 grams of propellant are classed as Division 1.4C.

[Added at 59 FR 67486 , Dec. 29, 1994, effective Oct. 1, 1995; 60 FR 26805, May 18, 1995, effective Oct. 1, 1995]

52 Ammonium nitrate fertilizers may not meet the definition and criteria of Class 1 (explosive) material (see 173.50 of this subchapter).

[Added at 59 FR 67408 , Dec. 29, 1994, effective Oct. 1, 1995; 60 FR 49108 , Sept. 21, 1995, effective Oct. 1, 1995]

53 Packages of these materials must bear the subsidiary risk label, "EXPLOSIVE", unless otherwise provided in this subchapter or through an approval issued by the Associate Administrator for Hazardous Materials Safety, or the competent authority of the country of origin. A copy of the approval shall accompany the shipping papers.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

54 Maneb or maneb preparations not meeting the definition of Division 4.3 or any other hazard class are not subject to the requirements of this subchapter when transported by motor vehicle, rail car, or aircraft.

[Added at 59 FR 67486 , Dec. 29, 1994, effective Oct. 1, 1995]

55 This device must be approved in accordance with § 173.56 of this subchapter by the Associate Administrator for Hazardous Materials Safety.

[Added at 60 FR 26805 , May 18, 1995, effective Oct. 1, 1995]

56 A means to interrupt and prevent detonation of the detonator from initiating the detonating cord must be installed between each electric detonator and the detonating cord ends of the jet perforating guns before the charged jet perforating guns are offered for transportation.

[Added at 60 FR 26805 , May 18, 1995, effective Oct. 1, 1995]

81 Polychlorinated biphenyl items, as defined in 40 CFR 761.3, for which specification packagings are impractical, may be packaged in non-specification packagings meeting the general packaging requirements of subparts A and B of part 173 of this subchapter. Alternatively, the item itself may be used as a packaging if it meets the general packaging requirements of subparts A and B of part 173 of this subchapter.

[58 FR 51531, Oct. 1, 1993]

101 The name of the particular substance or article must be specified.

102 The articles may be transported as in Division 1.4 Compatibility Group D (1.4D) if all of the conditions specified in 173.63(a) of this subchapter are met.

103 Detonators which will not mass detonate and undergo only limited propagation in the shipping package may be assigned to 1.4B classification code. Mass detonate means that more than 90 percent of the devices tested in a package explode practically simultaneously. Limited propagation means that if one detonator near the center of a shipping package is exploded, the aggregate weight of explosives, excluding ignition and delay charges, in this and all additional detonators in the outside packaging that explode may not exceed 25 grams.

[60 FR 49110 , Sept. 21, 1995, effective Oct. 1, 1995]

104 Detonators which meet the following conditions may be assigned to 1.4S classification code: Each detonator may contain no more than 1 g of explosive, excluding ignition and delay charges, and if one detonator near the center of a package detonates it will not cause functioning of any other device in the same or adjacent packages.

105 The word "Agents" may be used instead of "Explosives" when approved by the Associate Administrator for Hazardous Materials Safety.

106 The recognized name of the particular explosive may be specified in addition to the type.

107 The classification of the substance is expected to vary especially with the particle size and

packaging but the border lines have not been experimentally determined; appropriate classifications should be verified following the test procedures in 173.57 and 173.58 of this subchapter.

108 Fireworks must be so constructed and packaged that loose pyrotechnic composition will not be present in packages during transportation.

109 Rocket motors must be nonpropulsive in transportation unless approved in accordance with 173.56 of this subchapter. A rocket motor to be considered "nonpropulsive" must be capable of unrestrained burning and must not appreciably move in any direction when ignited by any means.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991; 58 FR 50235, Sept. 24, 1993, effective Oct. 1, 1993]

111 Explosive substances of Division 1.1 Compatibility Group A (1.1A) are forbidden for transportation if dry or not desensitized, unless incorporated in a device.

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991]

112 "Cartridges, small arms" and "Cartridges, power devices (which are used to project fastening devices)" which have been classed in Division 1.4 Compatibility Group S (1.4S) may be reclassed and offered for domestic transportation as ORM-D material if they are offered for transportation and transported in accordance with the limitations and packaging requirements of 173.230 of this subchapter.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

113 The sample must be given a tentative approval by an agency or laboratory in accordance with § 173.56 of this subchapter.

114 Jet perforating guns, charged, oil well, without detonator may be reclassed to Division 1.4 Compatibility Group D (1.4D) if the following conditions are met:

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

a. The total weight of the explosive contents of the shaped charges assembled in the guns does not exceed 90.5 kg (200 pounds) per vehicle; and

b. The guns are packaged in accordance with Packing Method US006 as specified in 173.62 of this subchapter.

115 Boosters with detonator (detonating primers) in which the total explosive charge per unit does not exceed 25 g, and which will not mass detonate and undergo only limited propagation in the shipping package may be assigned to 1.4B classification code. Mass detonate means more than 90 percent of the devices tested in a package explode practically simultaneously. Limited propagation means that if one booster near the center of the package is exploded, the aggregate weight of explosives, excluding ignition and delay charges, in this and all additional boosters in the outside packaging that explode may not exceed 25 g.

116 Fuzes, detonating may be classed in Division 1.4 if the fuzes do not contain more than 25 g of explosive per fuze and are made and packaged so that they will not cause functioning of other fuzes, explosives or other explosive devices if one of the fuzes detonates in a shipping packaging or in adjacent packages.

117 If shipment of the explosive substance is to take place at a time that freezing weather is anticipated, the water contained in the explosive substance must be mixed with denatured alcohol so that freezing will not occur.

49 CFR 172.102(c)(2) "A" codes. These provisions apply only to transportation by aircraft:

Code/Special Provisions

A1 Single packagings are not permitted on passenger aircraft.

A2 Single packagings are not permitted on aircraft.

A3 For combination packagings, if glass inner packagings (including ampoules) are used, they must be packed with absorbent material in tightly closed metal receptacles before packing in outer packagings.

A4 Liquids having an inhalation toxicity of Packing Group I are not permitted on aircraft.

A5 Solids having an inhalation toxicity of Packing Group I are not permitted on passenger aircraft and may not exceed a maximum net quantity per package of 15 kg (33 pounds) on cargo aircraft.

A6 For combination packagings, if plastic inner packagings are used, they must be packed in tightly closed metal receptacles before packing in outer packagings.

A7 Steel packagings must be corrosion-resistant or have protection against corrosion.

A8 For combination packagings, if glass inner packagings (including ampoules) are used, they must be packed with cushioning material in tightly closed metal receptacles before packing in outer packagings.

A9 For combination packagings, if plastic bags are used, they must be packed in tightly closed metal receptacles before packing in outer packagings.

A10 When aluminum or aluminum alloy construction materials are used, they must be resistant to corrosion.

A11 For combination packagings, when metal inner packagings are permitted, only specification cylinders constructed of metals which are compatible with the hazardous material may be used.

A12 Lithium batteries in equipment, which have been approved by the Associate Administrator for Hazardous Materials Safety, must not exceed, in any piece of equipment, 12g of lithium or lithium alloy per cell and 500 g of lithium or lithium alloy per battery.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991; 58 FR 50235, Sept. 24, 1993, effective Oct. 1, 1993]

A13 Non-bulk packagings conforming to § 173.197 of this subchapter not exceeding 16 kilograms (35 pounds) gross mass containing only used sharps are permitted for transportation by aircraft. Maximum liquid content in each inner packaging may not exceed 50 milliliters (1.7 ounces).

[Added at 60 FR 48787 , Sept. 20, 1995, effective Oct. 1, 1995]

A14 Non-bulk packagings of regulated medical waste conforming to § 173.197 of this subchapter not exceeding 16 kilograms (35 pounds) gross mass for solid waste or 12 liters (3 gallons) total volume for liquid waste may be transported by passenger and cargo aircraft when means of transportation other than air are impracticable or not available.

[Added at 60 FR 48787 , Sept. 20, 1995, effective Oct. 1, 1995]

A19 Combination packagings consisting of outer fiber drums or plywood drums, with inner plastic packagings, are not authorized for transportation by aircraft.

A20 Plastic bags as inner receptacles of combination packagings are not authorized for transportation by aircraft.

A29 Combination packagings consisting of outer expanded plastic boxes with inner plastic bags are not authorized for transportation by aircraft.

A30 Ammonium permanganate is not authorized for transportation on aircraft.

[A33 removed at 59 FR 67390 , Dec. 29, 1994, effective Oct. 1, 1995]

A34 Aerosols containing a corrosive liquid in Packing Group II charged with a gas are not permitted for transportation by aircraft.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.102(c)(3) "B" codes. These provisions apply only to bulk packagings:

Code/Special Provisions

B1 If the material has a flash point at or above 38°C (100°F) and below 93°C (200°F), then the bulk packaging requirements of 173.241 of this subchapter are applicable. If the material has a flash point of less than 38°C (100°F), then the bulk packaging requirements of 173.242 of this subchapter are applicable.

B2 MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks are not authorized.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991; 57 FR 45458, Oct. 1, 1992]

B3 MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks and DOT 57 portable tanks are not authorized.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991; 57 FR 45458, Oct. 1, 1992]

B4 AAR 206 tank car tanks and MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks are not authorized.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991; 57 FR 45458, Oct. 1, 1992]

B5 Only ammonium nitrate solutions with 35 percent or less water that will remain completely in solution at a maximum lading temperature of 116°C (240°F) are authorized for transport in the following bulk packagings: DOT 103 ALW, 111A60 ALW tank car tanks and MC 307, MC 312, DOT 407 and DOT 412 cargo tanks with at least 172 kPa (25 psig) design pressure. The packaging

shall be designed for a working temperature of at least 121°C (250°F). Only Specifications MC 304, MC 307 or DOT 407 cargo tank motor vehicles are authorized for transportation by vessel.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991; 59 FR 49133, Sept. 26, 1994]

B6 Packagings shall be made of steel.

B7 Safety relief devices are not authorized on multi-unit tank car tanks. Openings for safety relief devices shall be plugged or blank flanged.

B8 Packagings shall be made of nickel, stainless steel, or steel with nickel, stainless steel, lead or other suitable corrosion resistant metallic lining.

B9 Bottom outlets are not authorized.

B10 AAR 206 tank car tanks, MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks, and DOT 57 portable tanks are not authorized.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991; 57 FR 45458, Oct. 1, 1992]

B11 Tank car tanks must have a test pressure of at least 2,068.5 kPa (300 psi). Cargo and portable tanks must have a design pressure of at least 1,207 kPa (175 psig).

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991]

B12 Tank car tanks must be marked with the name of the lading in accordance with the requirements of § 172.330 of this subchapter.

B13 For compressed gases, §§ 173.314 and 173.315 of this subchapter specify additional requirements.

B13 A nonspecification cargo tank motor vehicle authorized in § 173.247 of this subchapter must be at least equivalent in design and in construction to a DOT 406 cargo tank or MC 306 cargo tank (if constructed before September 1, 1993), except as follows:

[Second B13 added at 57 FR 45458, Oct. 1, 1992]

a. Packagings equivalent to MC 306 cargo tanks are excepted from 178.340-10 , certification; 178.341-4, vents; and 178.341-5, emergency flow control.

b. Packagings equivalent to DOT 406 cargo tanks are excepted from §§ 178.345-7(d)(5) , circumferential reinforcements, 178.345-14, marking; 178.345-15, certification; 178.346- 10, pressure relief; and 178.346-11, outlets.

[57 FR 59310, Dec. 15, 1992]

c. Packagings are excepted from the design stress limits at elevated temperatures, as described in the ASME Code. However, the design stress limits may not exceed 25 percent of the stress, as specified in the Aluminum Association's "Aluminum Standards and Data" (7th Edition June 1982), for 0 temper at the maximum design temperature of the cargo tank.

[58 FR 51531, Oct. 1, 1993]

B14 Each bulk packaging, except a tank car or a multi-unit-tank car tank, must be insulated with an insulating material so that the overall thermal conductance at 15.5° C (60° F) is no more than 1.5333 kilojoules per hour per square meter per degree Celsius (0.075 Btu per hour per square foot per degree Fahrenheit) temperature differential. Insulating materials must not promote corrosion to steel when wet. Notwithstanding the requirements in 171.14(b)(4)(ii) of this subchapter, compliance with this provision is delayed until October 1, 1994, for a bulk packaging containing a material poisonous by inhalation which, when in contact with moisture, becomes highly corrosive to the tank and could cause a degree of corrosion under an insulation blanket that would have an adverse effect on tank integrity.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991; 57 FR 45458, Oct. 1, 1992; 58 FR 50235, Sept. 24, 1993, effective Oct. 1, 1993]

B15 Packagings must be protected with non- metallic linings impervious to the lading or have a suitable corrosion allowance.

B16 The lading must be completely covered with nitrogen, inert gas or other inert materials.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991]

B17 Packagings must be made of aluminum.

B18 Open steel hoppers or bins are authorized.

B19 The hazardous material may not exceed 45 percent concentration in a non-volatile solvent.

B20 The hazardous material may not exceed 50 percent concentration in a non-volatile solvent.

B21 The hazardous material may not exceed 60 percent concentration in a non-volatile solvent.

B22 The hazardous material may not exceed 90 percent concentration in a non-volatile solvent.

B23 Tanks must be made of steel that is rubber lined or unlined. Unlined tanks must be passivated before being placed in service. If unlined tanks are washed out with water, they must be repassivated prior to return to service. Lading in unlined tanks must be inhibited so that the corrosive effect on steel is not greater than that of hydrofluoric acid of 65 percent concentration.

B24 Packagings must be made of stainless steelin which the molybdenum content does not exceed 1.0 percentor of aluminum.

[57 FR 45458, Oct. 1, 1992]

B25 Packagings must be made from monel or nickel or monel-lined or nickel-lined steel.

B26 Tanks must be insulated. Insulation must be at least 100 mm (3.9 inches) except that the insulation thickness may be reduced to 51 mm (2 inches) over the exterior heater coils. Interior heating coils are not authorized. The packaging may not be loaded with a material outside of the packaging's design temperature range. In addition, the material also must be covered with an inert gas or the container must be filled with water to the tank's capacity. After unloading, the residual material also must be covered with an inert gas or the container must be filled with water to the tank's capacity.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991; 57 FR 45458, Oct. 1, 1992]

B27 Tanks must have a service pressure of 1,034 kPa (150 psig). Tank car tanks must have a test pressure rating of 1,379 kPa (200 psi). Lading must be blanketed at all times with a dry inert gas at a pressure not to exceed 103 kPa (15 psig).

B28 Packagings must be made of stainless steel.

B29 When the lading is transported in a molten state, tanks may be equipped with heating coils except that interior heating coils are prohibited. Electric standpipe heaters for tank cars are permitted.

B30 MC 312, MC 330, MC 331 and DOT 412 cargo tanks and DOT 51 portable tanks must be made of stainless steel, except that steel other than stainless steel may be used in accordance with the provisions of 173.24b(b) of this subchapter. Thickness of stainless steel for tank shell and heads for cargo tanks and portable tanks must be the greater of 7.62 mm (0.300 inch) or the thickness required for a tank with a design pressure at least equal to 1.5 times the vapor pressure of the lading at 46°C (115° F). In addition, MC 312 and DOT 412 cargo tank motor vehicles must:

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991]

a. Be ASME Code (U) stamped for 100% radiography of all pressure-retaining welds;

b. Have accident damage protection which conforms with § 178.345-8 of this subchapter;

c. Have a MAWP or design pressure of at least 87 psig: and

d. Have a bolted ASA manway cover.

B31 Bromine tank cars built prior to December 31, 1990 to DOT105A500W which have been stencilled and valved as DOT105A300W may continue in service.

B32 MC 312, MC 330, MC 331, DOT 412 cargo tanks and DOT 51 portable tanks must be made of stainless steel, except that steel other than stainless steel may be used in accordance with the provisions of 173.24b(b) of this subchapter. Thickness of stainless steel for tank shell and heads for cargo tanks and portable tanks must be the greater of 6.35 mm (0.250 inch) or the thickness required for a tank with a design pressure at least equal to 1.3 times the vapor pressure of the lading at 46°C (115° F). In addition, MC 312 and DOT 412 cargo tank motor vehicles must:

[Revised at 59 FR 49133, Sept. 26, 1994]

a. Be ASME Code (U) stamped for 100% radiography of all pressure-retaining welds;

b. Have accident damage protection which conforms with § 178.345-8 of this subchapter;

c. Have a MAWP or design pressure of at least 87 psig; and

d. Have a bolted ASA manway cover.

B33 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 must conform to Table 1 of this Special Provision. Based on the volatility class determined by using ASTM D439 and the Reid vapor pressure (RVP) of the particular gasoline, the maximum lading pressure and maximum ambient

temperature permitted during the loading of gasoline may not exceed that listed in Table I.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991; 59 FR 49133, Sept. 26, 1994]

Table IMaximum Ambient

TemperatureGasoline

Maximum lading and ambient

temperature

ASTM D439 volatility class (see note 1)

A..... 131° F

(RVP<=9.0 psia).....

B..... 124° F

(RVP<=10.0 psia).....

C..... 116° F

(RVP<=11.5 psia).....

D..... 107° F

(RVP<=13.5 psia).....

E..... 100° F

(RVP<=15.0 psia).....

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

B34 MC 330 or MC 331 cargo tanks and DOT 51 portable tanks must be made of stainless steel with a design pressure at least equal to 1.1 times the vapor pressure of the lading at 46°C (115°F). Steel other than stainless steel may be used in accordance with the provisions of 173.24b(b) of this subchapter.

B35 If LC50 is more than 200 ppm but not more than 1000 ppm, Special Provisions B31 and B73 apply. If LC50 is more than 1000 ppm but not more than 3000 ppm, Special Provisions B33 and B75 apply. If LC50 is more than 3000 ppm but not more than 5000 ppm, Note B34 applies.

B35 Tank cars containing hydrogen cyanide may be alternatively marked "Hydrocyanic acid, liquefied" if otherwise conforming to marking requirements in subpart D of this part. Tank cars marked "HYDROCYANIC ACID" prior to October 1, 1991 do not need to be remarked.

[Second B35 added at 57 FR 45458, Oct. 1, 1992; 58 FR 51531, Oct. 1, 1993]

B36 DOT 105J500W tank car tanks or Class DOT 106 or 110 tank car tanks are authorized.

B37 The amount of nitric oxide charged into any tank car tank may not exceed 1,379 kPa (200 psig)

at 21° C (70° F).

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991]

B38 If LC50 is more than 1000 ppm but not more than 3000 ppm, Special Provisions B31 and B73 apply. If LC50 is more than 3000 ppm but not more than 5000 ppm, Special Provisions B33 and B75 apply.

B39 Mixtures with flash points less than 23°C (73°F) must bear FLAMMABLE placards as prescribed in Subpart F of part 172.

B40 For liquid materials which are toxic by inhalation (see § 173.133(a)(2) of this subchapter), if LC50 is 200 ppm or less, Special Provisions B30 and B72 apply; if LC50 is more than 200 ppm but not more than 1000 ppm, Special Provisions B32 and B74 apply.

[Special Provision B41 removed at 60 FR 49072 , Sept. 21, 1995, effective July 1, 1996]

B42 Each 105J500W tank car must be marked as 105J200W. Each tank car must have a safety relief valve with a start-to-discharge pressure of 1,034 kPa (150 psig).

[58 FR 50235, Sept. 24, 1993, effective Oct. 1, 1993]

[Special Provision B43 removed at 60 FR 49072 , Sept. 21, 1995, effective July 1, 1996]

B44 All parts of valves and safety relief devices in contact with lading must be of a material which will not cause formation of acetylides.

B45 Safety relief valves must be equipped with stainless steel or platinum frangible discs approved by the AAR Committee on Tank Cars.

B46 The detachable protective housing for the loading and unloading valves of multi-unit tank car tanks must withstand tank test pressure and must be approved by the Associate Administrator for Hazardous Materials Safety.

B47 A safety relief device with a start-to-discharge pressure setting of 310 kPa (45 psig) is permitted.

[57 FR 45458, Oct. 1, 1992]

B48 Portable tanks in sodium metal service may be visually inspected at least once every 5 years instead of being retested hydrostatically. Date of the visual inspection must be stenciled on the tank near the other required markings.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991]

B49 Tanks equipped with interior heater coils are not authorized. Single unit tank car tanks must have a safety relief valve set at no more than 1551 kPa (225 psig).

B50 Each valve outlet of a multi-unit tank car tank must be sealed by a threaded solid plug or a threaded cap with inert luting or gasket material. Valves must be of stainless steel and the caps, plugs, and valve seats must be of a material that will not deteriorate as a result of contact with the lading.

B51 Tank car tanks must be marked "DISPERSANT GAS" or "REFRIGERANT GAS" or with the

proper shipping name.

B52 Notwithstanding the provisions of 173.24b of this subchapter, non-reclosing pressure relief devices are authorized on DOT 57 portable tanks.

B53 Except for IBCs, packagings must be made of either aluminum or steel.

[Revised at 59 FR 67486 , Dec. 29, 1994, effective Oct. 1, 1995]

B54 Open-top, sift-proof rail cars are also authorized.

B55 Water-tight, sift-proof, closed-top, metal- covered hopper cars, equipped with a venting arrangement (including flame arrestors) approved by the Associate Administrator for Hazardous Materials Safety are also authorized.

B56 Water-tight, sift-proof, closed-top, metal- covered hopper cars are also authorized if the particle size of the hazardous material is not less than 149 microns.

B57 Class DOT 115A tank car tanks must be equipped with a safety vent of a diameter not less than 305 mm (12 inches) complying with § 179.221-1 of this subchapter and the outer shell must be stenciled "CHLOROPRENE" on both sides in letters not less than 102 mm (4 inches) high.

B58 Notwithstanding the provisions of § 173.244(a) of this subchapter, only DOT 105J300W tank car tanks are authorized. Class 106 and 110 multi-unit tank car tanks are also authorized.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991]

B59 AAR Specification 207A40W, 207A40W6, 207A48W, 207A60W, 207A80W tank car tanks are also authorized provided that the lading is covered in a nitrogen blanket.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991]

B60 DOT Specification 106A500X multi-unit tank car tanks that are not equipped with a safety relief device of any type are authorized. For the transportation of phosgene, the outage must be sufficient to prevent tanks from becoming liquid full at 55°C (130°F).

B61 Written procedures covering details of tank car appurtenances, dome fittings, safety devices, and marking, loading, handling, inspection, and testing practices must be approved by the Associate Administrator for Hazardous Materials Safety before any single unit tank car tank is offered for transportation.

B62 Single unit tank car tanks must be equipped with a venting arrangement that is approved by the Associate Administrator for Hazardous Materials Safety.

[Special Provision B63 removed at 60 FR 49072 , Sept. 21, 1995, effective July 1, 1996]

B64 Each single unit tank car tank built after December 31, 1990 must be equipped with a tank head puncture resistance system that conforms to § 179.16 of this subchapter.

[Amended at 60 FR 49072 , Sept. 21, 1995, effective July 1, 1996]

B65 Notwithstanding the provisions of 173.244 of this subchapter, only DOT 105A500W tank cars are authorized. Each 105A500W tank car must be marked as 105A300W. Each tank car must have a

safety relief with a start to discharge pressure of 1,551 kPa (225 psig).

[58 FR 50235, Sept. 24, 1993, effective Oct. 1, 1993; 59 FR 48549 , Sept. 21, 1994]

B66 Each tank must be equipped with gas tight valve protection caps. Outage must be sufficient to prevent tanks from becoming liquid full at 55°C (130°F). Specification 110A500W tanks must be stainless steel.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991]

B67 All valves and fittings must be protected by a securely attached cover made of metal not subject to deterioration by the lading, and all valve openings, except safety valve, must be fitted with screw plugs or caps to prevent leakage in the event of valve failure.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991; 58 FR 50235, Sept. 24, 1993, effective Oct. 1, 1993]

B68 Sodium must be in a molten condition when loaded and allowed to solidify before shipment. Outage must be at least 5 percent at 98°C (208°F). Bulk packagings must have exterior heating coils fusion welded to the tank shell which have been properly stress relieved. The only tank car tanks authorized are Class DOT 105 tank cars having a test pressure of 2,069 kPa (300 psig) or greater.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991, 57 FR 45458, Oct. 1, 1992]

B69 Dry sodium cyanide or potassium cyanide may be shipped in sift-proof weather-resistant metal covered hopper cars, covered motor vehicles, portable tanks or non-specification bins. Bins must be approved by the Associate Administrator for Hazardous Materials Safety. Flexible intermediate bulk containers (FIBCs) may also be used under conditions approved by the Associate Administrator for Hazardous Materials Safety.

[57 FR 45458, Oct. 1, 1992]

B70 If DOT 103ANW tank car tank is used: All cast metal in contact with the lading must have 96.7 percent nickel content; and the lading must be anhydrous and free from any impurities.

B71 The only tank cars authorized are Class DOT 105, 112, and 114 tank car tanks with a test pressure of 2069 kPa (300 psig) or greater.

B72 Notwithstanding the provisions of 173.244(a) of this subchapter, only the following tank car tanks are authorized: DOT 105J500W tank car tanks and Class DOT 106 and 110 multi-unit tank car tanks.

B73 Bottom outlets are not authorized on tank car tanks. Notwithstanding the provisions of 173.243(a) and 173.244(a) of this subchapter, only the following tank car tanks are authorized: DOT 105J300W, 112J340W, 112T340W, 114J340W and 114T340W tank car tanks; Class DOT 106 and 110 multi-unit tank car tanks; and, except for materials meeting the definition of a flammable gas, DOT 105J300ALW tank car tanks.

B74 Notwithstanding the requirements of 173.244 of this subchapter, only the following are authorized: DOT 105S300W, 105S300ALW, 112J340W, and 114J340W tank cars; and Class DOT 106 and 110 multi-unit-tank car tanks.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991; 58 FR 50235, Sept. 24, 1993, effective Oct. 1, 1993]

B75 Bottom outlets are not authorized on tank car tanks. Notwithstanding the provisions of 173.243(a) and 173.244(a) of this subchapter, only the following tank car tanks are authorized: DOT 105J300W, 112J340W, 112T340W, 114J340W, and 114T340W tank car tanks; Class DOT 106 and 110 multi-unit tanks; and, except for materials meeting the definition of a flammable gas, DOT 105J300ALW tank car tanks.

B76 Notwithstanding the requirements of 173.244 of this subchapter, only the following are authorized: DOT 105S300W, 105S300ALW, 112J340W, and 114J340W tank cars. Each tank car must be marked DOT 105S200W, 105S200ALW, 112J200W, or 114J200 respectively. Each tank car tank must have a safety relief valve with a start-to-discharge pressure of 1,034 kPa (150 psig).

[58 FR 50235, Sept. 24, 1993, effective Oct. 1, 1993]

B77 Other packaging are authorized when approved by the Associate Administrator for Hazardous Materials Safety.

B78 Notwithstanding § 173.240 of this subchapter, the only bulk packagings authorized for transportation by rail are Class DOT 103, 104, 105, 109, 111, 112, and 114 tank car tanks. Heater pipes must be of welded construction designed for a test pressure of 500 pounds per square inch. A 25 mm (1 inch) woven lining of asbestos or other approved material must be placed between the bolster slabbing and the bottom of the tank. If a tank car tank is equipped with a safety vent of the frangible disc type, the frangible disc must be perforated with a 3.2 mm (0.13 inch) diameter hole. If a tank car tank is equipped with a safety relief valve, the tank car tank must also be equipped with a vacuum relief valve.

B79 Tank car tanks must have head puncture resistance and thermal protection in accordance with §§ 179.16 and 179.18 of this subchapter for tanks built before April 1, 1989.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991; 60 FR 49072 , Sept. 21, 1995, effective July 1, 1996]

B80 Each cargo tank must have a minimum design pressure of 276 kPa (40 psig).

[57 FR 45458, Oct. 1, 1992]

B81 Venting and pressure relief devices for tank car tanks and cargo tanks must be approved by the Associate Administrator for Hazardous Materials Safety.

B82 Cargo tanks and portable tanks are not authorized.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991]

B83 Bottom outlets are prohibited on tank car tanks transporting sulfuric acid in concentrations over 65.25 percent.

B84 Packagings must be protected with non- metallic linings impervious to the lading or have a suitable corrosion allowance for sulfuric acid or spent sulfuric acid in concentration up to 65.25 percent.

B85 Cargo tanks must be marked with the name of the lading in accordance with the requirements of 172.302(b).

B86 Only DOT 105S600W tank car tanks are authorized.

B90 Steel tanks conforming or equivalent to ASME specifications which contain solid or semisolid residual motor fuel antiknock mixture (including rust, scale, or other contaminants) may be shipped by rail freight or highway. The tank must have been designed and constructed to be capable of withstanding full vacuum. All openings must be closed with gasketed blank flanges or vapor tight threaded closures.

[Revised at 59 FR 49133, Sept. 26, 1994]

B100 Intermediate bulk containers are not authorized.

B101 Authorized only in metal intermediate bulk containers.

B103 If an intermediate bulk container is used, the package must be transported in a closed freight container or transport vehicle.

B104 Intermediate bulk containers must be provided with a device to allow venting during transport. The inlet to the pressure relief valve must communicate with the vapor space of the packaging and lading during transport.

B105 Authorized only in rigid intermediate bulk containers.

B106 Authorized in intermediate bulk containers that are vapor tight.

B108 Authorized in sift-proof, water-resistant flexible, fiberboard or wooden intermediate bulk containers; packed in a closed transport vehicle.

B109 Not authorized in flexible intermediate bulk containers.

B110 This material also may be packaged in IBCs authorized in 173.242(d) of this subchapter.

[57 FR 45458, Oct. 1, 1992; 59 FR 38064, July 26, 1994, effective date Sept. 30, 1994; 59 FR 67486 , Dec. 29, 1994, effective Oct. 1, 1995]

49 CFR 172.102(c)(4) "H" codes. These provisions apply only to transportation by highway.

[Reserved]

49 CFR 172.102(c)(5) "N" codes. These provisions apply only to non-bulk packagings:

Code/Special Provisions

N3 Glass inner packagings are permitted in combination or composite packagings only if the hazardous material is free from hydrofluoric acid.

N4 For combination or composite packagings, glass inner packagings, other than ampoules, are not permitted.

N5 Glass materials of construction are not authorized for any part of a packaging which is normally

in contact with the hazardous material.

N6 Battery fluid packaged with electric storage batteries, wet or dry, must conform to the packaging provisions of 173.159 (g) or (h) of this subchapter.

N7 The hazard class or division number of the material must be marked on the package in accordance with 172.302 of this subchapter. However, the hazard label corresponding to the hazard class or division may be substituted for the marking.

N8 Nitroglycerin solution in alcohol may be transported under this entry only when the solution is packed in metal cans of not more than 1 L capacity each, overpacked in a wooden box containing not more than 5 L. Metal cans must be completely surrounded with absorbent cushioning material. Wooden boxes must be completely lined with a suitable material impervious to water and nitroglycerin.

N9 If the substance is impregnated with less than 5% oil, it is excepted from the labeling requirements of subpart D of this part and the packaging tests of subpart M of part 178 of this subchapter.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991]

N10 Lighters and their inner packagings, which have been approved by the Associate Administrator for Hazardous Materials Safety (see 173.21(i) of this subchapter), must be packaged in one of the following outer packagings at the Packing Group II level: 4C1 or 4C2 wooden boxes; 4D plywood boxes; 4F reconstituted wood boxes; 4G fiberboard boxes; or 4H1 or 4H2 plastic boxes.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991]

N11 This material is excepted for the specification packaging requirements of this subchapter if the material is packaged in strong, tight non-bulk packaging meeting the requirements of subparts A and B of Part 173 of this subchapter.

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991]

N12 Plastic packagings are not authorized.

N20 A 5M1 multi-wall paper bag is authorized if transported in a closed transport vehicle.

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991]

N25 Steel single packagings are not authorized.

N32 Aluminum materials of construction are not authorized for single packagings.

N33 Aluminum drums are not authorized.

N34 Aluminum construction materials are not authorized for any part of a packaging which is normally in contact with the hazardous material.

N36 Aluminum or aluminum alloy construction materials are permitted only for halogenated hydrocarbons that will not react with aluminum.

N37 This material may be shipped in an integrally-lined fiber drum (1G) which meets the general

packaging requirements of subpart B of part 173 of this subchapter, the requirements of part 178 of this subchapter at the packing group assigned for the material and to any other special provisions of column 7 of the 172.101 table.

[58 FR 51531, Sept. 24, 1993, effective Oct. 1, 1993]

N40 This material is not authorized in the following packagings:

a. A combination packaging consisting of a 4G fiberboard box with inner receptacles of glass or earthenware;

b. A single packaging of a 4C2 sift-proof, natural wood box; or c. A composite packaging 6PG2 (glass, porcelain or stoneware receptacles within a fiberboard box).

N41 Metal construction materials are not authorized for any part of a packaging which is normally in contact with the hazardous material.

N43 Metal drums are permitted as single packagings only if constructed of nickel or monel.

N45 Copper cartridges are authorized as inner packagings if the hazardous material is not in dispersion.

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991]

N50 A Class 9 material that meets the definition of a marine pollutant, but does not meet the definition of a hazardous substance or a hazardous waste or the definition in 173.140(a) of this subchapter, is excepted from the labeling requirements of this part.

[57 FR 52938, Nov. 5, 1992, effective Jan. 1, 1993]

N65 Outage must be sufficient to prevent cylinders or spheres from becoming liquid full at 55°C (130°F). The vacant space (outage) may be charged with a nonflammable nonliquefied compressed gas if the pressure in the cylinder or sphere at 55°C (130°F) does not exceed 125 percent of the marked service pressure.

N71 Combination packagings consisting of inner glass packagings of not over 1.0 L (0.3 gallon) capacity each or inner metal packagings of not over 5.0 L (1 gallon) capacity each, placed in strong outer packagings, are authorized. Packagings are not subject to the requirements of part 178 of this subchapter.

N72 Packagings must be examined by the Bureau of Explosives and approved by the Associate Administrator for Hazardous Materials Safety.

N73 Packagings consisting of outer wooden or fiberboard boxes with inner glass, metal or other strong containers; metal or fiber drums; kegs or barrels; or strong metal cans are authorized and need not conform to the requirements of part 178 of this subchapter.

N74 Packages consisting of tightly closed inner containers of glass, earthenware, metal or polyethylene, capacity not over 0.5 kg (1.1 pounds) securely cushioned and packed in outer wooden barrels or wooden or fiberboard boxes, not over 15 kg (33 pounds) net weight, are authorized and need not conform to the requirements of part 178 of this subchapter.

N75 Packages consisting of tightly closed inner packagings of glass, earthenware or metal, securely cushioned and packed in outer wooden barrels or wooden or fiberboard boxes, capacity not over 2.5 kg (5.5 pounds) net weight, are authorized and need not conform to the requirements of part 178 of this subchapter.

N76 For materials of not more than 25 percent active ingredient by weight, packages consisting of inner metal packagings not greater than 250 ml (8 ounces) capacity each, packed in strong outer packagings together with sufficient absorbent material to completely absorb the liquid contents are authorized and need not conform to the requirements of part 178 of this subchapter.

N77 For materials of not more than two percent active ingredients by weight, packagings need not conform to the requirements of part 178 of this subchapter, if liquid contents are absorbed in an inert material.

N78 Packages consisting of inner glass, earthenware, or polyethylene or other nonfragile plastic bottles or jars not over 0.5 kg (1.1 pounds) capacity each, or metal cans not over five pounds capacity each, packed in outer wooden boxes, barrels or kegs, or fiberboard boxes are authorized and need not conform to the requirements of part 178 of this subchapter. Net weight of contents in fiberboard boxes may not exceed 29 kg (64 pounds). Net weight of contents in wooden boxes, barrels or kegs may not exceed 45 kg (99 pounds).

N79 Packages consisting of tightly closed metal inner packagings not over 0.5 kg (1.1 pounds) capacity each, packed in outer wooden or fiberboard boxes, or wooden barrels, are authorized and need not conform to the requirements of part 178 of this subchapter. Net weight of contents may not exceed 15 kg (33 pounds).

N80 Packages consisting of one inner metal can, not over 2.5 kg (5.5 pounds) capacity, packed in an outer wooden or fiberboard box, or a wooden barrel, are authorized and need not conform to the requirements of part 178 of this subchap ter.

N81 Polychlorinated biphenyl items, as defined in 40 CFR 761.3, for which specification packagings are impractical, may be packaged in non-specification packagings meeting the general packaging requirements of subparts A and B of part 173 of this subchapter. Alternatively, the item itself may be used as a packaging if it meets the general packaging requirements of subparts A and B of part 173 of this subchapter.

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991]

N82 See 173.306 of this subchapter for classification criteria for flammable aerosols.

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.102(c)(6) "R" codes. These provisions apply only to transportation by rail.

[Reserved]

49 CFR 172.102(c)(7) "T" codes. These provisions apply only to transportation in IM portable tanks. They are divided into two groupings, one of which appears as the IM Tank Configurations in paragraph (c)(7)(i) of this section, and the second of which imposes specific requirements and appears in paragraph (c)(7)(ii) of this section.

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.102(c)(7)(i) IM Tank Configurations. Column 1 lists the code for the special provisions as specified in column 7 of the 172.101 table. Column 2 specifies the IM tank type, either IM 101 (178.270 and 178.271 of this subchapter) or IM 102 (178.270 and 178.272 of this subchapter). Column 3 specifies the minimum test pressure, in bars (1 bar = 14.5 psig), at which the periodic hydrostatic testing required by 173.32b of this subchapter must be conducted. Column 4 specifies either the section referenced for requirements for bottom openings or "Prohibited", which means bottom openings are prohibited. Column 5 specifies the section reference for requirements applicable to pressure relief devices.

IM TANK CONFIGURATIONS

Minimum

test Pressure

IM tank Pressure relief

Code type (bars) Bottom outlets devices

(1) (2) (3) (4) (5)

T1..... 102 1.5 §173.32c(g)(1)..... §178.270-

11(a)(1),(2)

T2..... 102 1.5 §173.32c(g)(2)..... §178.270-

11(a)(1),(2)

T7..... 101 2.65 §173.32c(g)(1)..... §178.270-

11(a)(1),(2)

T8..... 101 2.65 §173.32c(g)(2)..... §178.270-

11(a)(1),(2)

T9..... 101 2.65 Prohibited..... §178.270-

11(a)(1),(2)

T11..... 101 2.65 §173.32c(g)(2)..... §178.270-

11(a)(3)

T12..... 101 2.65 Prohibited..... §178.270-

11(a)(3)

T13..... 101 4 §173.32c(g)(1)..... §178.270-

11(a)(1),(2)

T14..... 101 4 §173.32c(g)(2)..... §178.270-11(a)(1),(2)

T15..... 101 4 Prohibited..... §178.270-11(a)(1),(2)

T16..... 101 4 §173.32c(g)(1)..... §178.270-11(a)(3)

T17..... 101 4 §173.32c(g)(2)..... §178.270-11(a)(3)

T18..... 101 4 Prohibited..... §178.270-11(a)(3)

T20..... 101 6 §173.32c(g)(2)..... §178.270-11(a)(1),(2)

T21..... 101 6 Prohibited..... §178.270-11(a)(1),(2)

T22..... 101 6 §173.32c(g)(1)..... §178.270-11(a)(1)(2)

T23..... 101 6 §173.32c(g)(2)..... §178.270-11(a)(3)

T24..... 101 6 Prohibited..... §178.270-11(a)(3)

T28..... 101 10 Prohibited..... §178.270-11(a)(1),(2)

T39..... 101 10 Prohibited..... §178.270-11(a)(3)

T43..... 101 9 Prohibited..... §178.270-11(a)(3)

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.102(c)(7)(ii) IM Tank special provisions.

[Revised at 59 FR 49133, Sept. 26, 1994]

Code/Special Provisions

T25 This hazardous material is not permitted for transport in IM portable tanks.

T26 Each tank must have a minimum shell thickness of 6.35 mm (0.250 inch) mild steel.

T27 Each tank must have a minimum shell thickness of 8.0 mm (0.315 inch) mild steel.

T28 See entry for T28 in the IM Tank Configuration Table in paragraph (c)(7)(i) of this section.

[57 FR 45458, Oct. 1, 1992; 57 FR 47513, Oct. 16, 1992]

T29 The lading must be completely covered with nitrogen, inert gas or other inert materials.

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991]

T30 IM 102 portable tanks without bottom openings or with bottom openings conforming to § 173.32c(g)(1) of this subchapter are authorized for a hazardous material with a flash point of 0°C (32°F) or greater and a vapor pressure not greater than 65.5 kPa (9.5 psia) at 65.6°C (150°F).

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991]

T31 IM 102 portable tanks without bottom openings or with bottom openings conforming to 173.32c(g)(2) of this subchapter are authorized for a hazardous material with a flash point of 0°C (32°F) or greater and a vapor pressure not greater than 65 kPa (9.4 psia) at 65.6 °C (150 °F).

[Revised at 59 FR 49133, Sept. 26, 1994]

T32 Each tank must have a minimum shell thickness of 10.0 mm (0.394 inch) mild steel with at least 5.0 mm (0.197 inch) lead lining.

T33 Dry phosphorus is not permitted. For transport in a molten state, the tank must be insulated in accordance with Note T38. Air must be eliminated from the interior of the tank. The tank may be heated, however, interior heating coils are prohibited.

T34 The IM Tank authorization is limited to aqueous solutions containing not more than 40% dimethylamine.

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991]

T35 Each tank must be equipped with reclosing (spring loaded) pressure relief valves set to discharge at pressures determined according to the pressure characteristics of the organic peroxide lading.

T36 Each tank must be equipped with pressure relief devices with sufficient venting capacity to prevent the tank from bursting.

T37 IM portable tanks are only authorized for the shipment of hydrogen peroxide solutions in water containing 72 percent or less hydrogen peroxide by weight. Pressure relief devices shall be designed to prevent the entry of foreign matter, the leakage of liquid and the development of any dangerous

excess pressure. In addition, the tank shall be designed so that internal surfaces may be effectively cleaned and passivated. Each tank must be equipped with pressure relief devices conforming to the following requirements:

Total venting

capacity in standard

cubic feet per

hour

(S.C.F.H.) per

pound of

hydrogen

Concentration of hydrogen peroxide solution peroxide

52 percent or less..... 11

Over 52 percent but not greater than 60 22

percent.....

Over 60 percent but not greater than 72 32

percent.....

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991]

T38 Each tank must be insulated with an insulating material so that the overall thermal conductance at 15.5°C (60°F) is no more than 1.5333 kilojoules per hour per square meter per degree Celsius (0.075 Btu per hour per square foot per degree Fahrenheit) temperature differential. Insulating materials must not promote corrosion to steel when wet. Notwithstanding the requirements in § 171.14(b)(4)(ii) of this subchapter, compliance with this provision is delayed until October 1, 1994, for a bulk packaging containing a material poisonous by inhalation which, when in contact with moisture, becomes highly corrosive and could cause corrosion under an insulation blanket.

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991; 58 FR 50235, Sept. 24, 1993, effective Oct. 1, 1993]

T39 See entry for T39 in the IM Tank Configuration Table in paragraph (c)(7)(i) of this section.

[57 FR 45458, Oct. 1, 1992; 57 FR 47513, Oct. 16, 1992]

T40 Each tank must have a minimum shell thickness of 10.0 mm (0.39 inch) mild steel.

T41 Each tank must have a minimum shell thickness of 12.0 mm (0.47 inch) mild steel.

T42 Transport in IM portable tanks is permitted only under conditions approved by the Associate Administrator for Hazardous Materials Safety.

T43 See entry for T43 in the IM Tank Configuration Table in paragraph (c)(7)(1) of this section.

[57 FR 45458 , Oct. 1, 1992]

T44 DOT Specification IM 101 portable tanks shall be made of stainless steel except that steel other than stainless steel may be used in accordance with the provisions of 173.24b(b) of this subchapter. Thickness of stainless steel for tank shell and heads must be the greater of 7.62 mm (0.300 inch) or the thickness required for a tank with a design pressure at least equal to 1.5 times the vapor pressure of the lading at 46°C (115°F).

T45 DOT Specification IM 101 portable tanks shall be made of stainless steel except that steel other than stainless steel may be used in accordance with the provisions of 173.24b(b) of this subchapter. Thickness of stainless steel for tank shell and heads must be the greater of 6.35 mm (0.250 inch) or the thickness required for a tank with a design pressure at least equal to 1.3 times the vapor pressure of the lading at 46°C (115°F).

T46 IM portable tanks in sodium metal service are not required to be hydrostatically retested.

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991; 57 FR 45458, Oct. 1, 1992]

(8) "W" codes. These provisions apply only to transportation by water:

Code/Special Provisions

W41 When offered for transportation by water, this material must be packaged in bales and be securely and tightly bound with rope, wire or similar means.

49 CFR 172.102 Special provisions.

[55 FR 52582, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.102(a) General. When Column 7 of the 172.101 Table refers to a special provision for a hazardous material, the meaning and requirements of that provision are as set forth in this section. When a special provision specifies packagings or packaging requirements, they are in addition to the standard requirements for all packagings prescribed in 173.24 of this subchapter and any other applicable packaging requirements in subparts A and B of part 173 of this subchapter. When a special provision specifies packaging or packaging requirements

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.102(a)(1) The special provision is in addition to the standard requirements for all packagings prescribed in 173.24 of this subchapter and any other applicable packaging requirements in subparts A and B of part 173 of this subchapter; and

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.102(a)(2) To the extent a special provision imposes limitations or additional requirements on the packaging provisions set forth in Column 8 of the Sec. 172.101 Table, packagings must conform to the requirements of the special provision.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.102(b) Description of codes for special provisions. Special provisions contain packaging provisions, prohibitions, exceptions from requirements for particular quantities or forms of materials and requirements or prohibitions applicable to specific modes of transportation, as follows:

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.102(b)(1) A code consisting only of numbers (for example, "11") is multi-modal in application and may apply to bulk and non- bulk packagings.

49 CFR 172.102(b)(2) A code containing the letter "A" refers to a special provision which applies only to transportation by aircraft.

49 CFR 172.102(b)(3) A code containing the letter "B" refers to a special provision which applies only to bulk packaging requirements. Unless otherwise provided in this subchapter, these special provisions do not apply to IM portable tanks.

49 CFR 172.102(b)(4) A code containing the letter "H" refers to a special provision which applies only to transportation by highway.

49 CFR 172.102(b)(5) A code containing the letter "N" refers to a special provision which applies only to non-bulk packaging requirements.

49 CFR 172.102(b)(6) A code containing the letter "R" refers to a special provision which applies only to transportation by rail.

49 CFR 172.102(b)(7) A code containing the letter "T" refers to a special provision which applies only to transportation in IM portable tanks.

49 CFR 172.102(b)(8) A code containing the letter "W" refers to a special provision which applies only to transportation by water.

49 CFR 172.102(c) Tables of special provisions. The following tables list, and set forth the requirements of, the special provisions referred to in Column 7 of the § 172.101 Table.

49 CFR 172.102(c)(1) Numeric provisions. These provisions are multi-modal and apply to bulk and non-bulk packagings:

Code/Special Provisions

1 This material is poisonous by inhalation (see 171.8 of this subchapter) in Hazard Zone A (see 173.116(a) or 173.133(a) of this subchapter), and must be described as an inhalation hazard under the provisions of this subchapter.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

2 This material is poisonous by inhalation (see 171.8 of this subchapter) in Hazard Zone B (see 173.116(a) or 173.133(a) of this subchapter), and must be described as an inhalation hazard under the provisions of this subchapter.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

3 This material is poisonous by inhalation (see 171.8 of this subchapter) in Hazard Zone C (see 173.116(a) of this subchapter), and must be described as an inhalation hazard under the provisions of this subchapter.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

4 This material is poisonous by inhalation (see 171.8 of this subchapter) in Hazard Zone D (see 173.116(a) of this subchapter), and must be described as an inhalation hazard under the provisions of this subchapter.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991; 57 FR 45458, Oct. 1, 1992]

5 If this material meets the definition for a material poisonous by inhalation (see 171.8 of this subchapter), a shipping name must be selected which identifies the inhalation hazard, in Division 2.3 or Division 6.1, as appropriate.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

6 This material is poisonous-by-inhalation and must be described as an inhalation hazard under the provisions of this subchapter.

7 An ammonium nitrate fertilizer is a fertilizer formulation, containing 90% or more ammonium nitrate and no more than 0.2% organic combustible material (calculated as carbon), which does not meet the definition and criteria of a Class 1 (explosive) material (See 173.50 of this subchapter).

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

8 A hazardous substance that is not a hazardous waste may be shipped under the shipping description "Other regulated substances, liquid or solid, n.o.s.", as appropriate. In addition, for solid materials, special provision B54 applies.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

9 Packaging for certain PCBs for disposal and storage is prescribed by EPA in 40 CFR 761.60 and 761.65.

10 An ammonium nitrate mixed fertilizer is a fertilizer formulation, containing less than 90% ammonium nitrate and other ingredients, which does not meet the definition and criteria of a Class 1 (explosive) material (See 173.50 of this subchapter).

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

11 The hazardous material must be packaged as either a liquid or a solid, as appropriate, depending on its physical form at 55°C (131°F) at atmospheric pressure.

12 In concentrations greater than 40 percent, this material has strong oxidizing properties and is capable of starting fires in contact with combustible materials. If appropriate, a package containing this material must conform to the additional labeling requirements of 172.402 of this subchapter.

[57 FR 45458, Oct. 1, 1992; 58 FR 51531, Oct. 1, 1993]

13 The words "Inhalation Hazard" shall be entered on each shipping paper in association with the

shipping description, shall be marked on each non-bulk package in association with the proper shipping name and identification number, and shall be marked on two opposing sides of each bulk package. Size of marking on bulk package must conform to 172.302(b) of this subchapter. The requirements of 172.203(m) and 172.505 of this subchapter do not apply.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

14 Motor fuel antiknock mixtures are:

a. Mixtures of one or more organic lead mixtures (such as tetraethyl lead, triethylmethyl lead, diethyldimethyl lead, ethyltrimethyl lead, and tetramethyl lead) with one or more halogen compounds (such as ethylene dibromide and ethylene dichloride), hydrocarbon solvents or other equally efficient stabilizers; or

[Revised at 59 FR 49133, Sept. 26, 1994]

b. tetraethyl lead.

[58 FR 51531, Oct. 1, 1993]

15 Chemical kits include boxes, cases, etc., containing small amounts of various compatible dangerous goods which are used for medical, analytical or testing purposes and for which exceptions are provided in this subchapter. Inner packagings must not exceed 250 mL for liquids or 250 g for solids and must be protected from other materials in the kit. For transportation by aircraft, any dangerous goods forbidden in passenger aircraft may not be included in these kits. Kits must be packed in wooden boxes (4C1, 4C2), plywood boxes (4D), reconstituted wood boxes (4F), fiberboard boxes (4G) or plastic boxes (4H1, 4H2) which must be marked "Chemical kits.' Each package shall be classified for the material contained therein; if two or more different classes of material are present the class of the package shall be determined in accordance with § 173.2a of this subchapter. Each package must be labeled according to each substance contained in the package; this includes the primary hazard label and any subsidiary risk labels applicable to each individual substance within the kit. The total quantity of dangerous goods in any one kit must not exceed either 1 L or 1 kg. The total quantity of dangerous goods in any one package must not exceed either 10 L or 10 kg. The packing group assigned to the kit as a whole must be the most stringent packing group assigned to any individual substance contained in the kit.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

16 This description applies to smokeless powder and other solid propellants that are used as powder for small arms and have been classed as Division 1.3 and 4.1 in accordance with 173.56 of this subchapter.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991; 59 FR 67485 , Dec. 29, 1994, effective Oct. 1, 1995]

17 Aqueous solutions of hydrogen peroxide containing less than 8 percent hydrogen peroxide are not subject to the requirements of this subchapter.

[Provision 18 removed at 60 FR 26805, May 18, 1995, effective Oct. 1, 1995]

19 For domestic transportation only, the identification number "UN1075" may be used in place of

the identification number specified in Column (4) of the 172.101 Table. The identification number used must be consistent on package markings, shipping papers and emergency response information.

[57 FR 45458, Oct. 1, 1992]

20 The transport of this substance, when in concentrations of greater than 10% nitroglycerin, is prohibited. Concentrations of below 5% nitroglycerin may be transported as a Class 3 material; see UN 1204 and UN 3064.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

21 This material must be stabilized by appropriate means (e.g., addition of chemical inhibitor, purging to remove oxygen) to prevent dangerous polymerization (see 173.21(f) of this subchapter).

[57 FR 45458, Oct. 1, 1992]

22 If the hazardous material is in dispersion in organic liquid, the organic liquid must have a flash point above 50°C (122°F).

23 This material may be transported under the provisions of Division 4.1 only if it is so packed that the percentage of diluent will not fall below that stated in the shipping description at any time during transport.

[Added at 59 FR 67485 , Dec. 29, 1994, effective Oct. 1, 1995]

24 Alcoholic beverages containing more than 70 percent alcohol by volume must be transported as materials in Packing Group II. Alcoholic beverages containing more than 24 percent but not more than 70 percent alcohol by volume must be transported as materials in Packing Group III.

[Added at 59 FR 67485 , Dec. 29, 1994, effective Oct. 1, 1995]

[Provision 25 removed at 59 FR 67485 , Dec. 29, 1994, effective Oct. 1, 1995]

26 This entry does not include ammonium permanganate, the transport of which is prohibited except when approved by the Associate Administrator for Hazardous Materials Safety.

[Added at 59 FR 67485 , Dec. 29, 1994, effective Oct. 1, 1995]

27 Sodium carbonate peroxyhydrate is considered non-hazardous.

28 The dihydrated sodium salt of dichloroisocyanuric acid is not subject to the requirements of this subchapter.

[57 FR 45458, Oct. 1, 1992; 58 FR 51531, Oct. 1, 1993]

29 Lithium cells and batteries and equipment containing or packed with lithium cells and batteries which do not comply with the provisions of § 173.185 of this subchapter may be transported only if they are approved by the Associate Administrator for Hazardous Materials Safety.

[58 FR 50235, Sept. 24, 1993, effective Oct. 1, 1993; 60 FR 26805, May 18, 1995, effective Oct. 1, 1995]

30 Sulfur which is transported domestically is not subject to the requirements of this subchapter if

transported in a non-bulk packaging or is formed to a specific shape (e.g., prills, granules, pellets, pastilles, or flakes).

[58 FR 50235, Sept. 24, 1993, effective Oct. 1, 1993]

31 Materials which have undergone sufficient heat treatment to render them non-hazardous are not subject to the requirements of this subchapter.

[57 FR 45458, Oct. 1, 1992]

32 These beads are made from polystyrene, poly(methyl methacrylate) or other polymeric material.

[Added at 59 FR 67485 , Dec. 29, 1994, effective Oct. 1, 1995]

33 Ammonium nitrites and mixtures of an inorganic nitrite with an ammonium salt are prohibited.

34 The commercial grade of calcium nitrate fertilizer, when consisting mainly of a double salt (calcium nitrate and ammonium nitrate) containing not more than 10 percent ammonium nitrate and at least 12 percent water of crystallization, is not subject to the requirements of this subchapter.

[Added at 59 FR 67485 , Dec. 29, 1994, effective Oct. 1, 1995]

35 Antimony sulphides and oxides which do not contain more than 0.5 percent of arsenic calculated on the total mass do not meet the definition of Division 6.1.

[Added at 59 FR 67485 , Dec. 29, 1994, effective Oct. 1, 1995; 60 FR 26805, May 18, 1995, effective Oct. 1, 1995]

36 The maximum net quantity per package is 5 liters (1 gallon) or 5 kg (11 pounds).

[Added at 59 FR 67485 , Dec. 29, 1994, effective Oct. 1, 1995]

37 Unless it can be demonstrated by testing that the sensitivity of the substance in its frozen state is no greater than in its liquid state, the substance must remain liquid during normal transport conditions. It must not freeze at temperatures above -15°C (5°F).

[Added at 59 FR 67485 , Dec. 29, 1994, effective Oct. 1, 1995]

38 If this material shows a violent effect in laboratory tests involving heating under confinement, the labeling requirements of Special Provision 53 apply, and the material must be packaged in accordance with packing method OP6B in 173.225 of this subchapter. If the SADT is higher than 75° C, the technically pure substance and formulations derived from it are not self-reactive materials.

[Added at 60 FR 26805 , May 18, 1995, effective Oct. 1, 1995]

39 This substance may be carried under provisions other than those of Class 1 only if it is so packed that the percentage of water will not fall below that stated at any time during transport. When phlegmatized with water and inorganic inert material, the content of urea nitrate must not exceed 75 percent by mass and the mixture should not be capable of being detonated by test 1(a)(i) or test 1(a)(ii) in the UN Recommendations Tests and Criteria.

[Added at 59 FR 67485 , Dec. 29, 1994, effective Oct. 1, 1995]

40 Polyester resin kits consist of two components: a base material (Class 3, Packing Group II or III) and an activator (organic peroxide), each separately packed in an inner packaging. The organic peroxide must be type D, E, or F, not requiring temperature control, and be limited to a quantity of 125 ml (4.22 ounces) per inner packaging if liquid, and 500 g (1 pound) if solid. The components may be placed in the same outer packaging provided they will not interact dangerously in the event of leakage. Packing group will be II or III, according to the criteria for Class 3, applied to the base material.

[Added at 59 FR 67485 , Dec. 29, 1994, effective Oct. 1, 1995]

[Provision 41 removed at 59 FR 67485 , Dec. 29, 1994, effective Oct. 1, 1995]

[Provision 42 removed at 59 FR 49133, Sept. 26, 1994]

43 The nitrogen content of the nitrocellulose must not exceed 11.5 percent. Each single filter sheet must be packed between sheets of glazed paper. The portion of glazed paper between the filter sheets must not be less than 65 percent, by mass. The membrane filters/paper arrangement must not be liable to propagate a detonation as tested by one of the tests described in the UN Recommendations, Tests and Criteria, Part I, Test series 1 (a).

[Added at 59 FR 67486 , Dec. 29, 1994, effective Oct. 1, 1995]

44 The formulation must be prepared so that it remains homogeneous and does not separate during transport. Formulations with low nitrocellulose contents and neither showing dangerous properties when tested for their ability to detonate, deflagrate or explode when heated under defined confinement by the appropriate test methods and criteria in the UN Recommendations, Tests and Criteria, nor being a flammable solid when tested in accordance with Appendix E to Part 173 of this subchapter (chips, if necessary, crushed and sieved to a particle size of less than 1.25 mm) are not subject to this subchapter.

[Added at 59 FR 67486 , Dec. 29, 1994, effective Oct. 1, 1995]

45 Temperature should be maintained between 18°C (64.4°F) and 40°C (104°F). Tanks containing solidified methacrylic acid must not be reheated during transport.

[Added at 59 FR 67486 , Dec. 29, 1994, effective Oct. 1, 1995]

46 This material must be packed in accordance with packing method OP6B (see § 173.225 of this subchapter). During transport, it must be protected from direct sunshine and stored (or kept) in a cool and well-ventilated place, away from all sources of heat.

[Added at 59 FR 67486 , Dec. 29, 1994, effective Oct. 1, 1995]

47 Mixtures of solids which are not subject to this subchapter and flammable liquids may be transported under this entry without first applying the classification criteria of Division 4.1, provided there is no free liquid visible at the time the material is loaded or at the time the packaging or transport unit is closed. Each packaging must correspond to a design type that has passed a leakproofness test at the Packing Group II level.

[Added at 59 FR 67486 , Dec. 29, 1994, effective Oct. 1, 1995]

48 Mixtures of solids which are not subject to this subchapter and toxic liquids may be transported

under this entry without first applying the classification criteria of Division 6.1, provided there is no free liquid visible at the time the material is loaded or at the time the packaging or transport unit is closed. Each packaging must correspond to a design type that has passed a leakproofness test at the Packing Group II level. This entry may not be used for solids containing a Packing Group I liquid.

[Added at 59 FR 67486 , Dec. 29, 1994, effective Oct. 1, 1995]

49 Mixtures of solids which are not subject to this subchapter and corrosive liquids may be transported under this entry without first applying the classification criteria of Class 8, provided there is no free liquid visible at the time the material is loaded or at the time the packaging or transport unit is closed. Each packaging must correspond to a design type that has passed a leakproofness test at the Packing Group II level.

[Added at 59 FR 67486 , Dec. 29, 1994, effective Oct. 1, 1995]

50 Cases, cartridge, empty with primer which are made of metallic or plastic casings and meeting the classification criteria of Division 1.4 are not regulated for domestic transportation.

[Added at 59 FR 67486 , Dec. 29, 1994, effective Oct. 1, 1995]

51 This description applies to items previously described as "Toy propellant devices, Class C" and includes reloadable kits. Model rocket motors containing 30 grams or less propellant are classed as Division 1.4S and items containing more than 30 grams of propellant but not more than 62.5 grams of propellant are classed as Division 1.4C.

[Added at 59 FR 67486 , Dec. 29, 1994, effective Oct. 1, 1995; 60 FR 26805, May 18, 1995, effective Oct. 1, 1995]

52 Ammonium nitrate fertilizers may not meet the definition and criteria of Class 1 (explosive) material (see 173.50 of this subchapter).

[Added at 59 FR 67408 , Dec. 29, 1994, effective Oct. 1, 1995; 60 FR 49108 , Sept. 21, 1995, effective Oct. 1, 1995]

53 Packages of these materials must bear the subsidiary risk label, "EXPLOSIVE", unless otherwise provided in this subchapter or through an approval issued by the Associate Administrator for Hazardous Materials Safety, or the competent authority of the country of origin. A copy of the approval shall accompany the shipping papers.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

54 Maneb or maneb preparations not meeting the definition of Division 4.3 or any other hazard class are not subject to the requirements of this subchapter when transported by motor vehicle, rail car, or aircraft.

[Added at 59 FR 67486 , Dec. 29, 1994, effective Oct. 1, 1995]

55 This device must be approved in accordance with § 173.56 of this subchapter by the Associate Administrator for Hazardous Materials Safety.

[Added at 60 FR 26805 , May 18, 1995, effective Oct. 1, 1995]

56 A means to interrupt and prevent detonation of the detonator from initiating the detonating cord must be installed between each electric detonator and the detonating cord ends of the jet perforating guns before the charged jet perforating guns are offered for transportation.

[Added at 60 FR 26805 , May 18, 1995, effective Oct. 1, 1995]

81 Polychlorinated biphenyl items, as defined in 40 CFR 761.3, for which specification packagings are impractical, may be packaged in non-specification packagings meeting the general packaging requirements of subparts A and B of part 173 of this subchapter. Alternatively, the item itself may be used as a packaging if it meets the general packaging requirements of subparts A and B of part 173 of this subchapter.

[58 FR 51531, Oct. 1, 1993]

101 The name of the particular substance or article must be specified.

102 The articles may be transported as in Division 1.4 Compatibility Group D (1.4D) if all of the conditions specified in 173.63(a) of this subchapter are met.

103 Detonators which will not mass detonate and undergo only limited propagation in the shipping package may be assigned to 1.4B classification code. Mass detonate means that more than 90 percent of the devices tested in a package explode practically simultaneously. Limited propagation means that if one detonator near the center of a shipping package is exploded, the aggregate weight of explosives, excluding ignition and delay charges, in this and all additional detonators in the outside packaging that explode may not exceed 25 grams.

[60 FR 49110 , Sept. 21, 1995, effective Oct. 1, 1995]

104 Detonators which meet the following conditions may be assigned to 1.4S classification code: Each detonator may contain no more than 1 g of explosive, excluding ignition and delay charges, and if one detonator near the center of a package detonates it will not cause functioning of any other device in the same or adjacent packages.

105 The word "Agents" may be used instead of "Explosives" when approved by the Associate Administrator for Hazardous Materials Safety.

106 The recognized name of the particular explosive may be specified in addition to the type.

107 The classification of the substance is expected to vary especially with the particle size and packaging but the border lines have not been experimentally determined; appropriate classifications should be verified following the test procedures in 173.57 and 173.58 of this subchapter.

108 Fireworks must be so constructed and packaged that loose pyrotechnic composition will not be present in packages during transportation.

109 Rocket motors must be nonpropulsive in transportation unless approved in accordance with 173.56 of this subchapter. A rocket motor to be considered "nonpropulsive" must be capable of unrestrained burning and must not appreciably move in any direction when ignited by any means.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991; 58 FR 50235, Sept. 24, 1993, effective Oct. 1, 1993]

111 Explosive substances of Division 1.1 Compatibility Group A (1.1A) are forbidden for transportation if dry or not desensitized, unless incorporated in a device.

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991]

112 "Cartridges, small arms" and "Cartridges, power devices (which are used to project fastening devices)" which have been classed in Division 1.4 Compatibility Group S (1.4S) may be reclassed and offered for domestic transportation as ORM-D material if they are offered for transportation and transported in accordance with the limitations and packaging requirements of 173.230 of this subchapter.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

113 The sample must be given a tentative approval by an agency or laboratory in accordance with § 173.56 of this subchapter.

114 Jet perforating guns, charged, oil well, without detonator may be reclassed to Division 1.4 Compatibility Group D (1.4D) if the following conditions are met:

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

a. The total weight of the explosive contents of the shaped charges assembled in the guns does not exceed 90.5 kg (200 pounds) per vehicle; and

b. The guns are packaged in accordance with Packing Method US006 as specified in 173.62 of this subchapter.

115 Boosters with detonator (detonating primers) in which the total explosive charge per unit does not exceed 25 g, and which will not mass detonate and undergo only limited propagation in the shipping package may be assigned to 1.4B classification code. Mass detonate means more than 90 percent of the devices tested in a package explode practically simultaneously. Limited propagation means that if one booster near the center of the package is exploded, the aggregate weight of explosives, excluding ignition and delay charges, in this and all additional boosters in the outside packaging that explode may not exceed 25 g.

116 Fuzes, detonating may be classed in Division 1.4 if the fuzes do not contain more than 25 g of explosive per fuze and are made and packaged so that they will not cause functioning of other fuzes, explosives or other explosive devices if one of the fuzes detonates in a shipping packaging or in adjacent packages.

117 If shipment of the explosive substance is to take place at a time that freezing weather is anticipated, the water contained in the explosive substance must be mixed with denatured alcohol so that freezing will not occur.

49 CFR 172.102(c)(2) "A" codes. These provisions apply only to transportation by aircraft:

Code/Special Provisions

A1 Single packagings are not permitted on passenger aircraft.

A2 Single packagings are not permitted on aircraft.

A3 For combination packagings, if glass inner packagings (including ampoules) are used, they must be packed with absorbent material in tightly closed metal receptacles before packing in outer packagings.

A4 Liquids having an inhalation toxicity of Packing Group I are not permitted on aircraft.

A5 Solids having an inhalation toxicity of Packing Group I are not permitted on passenger aircraft and may not exceed a maximum net quantity per package of 15 kg (33 pounds) on cargo aircraft.

A6 For combination packagings, if plastic inner packagings are used, they must be packed in tightly closed metal receptacles before packing in outer packagings.

A7 Steel packagings must be corrosion-resistant or have protection against corrosion.

A8 For combination packagings, if glass inner packagings (including ampoules) are used, they must be packed with cushioning material in tightly closed metal receptacles before packing in outer packagings.

A9 For combination packagings, if plastic bags are used, they must be packed in tightly closed metal receptacles before packing in outer packagings.

A10 When aluminum or aluminum alloy construction materials are used, they must be resistant to corrosion.

A11 For combination packagings, when metal inner packagings are permitted, only specification cylinders constructed of metals which are compatible with the hazardous material may be used.

A12 Lithium batteries in equipment, which have been approved by the Associate Administrator for Hazardous Materials Safety, must not exceed, in any piece of equipment, 12g of lithium or lithium alloy per cell and 500 g of lithium or lithium alloy per battery.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991; 58 FR 50235, Sept. 24, 1993, effective Oct. 1, 1993]

A13 Non-bulk packagings conforming to § 173.197 of this subchapter not exceeding 16 kilograms (35 pounds) gross mass containing only used sharps are permitted for transportation by aircraft. Maximum liquid content in each inner packaging may not exceed 50 milliliters (1.7 ounces).

[Added at 60 FR 48787 , Sept. 20, 1995, effective Oct. 1, 1995]

A14 Non-bulk packagings of regulated medical waste conforming to § 173.197 of this subchapter not exceeding 16 kilograms (35 pounds) gross mass for solid waste or 12 liters (3 gallons) total volume for liquid waste may be transported by passenger and cargo aircraft when means of transportation other than air are impracticable or not available.

[Added at 60 FR 48787 , Sept. 20, 1995, effective Oct. 1, 1995]

A19 Combination packagings consisting of outer fiber drums or plywood drums, with inner plastic packagings, are not authorized for transportation by aircraft.

A20 Plastic bags as inner receptacles of combination packagings are not authorized for transportation by aircraft.

A29 Combination packagings consisting of outer expanded plastic boxes with inner plastic bags are not authorized for transportation by aircraft.

A30 Ammonium permanganate is not authorized for transportation on aircraft.

[A33 removed at 59 FR 67390 , Dec. 29, 1994, effective Oct. 1, 1995]

A34 Aerosols containing a corrosive liquid in Packing Group II charged with a gas are not permitted for transportation by aircraft.

[56 FR 66250, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.102(c)(3) "B" codes. These provisions apply only to bulk packagings:

Code/Special Provisions

B1 If the material has a flash point at or above 38°C (100°F) and below 93°C (200°F), then the bulk packaging require ments of 173.241 of this subchapter are applicable. If the material has a flash point of less than 38°C (100°F), then the bulk packaging requirements of 173.242 of this subchapter are applicable.

B2 MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks are not authorized.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991; 57 FR 45458, Oct. 1, 1992]

B3 MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks and DOT 57 portable tanks are not authorized.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991; 57 FR 45458, Oct. 1, 1992]

B4 AAR 206 tank car tanks and MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks are not authorized.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991; 57 FR 45458, Oct. 1, 1992]

B5 Only ammonium nitrate solutions with 35 percent or less water that will remain completely in solution at a maximum lading temperature of 116°C (240°F) are authorized for transport in the following bulk packagings: DOT 103 ALW, 111A60 ALW tank car tanks and MC 307, MC 312, DOT 407 and DOT 412 cargo tanks with at least 172 kPa (25 psig) design pressure. The packaging shall be designed for a working temperature of at least 121°C (250°F). Only Specifications MC 304, MC 307 or DOT 407 cargo tank motor vehicles are authorized for transportation by vessel.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991; 59 FR 49133, Sept. 26, 1994]

B6 Packagings shall be made of steel.

B7 Safety relief devices are not authorized on multi-unit tank car tanks. Openings for safety relief devices shall be plugged or blank flanged.

B8 Packagings shall be made of nickel, stainless steel, or steel with nickel, stainless steel, lead or other suitable corrosion resistant metallic lining.

B9 Bottom outlets are not authorized.

B10 AAR 206 tank car tanks, MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks, and DOT 57 portable tanks are not authorized.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991; 57 FR 45458, Oct. 1, 1992]

B11 Tank car tanks must have a test pressure of at least 2,068.5 kPa (300 psi). Cargo and portable tanks must have a design pressure of at least 1,207 kPa (175 psig).

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991]

B12 Tank car tanks must be marked with the name of the lading in accordance with the requirements of § 172.330 of this subchapter.

B13 For compressed gases, §§ 173.314 and 173.315 of this subchapter specify additional requirements.

B13 A nonspecification cargo tank motor vehicle authorized in § 173.247 of this subchapter must be at least equivalent in design and in construction to a DOT 406 cargo tank or MC 306 cargo tank (if constructed before September 1, 1993), except as follows:

[Second B13 added at 57 FR 45458, Oct. 1, 1992]

a. Packagings equivalent to MC 306 cargo tanks are excepted from 178.340-10 , certification; 178.341-4, vents; and 178.341-5, emergency flow control.

b. Packagings equivalent to DOT 406 cargo tanks are excepted from §§ 178.345-7(d)(5) , circumferential reinforcements, 178.345-14, marking; 178.345-15, certification; 178.346- 10, pressure relief; and 178.346-11, outlets.

[57 FR 59310, Dec. 15, 1992]

c. Packagings are excepted from the design stress limits at elevated temperatures, as described in the ASME Code. However, the design stress limits may not exceed 25 percent of the stress, as specified in the Aluminum Association's "Aluminum Standards and Data" (7th Edition June 1982), for 0 temper at the maximum design temperature of the cargo tank.

[58 FR 51531, Oct. 1, 1993]

B14 Each bulk packaging, except a tank car or a multi-unit-tank car tank, must be insulated with an insulating material so that the overall thermal conductance at 15.5° C (60° F) is no more than 1.5333 kilojoules per hour per square meter per degree Celsius (0.075 Btu per hour per square foot per degree Fahrenheit) temperature differential. Insulating materials must not promote corrosion to steel when wet. Notwithstanding the requirements in 171.14(b)(4)(ii) of this subchapter, compliance with this provision is delayed until October 1, 1994, for a bulk packaging containing a material poisonous by inhalation which, when in contact with moisture, becomes highly corrosive to the tank and could cause a degree of corrosion under an insulation blanket that would have an adverse effect on tank integrity.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991; 57 FR 45458, Oct. 1, 1992; 58 FR 50235, Sept. 24, 1993, effective Oct. 1, 1993]

B15 Packagings must be protected with non- metallic linings impervious to the lading or have a suitable corrosion allowance.

B16 The lading must be completely covered with nitrogen, inert gas or other inert materials.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991]

B17 Packagings must be made of aluminum.

B18 Open steel hoppers or bins are authorized.

B19 The hazardous material may not exceed 45 percent concentration in a non-volatile solvent.

B20 The hazardous material may not exceed 50 percent concentration in a non-volatile solvent.

B21 The hazardous material may not exceed 60 percent concentration in a non-volatile solvent.

B22 The hazardous material may not exceed 90 percent concentration in a non-volatile solvent.

B23 Tanks must be made of steel that is rubber lined or unlined. Unlined tanks must be passivated before being placed in service. If unlined tanks are washed out with water, they must be repassivated prior to return to service. Lading in unlined tanks must be inhibited so that the corrosive effect on steel is not greater than that of hydrofluoric acid of 65 percent concentration.

B24 Packagings must be made of stainless steelin which the molybdenum content does not exceed 1.0 percentor of aluminum.

[57 FR 45458, Oct. 1, 1992]

B25 Packagings must be made from monel or nickel or monel-lined or nickel-lined steel.

B26 Tanks must be insulated. Insulation must be at least 100 mm (3.9 inches) except that the insulation thickness may be reduced to 51 mm (2 inches) over the exterior heater coils. Interior heating coils are not authorized. The packaging may not be loaded with a material outside of the packaging's design temperature range. In addition, the material also must be covered with an inert gas or the container must be filled with water to the tank's capacity. After unloading, the residual material also must be covered with an inert gas or the container must be filled with water to the tank's capacity.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991; 57 FR 45458, Oct. 1, 1992]

B27 Tanks must have a service pressure of 1,034 kPa (150 psig). Tank car tanks must have a test pressure rating of 1,379 kPa (200 psi). Lading must be blanketed at all times with a dry inert gas at a pressure not to exceed 103 kPa (15 psig).

B28 Packagings must be made of stainless steel.

B29 When the lading is transported in a molten state, tanks may be equipped with heating coils except that interior heating coils are prohibited. Electric standpipe heaters for tank cars are permitted.

B30 MC 312, MC 330, MC 331 and DOT 412 cargo tanks and DOT 51 portable tanks must be made of stainless steel, except that steel other than stainless steel may be used in accordance with the

provisions of 173.24b(b) of this subchapter. Thickness of stainless steel for tank shell and heads for cargo tanks and portable tanks must be the greater of 7.62 mm (0.300 inch) or the thickness required for a tank with a design pressure at least equal to 1.5 times the vapor pressure of the lading at 46°C (115° F). In addition, MC 312 and DOT 412 cargo tank motor vehicles must:

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991]

a. Be ASME Code (U) stamped for 100% radiography of all pressure-retaining welds;

b. Have accident damage protection which conforms with § 178.345-8 of this subchapter;

c. Have a MAWP or design pressure of at least 87 psig: and

d. Have a bolted ASA manway cover.

B31 Bromine tank cars built prior to December 31, 1990 to DOT105A500W which have been stencilled and valved as DOT105A300W may continue in service.

B32 MC 312, MC 330, MC 331, DOT 412 cargo tanks and DOT 51 portable tanks must be made of stainless steel, except that steel other than stainless steel may be used in accordance with the provisions of 173.24b(b) of this subchapter. Thickness of stainless steel for tank shell and heads for cargo tanks and portable tanks must be the greater of 6.35 mm (0.250 inch) or the thickness required for a tank with a design pressure at least equal to 1.3 times the vapor pressure of the lading at 46°C (115° F). In addition, MC 312 and DOT 412 cargo tank motor vehicles must:

[Revised at 59 FR 49133, Sept. 26, 1994]

a. Be ASME Code (U) stamped for 100% radiography of all pressure-retaining welds;

b. Have accident damage protection which conforms with § 178.345-8 of this subchapter;

c. Have a MAWP or design pressure of at least 87 psig; and

d. Have a bolted ASA manway cover.

B33 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 must conform to Table 1 of this Special Provision. Based on the volatility class determined by using ASTM D439 and the Reid vapor pressure (RVP) of the particular gasoline, the maximum lading pressure and maximum ambient temperature permitted during the loading of gasoline may not exceed that listed in Table I.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991; 59 FR 49133, Sept. 26, 1994]

Table IMaximum Ambient TemperatureGasoline

Maximum lading and ambient temperature ASTM D439 volatility class

(see note 1)

A..... 131° F

(RVP<=9.0 psia).....

B..... 124° F

(RVP<=10.0 psia).....

C..... 116° F

(RVP<=11.5 psia).....

D..... 107° F

(RVP<=13.5 psia).....

E..... 100° F

(RVP<=15.0 psia).....

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

B34 MC 330 or MC 331 cargo tanks and DOT 51 portable tanks must be made of stainless steel with a design pressure at least equal to 1.1 times the vapor pressure of the lading at 46°C (115°F). Steel other than stainless steel may be used in accordance with the provisions of 173.24b(b) of this subchapter.

B35 If LC50 is more than 200 ppm but not more than 1000 ppm, Special Provisions B31 and B73 apply. If LC50 is more than 1000 ppm but not more than 3000 ppm, Special Provisions B33 and B75 apply. If LC50 is more than 3000 ppm but not more than 5000 ppm, Note B34 applies.

B35 Tank cars containing hydrogen cyanide may be alternatively marked "Hydrocyanic acid, liquefied" if otherwise conforming to marking requirements in subpart D of this part. Tank cars marked "HYDROCYANIC ACID" prior to October 1, 1991 do not need to be remarked.

[Second B35 added at 57 FR 45458, Oct. 1, 1992; 58 FR 51531, Oct. 1, 1993]

B36 DOT 105J500W tank car tanks or Class DOT 106 or 110 tank car tanks are authorized.

B37 The amount of nitric oxide charged into any tank car tank may not exceed 1,379 kPa (200 psig) at 21° C (70° F).

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991]

B38 If LC50 is more than 1000 ppm but not more than 3000 ppm, Special Provisions B31 and B73 apply. If LC50 is more than 3000 ppm but not more than 5000 ppm, Special Provisions B33 and B75 apply.

B39 Mixtures with flash points less than 23°C (73°F) must bear FLAMMABLE placards as prescribed in Subpart F of part 172.

B40 For liquid materials which are toxic by inhalation (see § 173.133(a)(2) of this subchapter), if LC50 is 200 ppm or less, Special Provisions B30 and B72 apply; if LC50 is more than 200 ppm but not more than 1000 ppm, Special Provisions B32 and B74 apply.

[Special Provision B41 removed at 60 FR 49072 , Sept. 21, 1995, effective July 1, 1996]

B42 Each 105J500W tank car must be marked as 105J200W. Each tank car must have a safety relief valve with a start-to-discharge pressure of 1,034 kPa (150 psig).

[58 FR 50235, Sept. 24, 1993, effective Oct. 1, 1993]

[Special Provision B43 removed at 60 FR 49072 , Sept. 21, 1995, effective July 1, 1996]

B44 All parts of valves and safety relief devices in contact with lading must be of a material which will not cause formation of acetylides.

B45 Safety relief valves must be equipped with stainless steel or platinum frangible discs approved by the AAR Committee on Tank Cars.

B46 The detachable protective housing for the loading and unloading valves of multi-unit tank car tanks must withstand tank test pressure and must be approved by the Associate Administrator for Hazardous Materials Safety.

B47 A safety relief device with a start-to-discharge pressure setting of 310 kPa (45 psig) is permitted.

[57 FR 45458, Oct. 1, 1992]

B48 Portable tanks in sodium metal service may be visually inspected at least once every 5 years instead of being retested hydrostatically. Date of the visual inspection must be stenciled on the tank near the other required markings.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991]

B49 Tanks equipped with interior heater coils are not authorized. Single unit tank car tanks must have a safety relief valve set at no more than 1551 kPa (225 psig).

B50 Each valve outlet of a multi-unit tank car tank must be sealed by a threaded solid plug or a threaded cap with inert luting or gasket material. Valves must be of stainless steel and the caps, plugs, and valve seats must be of a material that will not deteriorate as a result of contact with the lading.

B51 Tank car tanks must be marked "DISPERSANT GAS" or "REFRIGERANT GAS" or with the proper shipping name.

B52 Notwithstanding the provisions of 173.24b of this subchapter, non-reclosing pressure relief devices are authorized on DOT 57 portable tanks.

B53 Except for IBCs, packagings must be made of either aluminum or steel.

[Revised at 59 FR 67486 , Dec. 29, 1994, effective Oct. 1, 1995]

B54 Open-top, sift-proof rail cars are also authorized.

B55 Water-tight, sift-proof, closed-top, metal- covered hopper cars, equipped with a venting arrangement (including flame arrestors) approved by the Associate Administrator for Hazardous Materials Safety are also authorized.

B56 Water-tight, sift-proof, closed-top, metal- covered hopper cars are also authorized if the particle size of the hazard ous material is not less than 149 microns.

B57 Class DOT 115A tank car tanks must be equipped with a safety vent of a diameter not less than 305 mm (12 inches) complying with § 179.221-1 of this subchapter and the outer shell must be stenciled "CHLOROPRENE" on both sides in letters not less than 102 mm (4 inches) high.

B58 Notwithstanding the provisions of § 173.244(a) of this subchapter, only DOT 105J300W tank car tanks are authorized. Class 106 and 110 multi-unit tank car tanks are also authorized.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991]

B59 AAR Specification 207A40W, 207A40W6, 207A48W, 207A60W, 207A80W tank car tanks are also authorized provided that the lading is covered in a nitrogen blanket.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991]

B60 DOT Specification 106A500X multi-unit tank car tanks that are not equipped with a safety relief device of any type are authorized. For the transportation of phosgene, the outage must be sufficient to prevent tanks from becoming liquid full at 55°C (130°F).

B61 Written procedures covering details of tank car appurtenances, dome fittings, safety devices, and marking, loading, handling, inspection, and testing practices must be approved by the Associate Administrator for Hazardous Materials Safety before any single unit tank car tank is offered for transportation.

B62 Single unit tank car tanks must be equipped with a venting arrangement that is approved by the Associate Administrator for Hazardous Materials Safety.

[Special Provision B63 removed at 60 FR 49072 , Sept. 21, 1995, effective July 1, 1996]

B64 Each single unit tank car tank built after December 31, 1990 must be equipped with a tank head puncture resistance system that conforms to § 179.16 of this subchapter.

[Amended at 60 FR 49072 , Sept. 21, 1995, effective July 1, 1996]

B65 Notwithstanding the provisions of 173.244 of this subchapter, only DOT 105A500W tank cars are authorized. Each 105A500W tank car must be marked as 105A300W. Each tank car must have a safety relief with a start to discharge pressure of 1,551 kPa (225 psig).

[58 FR 50235, Sept. 24, 1993, effective Oct. 1, 1993; 59 FR 48549 , Sept. 21, 1994]

B66 Each tank must be equipped with gas tight valve protection caps. Outage must be sufficient to prevent tanks from becoming liquid full at 55°C (130°F). Specification 110A500W tanks must be stainless steel.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991]

B67 All valves and fittings must be protected by a securely attached cover made of metal not subject to deterioration by the lading, and all valve openings, except safety valve, must be fitted with screw plugs or caps to prevent leakage in the event of valve failure.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991; 58 FR 50235, Sept. 24, 1993, effective Oct. 1, 1993]

B68 Sodium must be in a molten condition when loaded and allowed to solidify before shipment. Outage must be at least 5 percent at 98°C (208°F). Bulk packagings must have exterior heating coils fusion welded to the tank shell which have been properly stress relieved. The only tank car tanks authorized are Class DOT 105 tank cars having a test pressure of 2,069 kPa (300 psig) or greater.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991, 57 FR 45458, Oct. 1, 1992]

B69 Dry sodium cyanide or potassium cyanide may be shipped in sift-proof weather-resistant metal covered hopper cars, covered motor vehicles, portable tanks or non-specification bins. Bins must be approved by the Associate Administrator for Hazardous Materials Safety. Flexible intermediate bulk containers (FIBCs) may also be used under conditions approved by the Associate Administrator for Hazardous Materials Safety.

[57 FR 45458, Oct. 1, 1992]

B70 If DOT 103ANW tank car tank is used: All cast metal in contact with the lading must have 96.7 percent nickel content; and the lading must be anhydrous and free from any impurities.

B71 The only tank cars authorized are Class DOT 105, 112, and 114 tank car tanks with a test pressure of 2069 kPa (300 psig) or greater.

B72 Notwithstanding the provisions of 173.244(a) of this subchapter, only the following tank car tanks are authorized: DOT 105J500W tank car tanks and Class DOT 106 and 110 multi-unit tank car tanks.

B73 Bottom outlets are not authorized on tank car tanks. Notwithstanding the provisions of 173.243(a) and 173.244(a) of this subchapter, only the following tank car tanks are authorized: DOT 105J300W, 112J340W, 112T340W, 114J340W and 114T340W tank car tanks; Class DOT 106 and 110 multi-unit tank car tanks; and, except for materials meeting the definition of a flammable gas, DOT 105J300ALW tank car tanks.

B74 Notwithstanding the requirements of 173.244 of this subchapter, only the following are authorized: DOT 105S300W, 105S300ALW, 112J340W, and 114J340W tank cars; and Class DOT 106 and 110 multi-unit-tank car tanks.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991; 58 FR 50235, Sept. 24, 1993, effective Oct. 1, 1993]

B75 Bottom outlets are not authorized on tank car tanks. Notwithstanding the provisions of 173.243(a) and 173.244(a) of this subchapter, only the following tank car tanks are authorized: DOT 105J300W, 112J340W, 112T340W, 114J340W, and 114T340W tank car tanks; Class DOT 106 and 110 multi-unit tanks; and, except for materials meeting the definition of a flammable gas, DOT 105J300ALW tank car tanks.

B76 Notwithstanding the requirements of 173.244 of this subchapter, only the following are authorized: DOT 105S300W, 105S300ALW, 112J340W, and 114J340W tank cars. Each tank car must be marked DOT 105S200W, 105S200ALW, 112J200W, or 114J200 respectively. Each tank car tank must have a safety relief valve with a start-to-discharge pressure of 1,034 kPa (150 psig).

[58 FR 50235, Sept. 24, 1993, effective Oct. 1, 1993]

B77 Other packaging are authorized when approved by the Associate Administrator for Hazardous Materials Safety.

B78 Notwithstanding § 173.240 of this subchapter, the only bulk packagings authorized for transportation by rail are Class DOT 103, 104, 105, 109, 111, 112, and 114 tank car tanks. Heater pipes must be of welded construction designed for a test pressure of 500 pounds per square inch. A 25 mm (1 inch) woven lining of asbestos or other approved material must be placed between the bolster slabbing and the bottom of the tank. If a tank car tank is equipped with a safety vent of the frangible disc type, the frangible disc must be perforated with a 3.2 mm (0.13 inch) diameter hole. If a tank car tank is equipped with a safety relief valve, the tank car tank must also be equipped with a vacuum relief valve.

B79 Tank car tanks must have head puncture resistance and thermal protection in accordance with §§ 179.16 and 179.18 of this subchapter for tanks built before April 1, 1989.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991; 60 FR 49072 , Sept. 21, 1995, effective July 1, 1996]

B80 Each cargo tank must have a minimum design pressure of 276 kPa (40 psig).

[57 FR 45458, Oct. 1, 1992]

B81 Venting and pressure relief devices for tank car tanks and cargo tanks must be approved by the Associate Administrator for Hazardous Materials Safety.

B82 Cargo tanks and portable tanks are not authorized.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991]

B83 Bottom outlets are prohibited on tank car tanks transporting sulfuric acid in concentrations over 65.25 percent.

B84 Packagings must be protected with non- metallic linings impervious to the lading or have a suitable corrosion allowance for sulfuric acid or spent sulfuric acid in concentration up to 65.25 percent.

B85 Cargo tanks must be marked with the name of the lading in accordance with the requirements of 172.302(b).

B86 Only DOT 105S600W tank car tanks are authorized.

B90 Steel tanks conforming or equivalent to ASME specifications which contain solid or semisolid residual motor fuel antiknock mixture (including rust, scale, or other contaminants) may be shipped by rail freight or highway. The tank must have been designed and constructed to be capable of withstanding full vacuum. All openings must be closed with gasketed blank flanges or vapor tight threaded closures.

[Revised at 59 FR 49133, Sept. 26, 1994]

B100 Intermediate bulk containers are not authorized.

B101 Authorized only in metal intermediate bulk containers.

B103 If an intermediate bulk container is used, the package must be transported in a closed freight container or transport vehicle.

B104 Intermediate bulk containers must be provided with a device to allow venting during transport. The inlet to the pressure relief valve must communicate with the vapor space of the packaging and lading during transport.

B105 Authorized only in rigid intermediate bulk containers.

B106 Authorized in intermediate bulk containers that are vapor tight.

B108 Authorized in sift-proof, water-resistant flexible, fiberboard or wooden intermediate bulk containers; packed in a closed transport vehicle.

B109 Not authorized in flexible intermediate bulk containers.

B110 This material also may be packaged in IBCs authorized in 173.242(d) of this subchapter.

[57 FR 45458, Oct. 1, 1992; 59 FR 38064, July 26, 1994, effective date Sept. 30, 1994; 59 FR 67486 , Dec. 29, 1994, effective Oct. 1, 1995]

49 CFR 172.102(c)(4) "H" codes. These provisions apply only to transportation by highway.

[Reserved]

49 CFR 172.102(c)(5) "N" codes. These provisions apply only to non-bulk packagings:

Code/Special Provisions

N3 Glass inner packagings are permitted in combination or composite packagings only if the hazardous material is free from hydrofluoric acid.

N4 For combination or composite packagings, glass inner packagings, other than ampoules, are not permitted.

N5 Glass materials of construction are not authorized for any part of a packaging which is normally in contact with the hazardous material.

N6 Battery fluid packaged with electric storage batteries, wet or dry, must conform to the packaging provisions of 173.159 (g) or (h) of this subchapter.

N7 The hazard class or division number of the material must be marked on the package in accordance with 172.302 of this subchapter. However, the hazard label corresponding to the hazard class or division may be substituted for the marking.

N8 Nitroglycerin solution in alcohol may be transported under this entry only when the solution is packed in metal cans of not more than 1 L capacity each, overpacked in a wooden box containing not more than 5 L. Metal cans must be completely surrounded with absorbent cushioning material. Wooden boxes must be completely lined with a suitable material impervious to water and nitroglycerin.

N9 If the substance is impregnated with less than 5% oil, it is excepted from the labeling

requirements of subpart D of this part and the packaging tests of subpart M of part 178 of this subchapter.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991]

N10 Lighters and their inner packagings, which have been approved by the Associate Administrator for Hazardous Materials Safety (see 173.21(i) of this subchapter), must be packaged in one of the following outer packagings at the Packing Group II level: 4C1 or 4C2 wooden boxes; 4D plywood boxes; 4F reconstituted wood boxes; 4G fiberboard boxes; or 4H1 or 4H2 plastic boxes.

[56 FR 66251, Dec. 20, 1991, effective Oct. 1, 1991]

N11 This material is excepted for the specification packaging requirements of this subchapter if the material is packaged in strong, tight non-bulk packaging meeting the requirements of subparts A and B of Part 173 of this subchapter.

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991]

N12 Plastic packagings are not authorized.

N20 A 5M1 multi-wall paper bag is authorized if transported in a closed transport vehicle.

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991]

N25 Steel single packagings are not authorized.

N32 Aluminum materials of construction are not authorized for single packagings.

N33 Aluminum drums are not authorized.

N34 Aluminum construction materials are not authorized for any part of a packaging which is normally in contact with the hazardous material.

N36 Aluminum or aluminum alloy construction materials are permitted only for halogenated hydrocarbons that will not react with aluminum.

N37 This material may be shipped in an integrally-lined fiber drum (1G) which meets the general packaging requirements of subpart B of part 173 of this subchapter, the requirements of part 178 of this subchapter at the packing group assigned for the material and to any other special provisions of column 7 of the 172.101 table.

[58 FR 51531, Sept. 24, 1993, effective Oct. 1, 1993]

N40 This material is not authorized in the following packagings:

a. A combination packaging consisting of a 4G fiberboard box with inner receptacles of glass or earthenware;

b. A single packaging of a 4C2 sift-proof, natural wood box; or c. A composite packaging 6PG2 (glass, porcelain or stoneware receptacles within a fiberboard box).

N41 Metal construction materials are not authorized for any part of a packaging which is normally in contact with the hazardous material.

N43 Metal drums are permitted as single packagings only if constructed of nickel or monel.

N45 Copper cartridges are authorized as inner packagings if the hazardous material is not in dispersion.

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991]

N50 A Class 9 material that meets the definition of a marine pollutant, but does not meet the definition of a hazardous substance or a hazardous waste or the definition in 173.140(a) of this subchapter, is excepted from the labeling requirements of this part.

[57 FR 52938, Nov. 5, 1992, effective Jan. 1, 1993]

N65 Outage must be sufficient to prevent cylinders or spheres from becoming liquid full at 55°C (130°F). The vacant space (outage) may be charged with a nonflammable nonliquefied compressed gas if the pressure in the cylinder or sphere at 55°C (130°F) does not exceed 125 percent of the marked service pressure.

N71 Combination packagings consisting of inner glass packagings of not over 1.0 L (0.3 gallon) capacity each or inner metal packagings of not over 5.0 L (1 gallon) capacity each, placed in strong outer packagings, are authorized. Packagings are not subject to the requirements of part 178 of this subchapter.

N72 Packagings must be examined by the Bureau of Explosives and approved by the Associate Administrator for Hazardous Materials Safety.

N73 Packagings consisting of outer wooden or fiberboard boxes with inner glass, metal or other strong containers; metal or fiber drums; kegs or barrels; or strong metal cans are authorized and need not conform to the requirements of part 178 of this subchapter.

N74 Packages consisting of tightly closed inner containers of glass, earthenware, metal or polyethylene, capacity not over 0.5 kg (1.1 pounds) securely cushioned and packed in outer wooden barrels or wooden or fiberboard boxes, not over 15 kg (33 pounds) net weight, are authorized and need not conform to the requirements of part 178 of this subchapter.

N75 Packages consisting of tightly closed inner packagings of glass, earthenware or metal, securely cushioned and packed in outer wooden barrels or wooden or fiberboard boxes, capacity not over 2.5 kg (5.5 pounds) net weight, are authorized and need not conform to the requirements of part 178 of this subchapter.

N76 For materials of not more than 25 percent active ingredient by weight, packages consisting of inner metal packagings not greater than 250 ml (8 ounces) capacity each, packed in strong outer packagings together with sufficient absorbent material to completely absorb the liquid contents are authorized and need not conform to the requirements of part 178 of this subchapter.

N77 For materials of not more than two percent active ingredients by weight, packagings need not conform to the requirements of part 178 of this subchapter, if liquid contents are absorbed in an inert material.

N78 Packages consisting of inner glass, earthenware, or polyethylene or other nonfragile plastic bottles or jars not over 0.5 kg (1.1 pounds) capacity each, or metal cans not over five pounds capacity

each, packed in outer wooden boxes, barrels or kegs, or fiberboard boxes are authorized and need not conform to the requirements of part 178 of this subchapter. Net weight of contents in fiberboard boxes may not exceed 29 kg (64 pounds). Net weight of contents in wooden boxes, barrels or kegs may not exceed 45 kg (99 pounds).

N79 Packages consisting of tightly closed metal inner packagings not over 0.5 kg (1.1 pounds) capacity each, packed in outer wooden or fiberboard boxes, or wooden barrels, are authorized and need not conform to the requirements of part 178 of this subchapter. Net weight of contents may not exceed 15 kg (33 pounds).

N80 Packages consisting of one inner metal can, not over 2.5 kg (5.5 pounds) capacity, packed in an outer wooden or fiberboard box, or a wooden barrel, are authorized and need not conform to the requirements of part 178 of this subchapter.

N81 Polychlorinated biphenyl items, as defined in 40 CFR 761.3, for which specification packagings are impractical, may be packaged in non-specification packagings meeting the general packaging requirements of subparts A and B of part 173 of this subchapter. Alternatively, the item itself may be used as a packaging if it meets the general packaging requirements of subparts A and B of part 173 of this subchapter.

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991]

N82 See 173.306 of this subchapter for classification criteria for flammable aerosols.

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.102(c)(6) "R" codes. These provisions apply only to transportation by rail.

[Reserved]

49 CFR 172.102(c)(7) "T" codes. These provisions apply only to transportation in IM portable tanks. They are divided into two groupings, one of which appears as the IM Tank Configurations in paragraph (c)(7)(i) of this section, and the second of which imposes specific requirements and appears in paragraph (c)(7)(ii) of this section.

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.102(c)(7)(i) IM Tank Configurations. Column 1 lists the code for the special provisions as specified in column 7 of the 172.101 table. Column 2 specifies the IM tank type, either IM 101 (178.270 and 178.271 of this subchapter) or IM 102 (178.270 and 178.272 of this subchapter). Column 3 specifies the minimum test pressure, in bars (1 bar = 14.5 psig), at which the periodic hydrostatic testing required by 173.32b of this subchapter must be conducted. Column 4 specifies either the section referenced for requirements for bottom openings or "Prohibited", which means bottom openings are prohibited. Column 5 specifies the section reference for requirements applicable to pressure relief devices.

IM TANK CONFIGURATIONS

Minimum

test Pressure

IM tank Pressure relief

Code type (bars) Bottom outlets devices

(1) (2) (3) (4) (5)

T1..... 102 1.5 §173.32c(g)(1)..... §178.270-11(a)(1),(2)

T2..... 102 1.5 §173.32c(g)(2)..... §178.270-11(a)(1),(2)

T7..... 101 2.65 §173.32c(g)(1)..... §178.270-11(a)(1),(2)

T8..... 101 2.65 §173.32c(g)(2)..... §178.270-11(a)(1),(2)

T9..... 101 2.65 Prohibited..... §178.270-11(a)(1),(2)

T11..... 101 2.65 §173.32c(g)(2)..... §178.270-11(a)(3)

T12..... 101 2.65 Prohibited..... §178.270-11(a)(3)

T13..... 101 4 §173.32c(g)(1)..... §178.270-11(a)(1),(2)

T14..... 101 4 §173.32c(g)(2)..... §178.270-11(a)(1),(2)

T15..... 101 4 Prohibited..... §178.270-11(a)(1),(2)

T16..... 101 4 §173.32c(g)(1)..... §178.270-11(a)(3)

T17..... 101 4 §173.32c(g)(2)..... §178.270-11(a)(3)

T18..... 101 4 Prohibited..... §178.270-

11(a)(3)

T20..... 101 6 §173.32c(g)(2)..... §178.270-

11(a)(1),(2)

T21..... 101 6 Prohibited..... §178.270-

11(a)(1),(2)

T22..... 101 6 §173.32c(g)(1)..... §178.270-

11(a)(1)(2)

T23..... 101 6 §173.32c(g)(2)..... §178.270-

11(a)(3)

T24..... 101 6 Prohibited..... §178.270-

11(a)(3)

T28..... 101 10 Prohibited..... §178.270-

11(a)(1),(2)

T39..... 101 10 Prohibited..... §178.270-

11(a)(3)

T43..... 101 9 Prohibited..... §178.270-

11(a)(3)

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.102(c)(7)(ii) IM Tank special provisions.

[Revised at 59 FR 49133, Sept. 26, 1994]

Code/Special Provisions

T25 This hazardous material is not permitted for transport in IM portable tanks.

T26 Each tank must have a minimum shell thickness of 6.35 mm (0.250 inch) mild steel.

T27 Each tank must have a minimum shell thickness of 8.0 mm (0.315 inch) mild steel.

T28 See entry for T28 in the IM Tank Configuration Table in paragraph (c)(7)(i) of this section.

[57 FR 45458, Oct. 1, 1992; 57 FR 47513, Oct. 16, 1992]

T29 The lading must be completely covered with nitrogen, inert gas or other inert materials.

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991]

T30 IM 102 portable tanks without bottom openings or with bottom openings conforming to § 173.32c(g)(1) of this subchapter are authorized for a hazardous material with a flash point of 0°C (32°F) or greater and a vapor pressure not greater than 65.5 kPa (9.5 psia) at 65.6°C (150°F).

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991]

T31 IM 102 portable tanks without bottom openings or with bottom openings conforming to 173.32c(g)(2) of this subchapter are authorized for a hazardous material with a flash point of 0°C (32°F) or greater and a vapor pressure not greater than 65 kPa (9.4 psia) at 65.6 °C (150 °F).

[Revised at 59 FR 49133, Sept. 26, 1994]

T32 Each tank must have a minimum shell thickness of 10.0 mm (0.394 inch) mild steel with at least 5.0 mm (0.197 inch) lead lining.

T33 Dry phosphorus is not permitted. For transport in a molten state, the tank must be insulated in accordance with Note T38. Air must be eliminated from the interior of the tank. The tank may be heated, however, interior heating coils are prohibited.

T34 The IM Tank authorization is limited to aqueous solutions containing not more than 40% dimethylamine.

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991]

T35 Each tank must be equipped with reclosing (spring loaded) pressure relief valves set to discharge at pressures determined according to the pressure characteristics of the organic peroxide lading.

T36 Each tank must be equipped with pressure relief devices with sufficient venting capacity to prevent the tank from bursting.

T37 IM portable tanks are only authorized for the shipment of hydrogen peroxide solutions in water containing 72 percent or less hydrogen peroxide by weight. Pressure relief devices shall be designed to prevent the entry of foreign matter, the leakage of liquid and the development of any dangerous excess pressure. In addition, the tank shall be designed so that internal surfaces may be effectively cleaned and passivated. Each tank must be equipped with pressure relief devices conforming to the following requirements:

Total venting

capacity in standard

cubic feet per

hour

(S.C.F.H.) per

pound of

hydrogen

Concentration of hydrogen peroxide solution peroxide

52 percent or less..... 11

Over 52 percent but not greater than 60 22

percent.....

Over 60 percent but not greater than 72 32

percent.....

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991]

T38 Each tank must be insulated with an insulating material so that the overall thermal conductance at 15.5°C (60°F) is no more than 1.5333 kilojoules per hour per square meter per degree Celsius (0.075 Btu per hour per square foot per degree Fahrenheit) temperature differential. Insulating materials must not promote corrosion to steel when wet. Notwithstanding the requirements in § 171.14(b)(4)(ii) of this subchapter, compliance with this provision is delayed until October 1, 1994, for a bulk packaging containing a material poisonous by inhalation which, when in contact with moisture, becomes highly corrosive and could cause corrosion under an insulation blanket.

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991; 58 FR 50235, Sept. 24, 1993, effective Oct. 1, 1993]

T39 See entry for T39 in the IM Tank Configuration Table in paragraph (c)(7)(i) of this section.

[57 FR 45458, Oct. 1, 1992; 57 FR 47513, Oct. 16, 1992]

T40 Each tank must have a minimum shell thickness of 10.0 mm (0.39 inch) mild steel.

T41 Each tank must have a minimum shell thickness of 12.0 mm (0.47 inch) mild steel.

T42 Transport in IM portable tanks is permitted only under conditions approved by the Associate Administrator for Hazardous Materials Safety.

T43 See entry for T43 in the IM Tank Configuration Table in paragraph (c)(7)(1) of this section.

[57 FR 45458 , Oct. 1, 1992]

T44 DOT Specification IM 101 portable tanks shall be made of stainless steel except that steel other than stainless steel may be used in accordance with the provisions of 173.24b(b) of this subchapter. Thickness of stainless steel for tank shell and heads must be the greater of 7.62 mm (0.300 inch) or the thickness required for a tank with a design pressure at least equal to 1.5 times the vapor pressure of the lading at 46°C (115°F).

T45 DOT Specification IM 101 portable tanks shall be made of stainless steel except that steel other than stainless steel may be used in accordance with the provisions of 173.24b(b) of this subchapter. Thickness of stainless steel for tank shell and heads must be the greater of 6.35 mm (0.250 inch) or the thickness required for a tank with a design pressure at least equal to 1.3 times the vapor pressure of the lading at 46°C (115°F).

T46 IM portable tanks in sodium metal service are not required to be hydrostatically retested.

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991; 57 FR 45458, Oct. 1, 1992]

(8) "W" codes. These provisions apply only to transportation by water:

Code/Special Provisions

W41 When offered for transportation by water, this material must be packaged in bales and be securely and tightly bound with rope, wire or similar means.

49 CFR 172.200 Applicability.

49 CFR 172.200(a) Description of hazardous materials required. Except as otherwise provided in this subpart, each person who offers a hazardous material for transportation shall describe the hazardous material on the shipping paper in the manner required by this subpart.

49 CFR 172.200(b) This subpart does not apply to any material, other than a hazardous substance, hazardous waste or marine pollutant, that is

[57 FR 52938, Nov. 5, 1992, effective Jan. 1, 1993]

49 CFR 172.200(b)(1) Identified by the letter "A" in Column 1 of the 172.101 Table, except when the material is offered or intended for transportation by air; or

49 CFR 172.200(b)(2) Identified by the letter "W" in Column 1 of the 172.101 Table, except when the material is offered or intended for transportation by water; or

49 CFR 172.200(b)(3) An ORM-D, except when the material is offered or intended for transportation by air.

[

53 FR 17160, May 13, 1988, effective Jan. 2, 1989]

49 CFR 172.201 General entries.

49 CFR 172.201(a) Contents. When a description of hazardous material is required to be included on a shipping paper, that description must conform to the following requirements:

49 CFR 172.201(a)(1) When a hazardous material and a material not subject to the requirements of this subchapter are described on the same shipping paper, the hazardous material description entries required by 172.202 and those additional entries that may be required by 172.203.

49 CFR 172.201(a)(1)(i) Must be entered first, or

49 CFR 172.201(a)(1)(ii) Must be entered in a color that clearly contrasts with any description on the shipping paper of a material not subject to the requirements of this subchapter, except that a description on a reproduction of a shipping paper may be highlighted, rather than printed, in a contrasting color (the provisions of this paragraph apply only to the basic description required by 172.202(a)(1),(2), and (3)), or

49 CFR 172.201(a)(1)(iii) Must be identified by the entry of an "X" placed before the proper shipping name in a column captioned "HM." (The "X" may be replaced by "RQ," if appropriate.)

49 CFR 172.201(a)(2) The required shipping description on a shipping paper and all copies thereof used for transportation purposes, must be legible and printed (manually or mechanically) in English.

49 CFR 172.201(a)(3) Unless it is specifically authorized or required in this subchapter, the required shipping description may not contain any code or abbreviation.

[55 FR 52589, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.201(a)(4) A shipping paper may contain additional information concerning the material provided the information is not inconsistent with the required description. Unless otherwise permitted or required by this subpart, additional information must be placed after the basic description required by 172.202(a).

[55 FR 52589, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.201(b) Name of shipper. A shipping paper for a shipment by water must contain the name of the shipper.

49 CFR 172.201(c) Continuation page. A shipping paper may consist of more than one page, if each page is consecutively numbered and the first page bears a notation specifying the total number of pages included in the shipping paper. For example, "Page 1 of 4 pages."

49 CFR 172.201(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.

[54 FR 27144, June 27, 1989, effective Dec. 31, 1990]

49 CFR 172.202 Description of hazardous material on shipping papers.

49 CFR 172.202(a) The shipping description of a hazardous material on the shipping paper must include:

[55 FR 52589, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.202(a)(1) The proper shipping name prescribed for the material in Column 2 of the 172.101 Table;

49 CFR 172.202(a)(2) The hazard class or division prescribed for the material as shown in Column 3 of the 172.101 Table (class names or subsidiary hazard class or division number may be entered following the numerical hazard class, or following the basic description). The hazard class need not be included for the entry "Combustible liquid, n.o.s.";

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991; 58 FR 51531, Oct. 1, 1993]

49 CFR 172.202(a)(3) The identification number prescribed for the material as shown in Column 4 of the 172.101 Table;

49 CFR 172.202(a)(4) The packing group, in Roman numerals, prescribed for the material in Column 5 of the 172.101 Table, if any. The packing group may be preceded by the letters "PG" (e.g., "PG II"); and

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.202(a)(5) Except for empty packagings (see 173.29 of this subchapter), cylinders for Class 2 (compressed gases) materials, and bulk packagings, the total quantity (by net or gross mass, capacity, or as otherwise appropriate), including the unit of measurement, of the hazardous material covered by the description (e.g., "800 lbs", "55 gal.", "3629 kg", or "208 L"). For cylinders for Class 2 (compressed gases) materials and bulk packagings, some indication of total quantity must be shown (e.g., "10 cylinders" or "1 cargo tank").

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.202(b) Except as provided in this subpart, the basic description specified in paragraphs (a) (1), (2), (3) and (4) of this section must be shown in sequence with no additional information interspersed. For example: "Gasoline, 3, UN 1203, PG II".

[55 FR 52589, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.202(c) The total quantity of the material covered by one description must appear before or after, or both before and after, the description required and authorized by this subpart. The type of packaging and destination marks may be entered in any appropriate manner before or after the basic description. Abbreviations may be used to express units of measurement and types of packagings.

[55 FR 52589, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.202(d) Technical and chemical group names may be entered in parentheses between the proper shipping name and hazard class or following the basic description. An appropriate modifier, such as "contains" or "containing," and/or the percentage of the technical constituent may also be used. For example: "Flammable liquids, n.o.s. (contains Xylene and Benzene), 3, UN 1993, PG II".

[55 FR 52589, Dec. 21, 1990, effective Oct. 1, 1991; 57 FR 52938, Nov. 5, 1992, effective Jan. 1, 1993]

49 CFR 172.202(e) Except for those materials in the UN Recommendations, the ICAO Technical Instructions, or the IMDG Code, a material that is not a hazardous material according to this subchapter may not be offered for transportation or transported when its description on a shipping paper includes a hazard class or an identification number specified in 172.101.

[51 FR 5968, Feb. 18, 1986]

49 CFR 172.203 Additional description requirements.

49 CFR 172.203(a) Exemptions. Each shipping paper issued in connection with a shipment made under an exemption must bear the notation "DOT-E" followed by the exemption number assigned and so located that the notation is clearly associated with the description to which the exemption applies.

49 CFR 172.203(b) Limited quantities. The description for a material offered for transportation as "limited quantity," as authorized by this subchapter, must include the words "Limited Quantity" or "Ltd Qty" following the basic description.

49 CFR 172.203(c) Hazardous substances.(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:

[54 FR 39505, Sept 26, 1989, effective Oct. 31, 1989]

49 CFR 172.203(c)(1)(i) The name of the hazardous substance as shown in Appendix Ato § 172.101; or

[57 FR 52938, Nov. 5, 1992, effective Jan. 1, 1993]

49 CFR 172.203(c)(1)(ii) For waste streams, the waste stream number; or

49 CFR 172.203(c)(1)(iii) For wastes which exhibit an EPA characteristic of ignitability, corrosivity, reactivity, or Toxicity, the letters "EPA" followed by the word "ignitability," or "corrosivity," or "reactivity," or "Toxicity," as appropriate or the corresponding "D" number, as appropriate.

[55 FR 46825, Nov. 7, 1990, effective Dec. 31, 1990]

49 CFR 172.203(c)(2) The letters "RQ" shall be entered on the shipping paper either before or after, the basic description required by 172.202 for each hazardous substance (see definition in 171.8 of this subchapter). For example: "RQ, Allyl alcohol, 6.1, UN 1098, I"; or "Environmentally hazardous substance, solid, n.o.s., 9, UN 3077, III, RQ (Adipic acid)".

[54 FR 39505, Sept. 26, 1989, effective Oct. 31, 1989; 55 FR 52589, Dec. 21, 1990, effective Oct. 1, 1991; 56 FR 66254, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.203(d) Radioactive material. The description for a shipment of a Class 7 (radioactive) material must include the following additional entries as appropriate:

[56 FR 66252, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.203(d)(1) The name of each radionuclide in the Class 7 (radioactive) material that is listed in § 173.435 of this subchapter. For mixtures of radionuclides, the radionuclides that must be shown must be determined in accordance with 173.433(f) of this subchapter.

[Revised at 60 FR 50304 , Sept. 28, 1995, effective April 1, 1996]

49 CFR 172.203(d)(2) The name of each radionuclide in the radioactive material that is listed in 173.435 of this subchapter. Abbreviations, e.g., 90Mo" are authorized.

[48 FR 10218, March 10, 1983; 56 FR 66253, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.203(d)(3) A description of the physical and chemical form of the material, if the mate rial is not in special form (generic chemical description is acceptable for chemical form)

[56 FR 66253, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.203(d)(4) The activity contained in each package of the shipment in terms of the appropriate SI units (e.g. Becquerel, Terabecquerel, etc.) or in terms of the appropriate SI units followed by the customary units (e.g. Curies, millicuries, etc.). Alternatively, for domestic transportation, the activity in a package of Class 7 (radioactive) materials may be described solely in terms of curies until April 1, 1997. Abbreviations are authorized. Except for plutonium-238, plutonium-239, and plutonium- 241, the weight in grams or kilograms of fissile radionuclides may

be inserted instead of activity units. For plutonium-238, plutonium-239, and plutonium-241 the weight in grams or kilograms of fissile radionuclides may be inserted in addition to the activity units. For the shipment of a package containing a highway route controlled quantity of Class 7 (radioactive) materials (see 173.403 of this subchapter) the words Highway route controlled quantity" must be entered in association with the basic description.

[Revised at 60 FR 50304 , Sept. 28, 1995, effective April 1, 1996]

49 CFR 172.203(d)(5) The category of label applied to each package in the shipment. For example: "RADIOACTIVE WHITE I."

[56 FR 66253, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.203(d)(6) The transport index assigned to each package in the shipment bearing RADIOACTIVE YELLOW II or RADIOACTIVE YELLOW III labels.

49 CFR 172.203(d)(7) For a shipment of fissile Class 7 (radioactive) materials:

[Revised at 60 FR 50304 , Sept. 28, 1995, effective April 1, 1996]

49 CFR 172.203(d)(7)(i) The words "Fissile Excepted" if the package is excepted pursuant to § 173.453 of this subchapter;

49 CFR 172.203(d)(7)(ii) For a fissile material, controlled shipment, the additional notation: "WarningFissile material, controlled shipment. Do not load more than * * * packages per vehicle." (Asterisks to be replaced by appropriate number.) "In loading and storage areas, keep at least 6 meters (20 feet) from other packages bearing radioactive labels"; and

49 CFR 172.203(d)(7)(iii) If a fissile material, controlled shipment is to be transported by water, the supplementary notation must also include the following statement: "For shipment by water, only one fissile material, controlled shipment is permitted in each hold."

49 CFR 172.203(d)(8) For a package approved by the U.S. Department of Energy (DOE) or U.S. Nuclear Regulatory Commission (USNRC), a notation of the package identification marking as prescribed in the applicable DOE or USNRC approval. (See 173.471 of the subchapter.)

[48 FR 10218, March 10, 1983, effective July 1, 1983; 56 FR 66253, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.203(d)(9) For an export shipment or a shipment in a foreign made package, a notation of the package identification marking as prescribed in the applicable International Atomic Energy Agency (IAEA) Certificate of Competent Authority which has been issued for the package. (See 173.473 of this subchapter).

[56 FR 66253, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.203(d)(10) For a shipment required by this subchapter to be consigned as exclusive use:

[Added at 60 FR 50304 , Sept. 28, 1995, effective April 1, 1996]

49 CFR 172.203(d)(10)(i) An indication that the shipment is consigned as exclusive use; or

49 CFR 172.203(d)(10)(ii) If all the descriptions on the shipping paper are consigned as exclusive use, then the statement "Exclusive Use Shipment" may be entered only once on the shipping paper in a clearly visible location.

49 CFR 172.203(d)(11) For a shipment of low specific activity material or surface contaminated objects, the appropriate group notation of LSA-I, LSA-II, LSA-III, SCO-I, or SCO-II.

[Added at 60 FR 50304 , Sept. 28, 1995, effective April 1, 1996]

49 CFR 172.203(e) Empty packagings.(1) The description on the shipping paper for a packaging containing the residue of a hazardous material may include the words "RESIDUE: Last Contained***" in association with the basic description of the hazardous material last contained in the packaging.

[50 FR 39007, Sept. 26, 1985, effective Oct. 1, 1986]

49 CFR 172.203(e)(2) For a tank car containing the residue (as defined in 171.8) of a hazardous material, the requirements of §174.25(c) and paragraph (e)(3) of this section apply.

[50 FR 39007, Sept. 26, 1985, effective Oct. 1, 1986; 59 FR 49133, Sept. 26, 1994]

49 CFR 172.203(e)(3) If a packaging, including a tank car, contains a residue that is a hazardous substance, the description on the shipping papers must be prefaced with the phrase "RESIDUE: Last Contained***" and the letters "RQ" must be entered on the shipping paper either before or after the basic description.

[50 FR 39005, Sept. 26, 1985, effective Oct. 1, 1986]

49 CFR 172.203(f) Transportation by air. When a package containing a hazardous material is offered for transportation by air and this subchapter prohibits its transportation aboard passenger-carrying aircraft, the words "Cargo aircraft only" must be entered after the basic description.

49 CFR 172.203(g) Transportation by rail.(1) The shipping paper for a rail car containing a hazardous material must contain the notation "Placarded" followed by the name of the placard required for the rail car.

49 CFR 172.203(g)(2) The shipping paper for each Class DOT-113 tank car containing a flammable gas must contain an appropriate notation, such as "DOT-113A," and the statement "Do Not Hump or Cut Off Car While in Motion."

[48 FR 27674, June 16, 1983, effective Jan. 1, 1984; 48 FR 50440, Nov. 1, 1983]

49 CFR 172.203(g)(3) When shipments of elevated temperature materials are transported under the exception permitted in 173.247(h)(3) of this subchapter, the shipping paper must contain an appropriate notation, such as "Maximum Operating Speed 15 mph."

[56 FR 49989, Oct. 2, 1991, effective March 30, 1992; 58 FR 3348, Jan. 8, 1993]

49 CFR 172.203(h) Transportation by highway. Following the basic description for a hazardous material in a Specification MC 330 or MC 331 cargo tank, there must be entered for

[51 FR 5968, Feb. 18, 1986]

49 CFR 172.203(h)(1) Anhydrous ammonia.(i) The words "0.2 PERCENT WATER" to indicate the suitability for shipping anhydrous ammonia in a cargo tank made of quenched and tempered steel as authorized by 173.315(a), Note 14 of this subchapter, or

[51 FR 5698, Feb. 18, 1986; 54 FR 25004, June 12, 1989, effective Dec. 31, 1990; 55 FR 37048, Sept. 7, 1990, effective Dec. 31, 1990]

49 CFR 172.203(h)(1)(ii) The words "NOT FOR Q and T TANKS" when the anhydrous ammonia does not contain 0.2 percent or more water by weight.

[51 FR 5968, Feb. 18, 1986]

49 CFR 172.203(h)(2) Liquefied petroleum gas.(i) The word "NONCORROSIVE" or "NONCOR" to indicate the suitability for shipping "Noncorrosive" liquefied petroleum gas in a cargo tank made of quenched and tempered steel as authorized by 173.315(a), Note 15 of this subchapter, or

[51 FR 5698, Feb. 18, 1986; 54 FR 25004, June 12, 1989, effective Dec. 12, 1989; 59 FR 49133, Sept. 26, 1994]

49 CFR 172.203(h)(2)(ii) The words "NOT FOR Q and T TANKS" for grades of liquefied petroleum gas other than "Noncorrosive."

[51 FR 5968, Feb. 18, 1986]

49 CFR 172.203(h)(2)(i) Transportation by water. Each shipment by water must have the following additional shipping paper entries:

[54 FR 27144, June 27, 1990; 55 FR 874, Jan. 10, 1990, effective Dec. 31, 1990; 55 FR 52589, Dec. 21, 1990, effective Oct. 1, 1991; 56 FR 66253, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.203(h)(1) Identification of the type of packagings such as barrels, drums, cylinders, and boxes.

49 CFR 172.203(h)(2) The number of each type of package including those in a freight container or on a pallet.

49 CFR 172.203(h)(3) The gross mass of each type of package or the individual gross mass of each package.

49 CFR 172.203(j) Dangerous when wet material. The words "Dangerous when wet" shall be entered on the shipping paper in association with the basic description for a material which meets the definition of a dangerous when wet material in 173.124(c) of this subchapter.

[55 FR 52589, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.203(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), 8, UN 1760, II", or "Corrosive liquid, n.o.s., 8, UN 1760, II (contains Caprylyl chloride)". The word "contains" may be used in association with the technical name, if appropriate. For organic peroxides which may qualify for more than one generic listing depending on concentration, the

technical name must include the actual concentration being shipped or the concentration range for the appropriate generic listing. For example, "Organic peroxide type B, solid, 5.2, UN 3102 (dibenzoyl peroxide, 52-100%)' or "Organic peroxide type E, solid, 5.2, UN 3108 (dibenzoyl peroxide, paste, <52%).

[55 FR 52589, Dec. 21, 1990, effective Oct. 1, 1991; 56 FR 66254, Dec. 20, 1991, effective Oct. 1, 1991; 58 FR 51531, Oct. 1, 1993; 59 FR 49133, Sept. 26, 1994]

49 CFR 172.203(k)(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 mixtures (Tetraethyl lead), 6.1, UN 1649, I", or "Motor fuel antiknock mixtures, 6.1. UN 1649, I (Tetraethyl lead)".

[56 FR 66254, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.203(k)(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 paragraph (k) of this section. For example, "Flammable liquid, corrosive, n.o.s., 3, UN 2924, II (contains Methanol, Potassium hydroxide)".

[56 FR 66254, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.203(k)(3) Proper shipping names for which the provisions of this paragraph apply are as follows:

[Revised at 59 FR 67486 , Dec. 29, 1994, effective Oct. 1, 1995]

Alcoholates solution, n.o.s., in alcohol

Alcohols, toxic, n.o.s.

Aldehydes, toxic, n.o.s.

Alkali metal alcoholates, self-heating, corrosive, n.o.s.

Alkaline earth metal alcoholates, n.o.s.

Amines, flammable, corrosive, n.o.s. or Polyamines, flammable, corrosive, n.o.s.

Amines, liquid, corrosive, flammable, n.o.s. or Polyamines, liquid, corrosive, flammable, n.o.s.

Amines, liquid, corrosive, n.o.s. or Polyamines, liquid, corrosive, n.o.s.

Amines, solid, corrosive, n.o.s. or Polyamines, solid, corrosive, n.o.s.

Articles, explosive, n.o.s.

Caustic alkali liquids, n.o.s.

Charges, propelling

Chloroformates, toxic, corrosive, n.o.s.

Combustible liquid, n.o.s.

Components, explosive train, n.o.s.

Compounds, cleaning liquid, corrosive, flammable, toxic

Compounds, tree or weed killing, liquid, flammable, corrosive, toxic

Compressed or Liquefied gases, flammable, n.o.s.

Compressed or Liquefied gases, n.o.s.

Compressed or Liquefied gases, oxidizing, n.o.s.

Compressed or Liquefied gases, toxic, flammable, n.o.s.

Compressed or Liquefied gases, toxic, n.o.s.

Contrivances, water-activated

Corrosive, liquid, acidic, inorganic or organic, n.o.s.

Corrosive, liquid, basic, inorganic or organic, n.o.s.

Corrosive liquids, flammable, n.o.s.

Corrosive liquids, n.o.s.

Corrosive liquids, oxidizing, n.o.s.

Corrosive liquids, toxic, n.o.s.

Corrosive liquids, water-reactive, n.o.s.

Corrosive, solid, acidic, inorganic or organic, n.o.s.

Corrosive, solid, basic, inorganic or organic, n.o.s.

Corrosive solids, flammable, n.o.s.

Corrosive solids, n.o.s.

Corrosive solids, oxidizing, n.o.s.

Corrosive solids, self-heating, n.o.s.

Corrosive solids, toxic, n.o.s.

Corrosive solids, water-reactive, n.o.s.

Disinfectants, liquid, corrosive, n.o.s.

Disinfectants, liquid, toxic, n.o.s.

Disinfectants, solids, toxic, n.o.s.

Dispersant gas, n.o.s.

Dyes, liquid, corrosive, n.o.s. or Dye intermediates, liquid, corrosive, n.o.s.

Dyes, liquid, toxic, n.o.s. or Dye intermediates, liquid, toxic, n.o.s.

Dyes, solid, corrosive, n.o.s. or Dye intermediates, solid, corrosive, n.o.s.

Dyes, solid, toxic, n.o.s. or Dye intermediates, solid, toxic, n.o.s.

Environmentally hazardous substances, liquid or solid, n.o.s.

Flammable gases, solid, corrosive, n.o.s.

Flammable liquids, corrosive, n.o.s.

Flammable liquids, n.o.s.

Flammable liquids, toxic, corrosive, n.o.s.

Flammable liquids, toxic, n.o.s.

Flammable solids, corrosive, organic or inorganic, n.o.s.

Flammable solids, organic, molten, n.o.s.

Flammable solids, organic or inorganic, n.o.s.

Flammable solids, toxic, organic or inorganic, n.o.s.

Halogenated irritating liquids, n.o.s.

Hazardous waste, liquid or solid, n.o.s.

Hydrocarbons, liquid, n.o.s.

Infectious substances, affecting animals

Infectious substances, affecting humans

Insecticide gases, n.o.s.

Insecticide gases, toxic, n.o.s.

Isocyanates, flammable, toxic, n.o.s. or Isocyanates solutions, flammable, toxic, n.o.s.

Isocyanates, toxic, flammable, n.o.s. or Isocyanates solutions, toxic, flammable, n.o.s.

Medicines, liquid, flammable, toxic, n.o.s.

Medicines, liquid, toxic, n.o.s.

Medicine, solid, toxic, n.o.s.

Metal powder, self-heating, n.o.s.

Metal salts of organic compounds, flammable, n.o.s.

Metallic substance, water-reactive, n.o.s.

Metallic substance, water-reactive, self-heating, n.o.s.

Nitriles, flammable, toxic, n.o.s.

Nitriles, toxic, flammable, n.o.s.

Nitriles, toxic, n.o.s.

Organic peroxide type B, liquid

Organic peroxide type B, liquid, temperature controlled

Organic peroxide type B, solid

Organic peroxide type B, solid, temperature controlled

Organic peroxide type C, liquid

Organic peroxide type C, liquid, temperature controlled

Organic peroxide type C, solid

Organic peroxide type C, solid, temperature controlled

Organic peroxide type D, liquid

Organic peroxide type D, liquid, temperature controlled

Organic peroxide type D, solid

Organic peroxide type D, solid, temperature controlled

Organic peroxide type E, liquid

Organic peroxide type E, liquid, temperature controlled

Organic peroxide type E, solid

Organic peroxide type E, solid, temperature controlled

Organic peroxide type F, liquid

Organic peroxide type F, liquid, temperature controlled

Organic peroxide type F, solid

Organic peroxide type F, solid, temperature controlled

Organometallic compound, toxic, n.o.s.

Organometallic compound dispersion, water-reactive, flammable, n.o.s.

Organometallic compound solution, water-reactive, flammable, n.o.s.

Other regulated substances, liquid, n.o.s.

Other regulated substances, solid, n.o.s.

Oxidizing liquid, corrosive, n.o.s.

Oxidizing liquid, n.o.s.

Oxidizing liquid, toxic, n.o.s.

Oxidizing solid, corrosive, n.o.s.

Oxidizing solid, flammable, n.o.s.

Oxidizing solid, n.o.s.

Oxidizing solid, self-heating, n.o.s.

Oxidizing solid, toxic, n.o.s.

Oxidizing solid, water-reactive, n.o.s.

Pesticides, liquid, flammable, toxic, n.o.s.

Pesticides, liquid, toxic, flammable, n.o.s.

Pesticides, liquid, toxic, n.o.s.

Pesticides, solid, toxic, n.o.s.

Propellant, liquid

Propellant, solid

Pyrophoric liquids, organic or inorganic, n.o.s.

Pyrophoric metals, n.o.s. or Pyrophoric alloys, n.o.s.

Pyrophoric organometallic compound, n.o.s.

Pyrophoric solids, organic or inorganic, n.o.s.

Refrigerant gases, n.o.s.

Samples, explosive (other than initiating explosives)

Self-heating liquid, corrosive, inorganic, n.o.s.

Self-heating liquid, corrosive, organic, n.o.s.

Self-heating liquid, inorganic, n.o.s.

Self-heating liquid, organic, n.o.s.

Self-heating liquid, toxic, inorganic, n.o.s.

Self-heating liquid, toxic, organic, n.o.s.

Self-heating solid, corrosive, inorganic, n.o.s.

Self-heating solid, corrosive, organic, n.o.s.

Self-heating solid, organic or inorganic, n.o.s.

Self-heating solid, oxidizing, n.o.s.

Self-heating solid, toxic, organic or inorganic, n.o.s.

Self-reactive liquid type B

Self-reactive liquid type B, temperature controlled

Self-reactive liquid type C

Self-reactive liquid type C, temperature controlled

Self-reactive liquid type D

Self-reactive liquid type D, temperature controlled

Self-reactive liquid type E

Self-reactive liquid type E, temperature controlled

Self-reactive liquid type F

Self-reactive liquid type F, temperature controlled

Self-reactive solid type B

Self-reactive solid type B, temperature controlled

Self-reactive solid type C

Self-reactive solid type C, temperature controlled

Self-reactive solid type D

Self-reactive solid type D, temperature controlled

Self-reactive solid type E

Self-reactive solid type E, temperature controlled

Self-reactive solid type F

Self-reactive solid type F, temperature controlled

Solids containing corrosive liquid, n.o.s.

Solids containing flammable liquid, n.o.s.

Solids containing toxic liquid, n.o.s.

Substances, explosive, n.o.s.

Substances, explosive, very insensitive (substances, EVI), n.o.s.

Tear gas substances, liquid or solid, n.o.s.

Toxic liquids, corrosive, organic or inorganic, n.o.s.

Toxic liquids, flammable, organic or inorganic, n.o.s.

Toxic liquids, organic or inorganic, n.o.s.

Toxic liquids, oxidizing, n.o.s.

Toxic liquids, water-reactive, n.o.s.

Toxic solids, corrosive, organic or inorganic, n.o.s.

Toxic solids, flammable, organic or inorganic, n.o.s.

Toxic solids, organic or inorganic, n.o.s.

Toxic solids, oxidizing, n.o.s.

Toxic solids, self-heating, n.o.s.

Toxic solids, water-reactive, n.o.s.

Water-reactive, liquid, corrosive, n.o.s.

Water-reactive, liquid, n.o.s.

Water-reactive, liquid, toxic, n.o.s.

Water-reactive, solid, corrosive, n.o.s.

Water-reactive, solid, flammable, n.o.s.

Water-reactive, solid, n.o.s.

Water-reactive, solid, oxidizing, n.o.s.

Water-reactive, solid, self-heating, n.o.s.

Water-reactive, solid, toxic, n.o.s.

49 CFR 172.203(k)(4) The provisions of this paragraph do not apply

49 CFR 172.203(k)(4)(i) To a material that is a hazardous waste and described using the proper shipping name "Hazardous waste, liquid or solid, n.o.s.", classed as a miscellaneous Class 9, provided the EPA hazardous waste number is included on the shipping paper in association with the basic description, or provided the material is described in accordance with the provisions of § 172.203(c) of this part.

49 CFR 172.203(k)(4)(ii) To a material for which the hazard class is to be determined by testing under the criteria in 172.101(c)(11).

[56 FR 66254, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.203(k)(4)(iii) If the n.o.s. description for the material (other than a mixture of hazardous materials of different classes meeting the definitions of more than one hazard class) contains the name of the chemical element or group which is primarily responsible for the material being included in the hazard class indicated.

[58 FR 51531, Oct. 1, 1993]

49 CFR 172.203(k)(4)(iv) If the n.o.s. description for the material (which is a mixture of hazardous materials of different classes meeting the definition of more than one hazard class) contains the name of the chemical element or group responsible for the material meeting the definition of one of these classes. In such cases, only the technical name of the component that is not appropriately identified in the n.o.s. description shall be entered in parentheses.

[56 FR 66254, Dec. 20, 1991, effective Oct. 1, 1991; 58 FR 51531, Oct. 1, 1993]

49 CFR 172.203(l) Marine pollutants.(1) If the proper shipping name for a material which is a marine pollutant does not identify by name the component which makes the material a marine pollutant, the name of that component must appear in parentheses in association with the basic description. Where two or more components which make a material a marine pollutant are present, the names of at least two of the components most predominantly contributing to the marine pollutant designation must appear in parentheses in association with the basic description.

[57 FR 52938, Nov. 5, 1992, effective Jan. 1, 1993]

49 CFR 172.203(l)(2) The words "Marine Pollutant" shall be entered in association with the basic description for a material which is a marine pollutant.

49 CFR 172.203(l)(3) Except for transportation by vessel, marine pollutants subject to the provisions of 49 CFR 130.11 are excepted from the requirements of paragraph (l) of this section if a phrase indicating the material is an oil is placed in association with the basic description.

[Added at 59 FR 67487 , Dec. 29, 1994, effective Oct. 1, 1995]

49 CFR 172.203(m) Poisonous materials. Notwithstanding the hazard class to which a material is assigned

[54 FR 27145, June 27, 1989, effective Dec. 31, 1990; 55 FR 874, Jan. 10, 1990; effective Dec. 31, 1990]

49 CFR 172.203(m)(1) If a liquid or solid material in a package meets the definition of a Division 6.1, Packing Group I or II, 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 or Toxic" shall be entered on the shipping paper in association with the shipping description.

[56 FR 66253, Dec. 20, 1991, effective Oct. 1, 1991; 57 FR 45458, Oct. 1, 1992; 59 FR 67487 , Dec. 29, 1994, effective Oct. 1, 1995]

49 CFR 172.203(m)(2) If the technical name of the compound or principal constituent that causes a material to meet the definition of Division 6.1, Packing Group I or II (as defined in 173.132(a) of this subchapter), or Division 2.3 (as defined in 173.115(c) of 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.

[56 FR 66253, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.203(m)(3) For materials which are poisonous by inhalation (see 171.8 of this subchapter), the words Poison-Inhalation Hazard" and the words "Zone A", "Zone B", "Zone C", or "Zone D", for gases or "Zone A" or "Zone B" for liquids, as appropriate, shall be entered on the shipping paper immediately following the shipping description. The word "Poison" need not be repeated if it otherwise appears in the shipping description.

[56 FR 66254, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.203(n) Elevated temperature materials. Except for molten sulfur or molten aluminum, if a liquid material in a package meets the definition of an elevated temperature material in 171.8 of this subchapter, and the fact that it is an elevated temperature material is not disclosed in the shipping name, the word "HOT" must immediately precede the proper shipping name of the material on the shipping paper.

[56 FR 49989, Oct. 2, 1991, effective March 30, 1992]

49 CFR 172.203(o) Organic peroxides and self-reactive materials. The description on a shipping paper for a Division 4.1 (self-reactive) material or a Division 5.2 (organic peroxide) material must include the following additional information, as appropriate:

[Added at 59 FR 67487 , Dec. 29, 1994, effective Oct. 1, 1995]

49 CFR 172.203(o)(1) If notification or competent authority approval is required, the shipping paper must contain a statement of approval of the classification and conditions of transport.

49 CFR 172.203(o)(2) For Division 4.1 (self-reactive) and Division 5.2 (organic peroxide) materials that require temperature control during transport, the control and emergency temperature must be included on the shipping paper.

49 CFR 172.203(o)(3) The word "SAMPLE" must be included in association with the basic description when a sample of a Division 4.1 (self-reactive) material (see 173.224(c)(4) of this subchapter) or Division 5.2 (organic peroxide) material (see 173.225(c)(4) of this subchapter) is offered for transportation or transported.

49 CFR 172.204 Shipper's certification.

49 CFR 172.204(a) General. Except as provided in paragraphs (b) and (c) of this section, each person who offers a hazardous material for transportation shall certify that the material is offered for transportation in accordance with this subchapter by printing (manually or mechanically) on the shipping paper containing the required shipping description the certification contained in paragraph (a)(1) of this section or the certification (declaration) containing the language contained in paragraph (a)(2) of this section.

[48 FR 28095, June 20, 1983]

49 CFR 172.204(a)(1) "This is to certify that the above- named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation."

Note. In line one of the certification the words "herein-named" may be substituted for the words "above-named".

49 CFR 172.204(a)(2) "I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations."

[Amended at 59 FR 67487 , Dec. 29, 1994, effective Oct. 1, 1995; 60 FR 26805, May 18, 1995, effective Oct. 1, 1995]

49 CFR 172.204(b) Exceptions.(1) Except for a hazardous waste, no certification is required for a hazardous material offered for transportation by motor vehicle and transported

49 CFR 172.204(b)(1) In a cargo tank supplied by the carrier, or

49 CFR 172.204(b)(1)(ii) By the shipper as a private carrier except for a hazardous material that is to be reshipped or transferred from one carrier to another.

49 CFR 172.204(b)(2) No certification is required for the return of an empty tank car which previously contained a hazardous material and which has not been cleaned or purged.

49 CFR 172.204(c) Transportation by air (1) General. Certification containing the following language may be used in place of the certification required by paragraph (a) of this section:

I hereby certify that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and in proper condition for carriage by air according to applicable national governmental regulations.

49 CFR 172.204(c)(2) Certificate in duplicate. Each person who offers a hazardous material to an aircraft operator for transportation by air shall provide two copies of the certification required in this section. (See 175.30 of this subchapter.)

49 CFR 172.204(c)(3) Passenger and cargo aircraft. Each person who offers for transportation by air a hazardous material authorized for air transportation shall add to the certification required in this section the following statement:

This shipment is within the limitation prescribed for passenger aircraft/cargo aircraft only (delete

nonapplicable).

49 CFR 172.204(c)(4) Radioactive material. Each person who offers any radioactive material for transportation aboard a passenger-carrying aircraft shall sign (mechanically or manually) a printed certificate stating that the shipment contains radioactive material intended for use in, or incident to, research, or medical diagnosis or treatment.

[48 FR 10218, March 10, 1983, effective July 1, 1983; 48 FR 19719, May 2, 1983, effective May 3, 1983; 48 FR 30132, June 30, 1983]

49 CFR 172.204(d) Signature. The certifications required by paragraph (a) or (c) of this section

49 CFR 172.204(d)(1) Must be legibly signed by a principal, officer, partner, or employee of the shipper or his agent; and

49 CFR 172.204(d)(2) May be legibly signed manually, by typewriter, or by other mechanical means.

49 CFR 172.205 Hazardous waste manifest.

49 CFR 172.205(a) No person may offer, transport, transfer, or deliver a hazardous waste (waste) unless an EPA Form 8700-22 and 8700-22A (when necessary) hazardous waste manifest (manifest) is prepared in accordance with 40 CFR 262.20 and is signed, carried, and given as required of that person by this section.

[49 FR 10507, March 20, 1984, effective Sept. 20, 1984]

49 CFR 172.205(b) The shipper (generator) shall prepare the manifest in accordance with 40 CFR Part 262.

49 CFR 172.205(c) The original copy of the manifest must be dated by, and bear the hand-written signature of, the person representing

49 CFR 172.205(c)(1) The shipper (generator) of the waste at the time it is offered for transportation, and

49 CFR 172.205(c)(2) The initial carrier accepting the waste for transportation.

49 CFR 172.205(d) A copy of the manifest must be dated by, and bear the handwritten signature of the person representing

49 CFR 172.205(d)(1) Each subsequent carrier accepting the waste for transportation, at the time of acceptance, and

49 CFR 172.205(d)(2) The designated facility receiving the waste, upon receipt.

49 CFR 172.205(e) A copy of the manifest bearing all required dates and signatures must be

49 CFR 172.205(e)(1) Given to a person representing each carrier accepting the waste for transportation.

49 CFR 172.205(e)(2) Carrier during transportation in the same manner as required by this subchapter for shipping papers,

49 CFR 172.205(e)(3) Given to a person representing the designated facility receiving the waste,

49 CFR 172.205(e)(4) Returned to the shipper (generator) by the carrier that transported the waste from the United States to a foreign destination with a notation of the date of departure from the United States, and

49 CFR 172.205(e)(5) Retained by the shipper (generator) and by the initial and each subsequent carrier for three years from the date the waste was accepted by the initial carrier. Each retained copy must bear all required signatures and dates up to and including those entered by the next person who received the waste.

49 CFR 172.205(f) The requirements of paragraphs (d) and (e) of this section do not apply to a rail carrier when waste is delivered to a designated facility by railroad if

49 CFR 172.205(f)(1) All of the information required to be entered on the manifest (except generator and carrier identification numbers and the generator's certification) is entered on the shipping paper carried in accordance with 174.26(c) of this subchapter;

49 CFR 172.205(f)(2) The delivering rail carrier obtains and retains a receipt for the waste that is dated by and bears the handwritten signature of the person representing the designated facility; and

49 CFR 172.205(f)(3) A copy of the shipping paper is retained for three years by each railroad transporting the waste.

49 CFR 172.205(g) The person delivering a hazardous waste to an initial rail carrier shall send a copy of the manifest, dated and signed by a representative of the rail carrier, to the person representing the designated facility.

49 CFR 172.205(h) A hazardous waste manifest required by 40 CFR Part 262, containing all of the information required by this subpart, may be used as the shipping paper required by this subpart.

49 CFR 172.300 Applicability.

49 CFR 172.300(a) Each person who offers a hazardous material for transportation shall mark each package, freight container, and transport vehicle containing the hazardous material in the manner required by this subpart.

49 CFR 172.300(b) When assigned the function by this subpart, each carrier that transports a hazardous material shall mark each package, freight container, and transport vehicle containing the hazardous material in the manner required by this subpart.

49 CFR 172.301 General marking requirements for non-bulk packagings.

[55 FR 52590, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.301(a) Proper shipping name and identification number.(1) Except as otherwise provided by this subchapter, each person who offers for transportation a hazardous material in a non-bulk packaging shall mark the package with the proper shipping name and identification number (preceded by "UN" or "NA", as appropriate) for the material as shown in the § 172.101 table.

49 CFR 172.301(a)(2) The proper shipping name for a hazardous waste (as defined in § 171.8 of this subchapter) is not required to include the word "waste" if the package bears the EPA marking

prescribed by 40 CFR 262.32.

49 CFR 172.301(b) Technical names. In addition to the marking required by paragraph (a) of this section, each non-bulk packaging containing hazardous materials subject to the provisions of 172.203(k) of this part shall be marked with the technical name in parentheses in association with the proper shipping name in accordance with the requirements and exceptions specified for display of technical descriptions on shipping papers in 172.203(k) of this part.

49 CFR 172.301(c) Exemption packagings. The outside of each package authorized by an exemption shall be plainly and durably marked "DOT-E" followed by the exemption number assigned.

49 CFR 172.301(d) Consignee's or consignor's name and address. Each person who offers for transportation a hazardous material in a non-bulk package shall mark that package with the name and address of the consignor or consignee except when the package is

49 CFR 172.301(d)(1) Transported by highway only and will not be transferred from one motor carrier to another; or

49 CFR 172.301(d)(2) Part of a carload lot, truckload lot or freight container load, and the entire contents of the rail car, truck or freight container are shipped from one consignor to one consignee.

49 CFR 172.301(e) Previously marked packagings. A package which has been previously marked as required for the material it contains and on which the marking remains legible, need not be remarked. (For empty packagings, see 173.29 of this subchapter.)

49 CFR 172.301(f) Marking exceptions.(1) Identification numbers are not required on packages which contain only limited quantities, as defined in 171.8 of this subchapter, or ORM-D materials.

49 CFR 172.301(f)(2) The marking of technical names on non-bulk packagings filled for shipment prior to December 31, 1990 is not required until December 31, 1991.

49 CFR 172.302 General marking requirements for bulk packagings.

[55 FR 52591, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.302(a) Identification numbers. Except as otherwise provided in this subpart, no person may offer for transportation or transport a hazardous material in a bulk packaging unless the packaging is marked as required by 172.332 with the identification number specified for the material in the 172.101 Table

49 CFR 172.302(a)(1) On each side and each end, if the packaging has a capacity of 3,785 L (1,000 gallons) or more;

49 CFR 172.302(a)(2) On two opposing sides, if the packaging has a capacity of less than 3,785 L (1,000 gallons); or

49 CFR 172.302(a)(3) For cylinders permanently installed on a tube trailer motor vehicle, on each side and each end of the motor vehicle.

49 CFR 172.302(b) Size of markings. Except as otherwise provided, markings required by this subpart on bulk packagings must have a width of at least 6.0 mm (0.24 inch) and a height of at least

49 CFR 172.302(b)(1) 100 mm (3.9 inches) for rail cars;

49 CFR 172.302(b)(2) 25 mm (one inch) for portable tanks with capacities of less than 3,785 L (1,000 gallons); and

[56 FR 66254, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.302(b)(3) 50 mm (2.0 inches) for cargo tanks and other bulk packages.

[56 FR 66254, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.302(c) Exemption packagings. The outside of each bulk package used under the terms of an exemption shall be plainly and durably marked "DOT-E" followed by the exemption number assigned.

49 CFR 172.302(d) Each bulk packaging marked with a proper shipping name, common name or identification number as required by this subpart must remain marked when it is emptied unless it is

49 CFR 172.302(d)(1) Sufficiently cleaned of residue and purged of vapors to remove any potential hazard; or

49 CFR 172.302(d)(2) Refilled, with a material requiring different markings or no markings, to such an extent that any residue remaining in the packaging is no longer hazardous.

49 CFR 172.302(e) Additional requirements for marking portable tanks, cargo tanks, tank cars, multi-unit tank car tanks, and other bulk packagings are prescribed in 172.326 , 172.328, 172.330, and 172.331, respectively, of this subpart.

49 CFR 172.302(f) A bulk packaging marked prior to October 1, 1991, in conformance to the regulations of this subchapter in effect on September 30, 1991, need not be remarked if the key words of the proper shipping name are identical to those currently specified in the 172.101 Table. For example, a tank car marked "ANHYDROUS AMMONIA" need not be remarked "ANHYDROUS AMMONIA, LIQUEFIED".

[56 FR 66254, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.303 Prohibited marking.

[55 FR 52591, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.303(a) No person may offer for transportation or transport a package which is marked with the proper shipping name or identification number of a hazardous material unless the package contains the identified hazardous material or its residue.

49 CFR 172.303(b) This section does not apply to

[56 FR 66254, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.303(b)(1) Transportation of a package in a transport vehicle or freight container if the package is not visible during transportation and is loaded by the shipper and unloaded by the shipper or consignee.

49 CFR 172.303(b)(2) Markings on a package which are securely covered in transportation.

49 CFR 172.303(b)(3) The marking of a shipping name on a package when the name describes a material not regulated under this subchapter.

[56 FR 66254, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.304 Marking requirements.

49 CFR 172.304(a) The marking required in this subpart (1) Must be durable, in English and printed on or affixed to the surface of a package or on a label, tag, or sign.

49 CFR 172.304(a)(2) Must be displayed on a background of sharply contrasting color;

49 CFR 172.304(a)(3) Must be unobscured by labels or attachments; and

49 CFR 172.304(a)(4) Must be located away from any other marking (such as advertising) that could substantially reduce its effectiveness.

49 CFR 172.306 [Removed and reserved]

49 CFR 172.308 Authorized abbreviations.

[55 FR 52591, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.308(a) Abbreviations may not be used in a proper shipping name marking except as authorized in this section.

49 CFR 172.308(b) The abbreviation "ORM" may be used in place of the words "Other Regulated Material."

[Redesignated at 60 FR 49110 , Sept. 21, 1995, effective Oct. 1, 1995]

49 CFR 172.308(c) Abbreviations which appear as authorized descriptions in Column 2 of the 172.101 Table (e.g., TNT" and "PCB") are authorized.

[Redesignated and amended at 60 FR 49110 , Sept. 21, 1995, effective Oct. 1, 1995]

49 CFR 172.310 Class 7 (radioactive) materials.

[Revised at 60 FR 50304 , Sept. 28, 1995, effective April 1, 1996]

In addition to any other markings required by this subpart, each package containing Class 7 (radioactive) materials must be marked as follows:

49 CFR 172.310(a) Each package with a gross mass greater than 50 kilograms (110 pounds) must have the its gross mass marked on the outside of the package.

49 CFR 172.310(b) packaging must be marked on the outside of the package, in letters at least 13 mm (0.5 inch) high, with the words "TYPE A" or "TYPE B" as appropriate. A packaging which does not conform to Type A or Type B requirements may not be so marked.

49 CFR 172.310(c) Each Type B, Type B(U) or Type B(M) packaging must be marked on the outside of the package with a radiation symbol that conforms to the requirements of Appendix B to

Part 172.

49 CFR 172.310(d) Each package destined for export shipment must also be marked "USA" in conjunction with the specification marking, or other package certificate identification. (See 173.471, 173.472, and 173.473 of this subchapter).

49 CFR 172.312 Liquid hazardous materials in non-bulk packagings.

[55 FR 52591, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.312(a) Except as provided in this section, each non-bulk combination package having inner packagings containing liquid hazardous materials must be:

49 CFR 172.312(a)(1) Packed with closures upward, and

49 CFR 172.312(a)(2) Legibly marked, with package orientation markings that conform pictorially to ISO Standard 780-1985, on two opposite vertical sides of the package with the arrows pointing in the correct upright direction. Depicting a rectangular border around the arrows is optional.

[56 FR 66254, Dec. 20, 1991, effective Oct. 1, 1991; 57 FR 45458, Oct. 1, 1992]

49 CFR 172.312(b) Arrows for purposes other than indicating proper package orientation may not be displayed on a package containing a liquid hazardous material.

49 CFR 172.312(c) The requirements of paragraph (a) of this section do not apply to

49 CFR 172.312(c)(1) A non-bulk package with inner packagings which are cylinders.

49 CFR 172.312(c)(2) Except when offered or intended for transportation by aircraft, packages containing flammable liquids in inner packagings of one liter or less prepared in accordance with 173.150 (b) or (c)of this subchapter.

49 CFR 172.312(c)(3) When offered or intended for transportation by aircraft, packages containing flammable liquids in inner packagings of 120 ml (4 fluid oz.) or less prepared in accordance with § 173.150(b) or (c)of this subchapter when packed with sufficient absorption material between the inner and outer packagings to completely absorb the liquid contents.

49 CFR 172.312(c)(4) Liquids contained in manufactured articles (e.g., alcohol or mercury in thermometers) which are leak-tight in all orientations.

[56 FR 66254, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.312(c)(5) A non-bulk package with hermetically-sealed inner packagings.

[56 FR 66254, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.313 Poisonous hazardous materials.

[55 FR 52592, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.313(a) For materials poisonous by inhalation (see § 171.8 of this subchapter), the package shall be marked "Inhalation Hazard" in association with the required labels or placards, as appropriate, or shipping name, when required. (See § 172.302(b) of this subpart for size of markings

in bulk packages.) Bulk packagings must be marked on two opposing sides.

[56 FR 66254, Dec. 20, 1991, effective Oct. 1, 1991; 57 FR 46624, Oct. 9, 1992]

49 CFR 172.313(b) Each non-bulk plastic outer packaging used as a single or composite packaging for materials meeting the definition of Division 6.1 (in 173.132 of this subchapter) shall be permanently marked, by embossment or other durable means, with the word "POISON" in letters at least 6.3 mm (0.25 inch) in height. Additional text or symbols related to hazard warning may be included in the marking. The marking shall be located within 150 mm (6 inches) of the closure of the packaging.

49 CFR 172.316 Packagings containing materials classed as ORM-D.

[56 FR 66254, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.316(a) Each non-bulk packaging containing a material classed as ORM-D must be marked on at least one side or end with the ORM-D designation immediately following or below the proper shipping name of the material. The ORM designation must be placed within a rectangle that is approximately 6.3 mm (0.25 inches) larger on each side than the designation. The designation for ORM-D must be:

[55 FR 52592, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.316(a)(1) ORM-D-AIR for an ORM-D that is prepared for air shipment and packaged in accordance with the provisions of 173.27 of this subchapter.

49 CFR 172.316(a)(2) ORM-D for an ORM-D other than as described in paragraph (a)(1) of this section.

49 CFR 172.316(b) When the ORM-D marking including the proper shipping name can not be affixed on the package surface, it may be on an attached tag.

49 CFR 172.316(c) The marking ORM-D is the certification by the person offering the packaging for transportation that the material is properly described, classed, packaged, marked and labeled (when appropriate) and in proper condition for transportation according to the applicable regulations of this subchapter. This form of certification does not preclude the requirement for a certificate on a shipping paper when required by subpart C of this part.

[55 FR 52592, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.320 Explosive hazardous materials.

[56 FR 66254, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.320(a) Except as otherwise provided in paragraphs (b), (c), (d) and (e) of this section, each package containing a Class 1 material must be marked with the EX- number for each substance, article or device contained therein.

49 CFR 172.320(b) Except for fireworks approved in accordance with 173.56(j) of this subchapter, a package of Class 1 materials may be marked, in lieu of the EX- number required by paragraph (a) of this section, with a national stock number issued by the Department of Defense or identifying information, such as a product code required by regulations for commercial explosives specified in

27 CFR part 55, if the national stock number or identifying information, such as a product code can be specifically associated with the EX- number assigned.

[

Amended at 59 FR 67488 , Dec. 29, 1994, effective Oct. 1, 1995]

49 CFR 172.320(c) When more than five different Class 1 materials are packed in the same package, the package may be marked with only five of the EX-numbers, national stock numbers, product codes, or combination thereof.

49 CFR 172.320(d) The requirements of this section do not apply if the EX-number, product code or national stock number of each explosive item described under a proper shipping description is shown in association with the shipping description required by 172.202(a) of this part. Product codes and national stock numbers must be traceable to the specific EX-number assigned by the Associate Administrator for Hazardous Materials Safety.

49 CFR 172.320(e) The requirements of this section do not apply to the following Class 1 materials:

49 CFR 172.320(e)(1) Those being shipped to a testing agency in accordance with Sec. 173.56(d) of this subchapter;

49 CFR 172.320(e)(2) Those being shipped in accordance with 173.56(e) of this subchapter, for the purposes of developmental testing;

49 CFR 172.320(e)(3) Those which meet the requirements of 173.56(h) of this subchapter and therefore are not subject to the approval process of 173.56 of this subchapter;

49 CFR 172.320(e)(4) Until October 1, 1993, those which are shipped under 171.19 of this subchapter; and

49 CFR 172.320(e)(5) Those that are transported in accordance with 173.56(c)(2) of this subchapter and, therefore, are covered by a national security classification currently in effect.

49 CFR 172.322 Marine pollutants.

[57 FR 52938, Nov. 5, 1992, effective Jan. 1, 1993]

49 CFR 172.322(a) For vessel transportation of each non-bulk packaging that contains a marine pollutant

49 CFR 172.322(a)(1) If the proper shipping name for a material which is a marine pollutant does not identify by name the component which makes the material a marine pollutant, the name of that component must be marked on the package in parentheses in association with the marked proper shipping name. Where two or more components which make a material a marine pollutant are present, the names of at least two of the components most predominantly contributing to the marine pollutant designation must appear in parentheses in association with the marked proper shipping name; and

49 CFR 172.322(a)(2) The MARINE POLLUTANT mark shall be placed in association with the hazard warning labels required by Subpart E of this Part or, in the absence of any labels, in association with the marked proper shipping name.

49 CFR 172.322(b) A bulk packaging that contains a marine pollutant must

49 CFR 172.322(b)(1) Be marked with the MARINE POLLUTANT mark on at least two opposing sides or two ends other than the bottom if the packaging has a capacity of less than 3,785 L (1,000 gallons). The mark must be visible from the direction it faces. The mark may be displayed in black lettering on a square-on-point configuration having the same outside dimensions as a placard; or

49 CFR 172.322(b)(2) Be marked on each end and each side with the MARINE POLLUTANT mark if the packaging has a capacity of 3,785 L (1,000 gallons) or more. The mark must be visible from the direction it faces. The mark may be displayed in black lettering on a square-on-point configuration having the same outside dimensions as a placard.

[Revised at 59 FR 38064, July 26, 1994, effective Sept. 30, 1994]

49 CFR 172.322(c) A transport vehicle or freight container that contains a package subject to the marking requirements of paragraph (a) or (b) of this section must be marked with the MARINE POLLUTANT mark. The mark must appear on each side and each end of the transport vehicle or freight container, and must be visible from the direction it faces. This requirement may be met by the marking displayed on a freight container or portable tank loaded on a motor vehicle or rail car. This mark may be displayed in black lettering on a white square-on-point configuration having the same outside dimensions as a placard.

49 CFR 172.322(d) The MARINE POLLUTANT mark is not required

49 CFR 172.322(d)(1) On a combination package containing a severe marine pollutant (see appendix B to 172.101), in inner packagings each of which contains:

49 CFR 172.322(d)(1)(i) 0.5 liters (17 ounces) or less net capacity for liquids; or

49 CFR 172.322(d)(1)(ii) 500 grams (17.6 ounces) or less net capacity for solids.

49 CFR 172.322(d)(2) On a combination packaging containing a marine pollutant, other than a severe marine pollutant, in inner packagings each of which contains:

49 CFR 172.322(d)(2)(i) 5 liters (1.3 gallons) or less net capacity for liquids; or

[Amended at 60 FR 49110 , Sept. 21, 1995, effective Oct. 1, 1995]

49 CFR 172.322(d)(2)(ii) 5 kilograms (11 pounds) or less net capacity for solids.

49 CFR 172.322(d)(3) Except for transportation by vessel, on a bulk packaging, freight container or transport vehicle that bears a label or placard specified in Subparts E or F of this part.

49 CFR 172.322(e) MARINE POLLUTANT mark. The MARINE POLLUTANT mark must conform to the following:

49 CFR 172.322(e)(1) Except for size, the MARINE POLLUTANT mark must appear as follows:

49 CFR 172.322(e)(2) The symbol, letters and border must be black and the background white, or the symbol, letters, border and background must be of contrasting color to the surface to which the mark is affixed. Each side of the mark must be

49 CFR 172.322(e)(2)(i) At least 100 mm (3.9 inches) for marks applied to:

49 CFR 172.322(e)(2)(i)(A) Non-bulk packagings, except in the case of packagings which, because of their size, can only bear smaller marks; or

49 CFR 172.322(e)(2)(i)(B) Bulk packagings with a capacity of less than 3785 L (1,000 gallons); or

49 CFR 172.322(e)(2)(ii) At least 250 mm (9.8 inches) for marks applied to all other bulk packagings.

[Revised at 59 FR 38064, July 26, 1994, effective Sept. 30, 1994]

49 CFR 172.325 Elevated temperature materials.

[58 FR 3348, Jan. 8, 1993]

49 CFR 172.325(a) Except as provided in paragraph (b) of this section, a bulk packaging containing an elevated temperature material must be marked on two opposing sides with the word "HOT" in black or white Gothic lettering on a contrasting background. The marking must be displayed on the packaging itself or in black lettering on a plain white square-on-point configuration having the same outside dimensions as a placard. (See 172.302(b) for size of markings on bulk packagings.)

49 CFR 172.325(b) Bulk packagings containing molten aluminum or molten sulfur must be marked "MOLTEN ALUMINUM" or "MOLTEN SULFUR", respectively, in the same manner as prescribed in paragraph (a) of this section.

49 CFR 172.325(c) If the identification number is displayed on a white-square-on-point display configuration, as prescribed in 172.336(b), the word HOT" may be displayed in the upper corner of the same white-square-on-point display configuration. The word "HOT" must be in black letters having a height of at least 50 mm (2.0 inches). Except for size, these markings shall be as illustrated for an Elevated temperature material, liquid, n.o.s.:

[Amended at 59 FR 67488 , Dec. 29, 1994, effective Oct. 1, 1995]

49 CFR 172.326 Portable tanks.

49 CFR 172.326(a) Shipping name. No person may offer for transportation or transport a portable tank containing a hazardous material unless it is legibly marked on two opposing sides with the proper shipping name specified for the material in the 172.101 Table.

49 CFR 172.326(b) Owner's name. The name of the owner or of the lessee, if applicable, must be displayed on a portable tank that contains a hazardous material.

49 CFR 172.326(c) Identification numbers.(1) If the identification number markings required by 172.302(a) are not visible, a transport vehicle or freight container used to transport a portable tank containing a hazardous material must be marked on each side and each end as required by 172.332 with the identification number specified for the material in the 172.101 Table.

[56 FR 66255, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.326(c)(2) Each person who offers a portable tank containing a hazardous material to a motor carrier, for transportation in a transport vehicle or freight container, shall provide the motor

carrier with the required identification numbers on placards, orange panels, or the white square-on-point configuration, as appropriate, for each side and each end of the transport vehicle or freight container from which identification numbers on the portable tank are not visible.

[56 FR 66255, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.328 Cargo tanks.

[55 FR 52592, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.328(a) Providing and affixing identification numbers. Unless a cargo tank is already marked with the identification numbers required by this subpart, the identification numbers must be provided or affixed as follows:

49 CFR 172.328(a)(1) A person who offers a hazardous material to a motor carrier for transportation in a cargo tank shall provide the motor carrier the identification numbers on placards or shall affix orange panels containing the required identification numbers, prior to or at the time the material is offered for transportation.

49 CFR 172.328(a)(2) A person who offers a cargo tank containing a hazardous material for transportation shall affix the required identification numbers on panels or placards prior to or at the time the cargo tank is offered for transportation.

49 CFR 172.328(b) Required markings: Gases. Except for certain nurse tanks which must be marked as specified in 173.315(m)of this subchapter, each cargo tank transporting a Class 2 material subject to this subchapter must be marked, in lettering no less than 50 mm (2.0 inches), on each side and each end with

49 CFR 172.328(b)(1) The proper shipping name specified for the gas in the 172.101 Table; or

49 CFR 172.328(b)(2) An appropriate common name for the material (e.g., "Refrigerant Gas").

49 CFR 172.328(c) QT/NQT markings. Each MC 330 and MC 331 cargo tank must be marked near the specification plate, in letters no less than 50 mm (2.0 inches) in height, with

[56 FR 66255, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.328(c)(1) "QT", if the cargo tank is constructed of quenched and tempered steel; or

49 CFR 172.328(c)(2) "NQT", if the cargo tank is constructed of other than quenched and tempered steel.

49 CFR 172.330 Tank cars and multi-unit tank car tanks.

[55 FR 52593, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.330(a) Shipping name and identification number. No person may offer for transportation or transport a hazardous material

[57 FR 45458, Oct. 1, 1992]

49 CFR 172.330(a)(1) In a tank car unless the tank car is:

[56 FR 66255, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.330(a)(1)(i) Marked on each side, when required by a special provision to the Sec. 172.101 Table or Part 173 of this subchapter, with the proper shipping name specified for the material in the 172.101 Table, or with a common name authorized for the material in this subchapter (e.g., "Refrigerant Gas"); and

49 CFR 172.330(a)(1)(ii) Marked on each side and each end, as required by 172.302 of this subpart, with the identification number specified for the material in the 172.101 Table.

49 CFR 172.330(a)(2) In a multi-unit tank car tank, unless the tank is marked on two opposing sides, in letters and numerals no less than 50 mm (2.0 inches) high

[56 FR 66255, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.330(a)(2)(i) With the proper shipping name specified for the material in the Sec. 172.101 Table or with a common name authorized for the material in this subchapter (e.g., "Refrigerant Gas"); and

49 CFR 172.330(a)(2)(ii) With the identification number specified for the material in the Sec. 172.101 Table, unless marked in accordance with 172.302(a) and 172.332 of this subpart.

49 CFR 172.330(b) A motor vehicle or rail car used to transport a multi-unit tank car tank containing a hazardous material must be marked on each side and each end, as required by 172.332, with the identification number specified for the material in the 172.101 Table.

49 CFR 172.331 Bulk packagings other than portable tanks, cargo tanks, tank cars and multi-unit tank car tanks.

[55 FR 52593, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.331(a) Each person who offers a hazardous material to a motor carrier for transportation in a bulk packaging shall provide the motor carrier with the required identification numbers on placards or plain white square-on-point display configurations, as authorized, or shall affix orange panels containing the required identification numbers to the packaging prior to or at the time the material is offered for transportation, unless the packaging is already marked with the identification number as required by this subchapter.

49 CFR 172.331(b) Each person who offers a bulk packaging containing a hazardous material for transportation shall affix to the packaging the required identification numbers on orange panels, square-on-point configurations or placards, as appropriate, prior to, or at the time the packaging is offered for transportation unless it is already marked with identification numbers as required by this subchapter.

49 CFR 172.332 Identification number markings.

49 CFR 172.332(a) General: When required by 172.302, 172.326,172.328, 172.330, or 172.331 of this subpart, identification numbers shall be displayed on orange panels or placards as specified in this section or, when appropriate, on white square-on-point configurations as prescribed in 172.336(b).

[52 FR 29528, Aug. 10, 1987; 56 FR 66255, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.332(b) Orange panels: Display of an identification number on an orange panel shall be in conformance with the following:

49 CFR 172.332(b)(1) The orange panel must be 160 mm (6.3 inches) high by 400 mm (15.7 inches) wide with a 15 mm (0.6 inches) black outer border. The identification number shall be displayed in 100 mm (3.9 inches) black Helvetica Medium numerals on the orange panel. Measurements may vary from those specified plus or minus 5 mm (0.2 inches).

[55 FR 52593, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.332(b)(2) The orange panel may be made of any durable material prescribed for placards in 172.519, and shall be of the orange color specified for labels or placards in Appendix A to this Part.

49 CFR 172.332(b)(3) The name and hazard class of a material may be shown in the upper left border of the orange panel in letters not more than 18 points high.

[55 FR 52593, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.332(b)(4) Except for size and color, the orange panel and identification numbers shall be as illustrated for Liquefied petroleum gas:

49 CFR 172.332(c) Placards: Display of an identification number on a hazard warning placard shall be in conformance with the following:

49 CFR 172.332(c)(1) The identification number shall be displayed across the center area of the placard in 88 mm (3.5 inches) black Alpine Gothic or Alternate Gothic No. 3 numerals on a white background 100 mm (3.9 inches) high and approximately 215 mm (8.5 inches) wide and may be outlined with a solid or dotted line border.

[55 FR 52593, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.332(c)(2) The top of the 100 mm (3.9 inches) high white background shall be approximately 40 mm (1.6 inches) above the placard horizontal center line.

[55 FR 52593, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.332(c)(3) An identification number may be displayed only on a placard corresponding to the primary hazard class of the hazardous material.

[55 FR 52593, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.332(c)(4) For a COMBUSTIBLE placard used to display an identification number, the entire background below the white background for the identification number must be white during transportation by rail and may be white during transportation by highway.

49 CFR 172.332(c)(5) The name of the hazardous material and the hazard class may be shown in letters not more than 18 points high immediately within the upper border of the space on the placard bearing the identification number of the material.

[55 FR 52593, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.332(c)(6) If an identification number is placed over the word(s) on a placard, the word(s) should be substantially covered to maximize the effectiveness of the identification number.

49 CFR 172.332(d) Except for size and color, the display of an identification number on a placard shall be as illustrated for Acetone:

49 CFR 172.334 Identification numbers; prohibited display.

49 CFR 172.334(a) No person may display an identification number on a RADIOACTIVE, EXPLOSIVES 1.1, 1.2, 1.3, 1.4, 1.5 or 1.6, or DANGEROUS, or subsidiary hazard placard.

[52 FR 29528, Aug. 10, 1987; 55 FR 52593, Dec. 21, 1990, effective Oct. 1, 1991; 56 FR 66255, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.334(b) No person may display an identification number on a placard, orange panel or white square-on-point display configuration unless

49 CFR 172.334(b)(1) The identification number is specified for the material in 172.101;

[

55 FR 52593, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.334(b)(2) The identification number is displayed on the placard, orange panel or white square-on-point configuration authorized by 172.332 or 172.336(b), as appropriate, and any placard used for display of the identification number corresponds to the hazard class of the material specified in 172.504;

49 CFR 172.334(b)(3) Except as provided under 172.336(c)(4) and (c)(5), the package, freight container, or transport vehicle on which the number is displayed contains the hazardous material associated with that identification number in 172.101.

[52 FR 29528, Aug. 10, 1987; 55 FR 52593, Dec. 21, 1990, effective Oct. 1, 1991; 59 FR 49133, Sept. 26, 1994]

49 CFR 172.334(c) Except as required by 172.332(c)(4) for a combustible liquid, the identification number of a material may be displayed only on the placards required by the tables in 172.504.

[51 FR 23075, June 25, 1986]

49 CFR 172.334(d) Except as provided in 172.336, a placard bearing an identification number may not be used to meet the requirements of Subpart F of this Part unless it is the correct identification number for all hazardous materials of the same class in the transport vehicle or freight container on which it is displayed.

49 CFR 172.334(e) Except as specified in 172.338, an identification number may not be displayed on an orange panel on a cargo tank unless affixed to the cargo tank by the person offering material for transportation in the cargo tank.

49 CFR 172.334(f) If a placard is required by 172.504 , an identification number may not be displayed on an orange panel unless it is displayed in proximity to the placard.

49 CFR 172.334(g) No person shall add any color, number, letter, symbol, or word other than as specified in this subchapter, to any identification number marking display which is required or authorized by this subchapter.

[52 FR 29528, Aug. 10, 1987]

49 CFR 172.336 Identification numbers; special provisions.

[56 FR 66255, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.336(a) When not required or prohibited by this subpart, identification numbers may be displayed on a transport vehicle or a freight container in the manner prescribed by this subpart.

49 CFR 172.336(b) For hazardous materials in hazard classes for which hazard warning placards are not specified, identification numbers, when required, must be displayed on either orange panels (see 172.332(b)) or on a plain white square-on-point display configuration having the same outside dimensions as a placard. In addition, for materials in hazard classes for which placards are specified and identification number displays are required, but for which identification numbers may not be displayed on the placards authorized for the material (see 172.334(a)), identification numbers must be displayed on orange panels or on the plain white square-on- point display configuration in association with the required placards. An identification number displayed on a white square-on-point display configuration is not considered to be a placard.

[52 FR 29528, Aug. 10, 1987; 55 FR 52593, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.336(b)(1) The 100 mm (3.9 inch) by 215 mm (8.5 inches) area containing the identification number shall be located as prescribed by 172.332(c)(1) and (c)(2) and may be outlined with a solid or dotted line border.

[55 FR 52593, Dec. 21, 1990, effective Oct. 1, 1991; 56 FR 66255, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.336(c) Identification numbers are not required

49 CFR 172.336(c)(1) On the ends of a portable tank, cargo tank or tank car having more than one compartment if hazardous materials having different identification numbers are being transported therein. In such a circumstance, the identification numbers on the sides of the tank shall be displayed in the same sequence as the compartments containing the materials they identify.

49 CFR 172.336(c)(2) On a cargo tank containing only gasoline, if the cargo tank is marked "Gasoline" on each side and rear in letters no less than 50 mm (2 inches) high, or is placarded in accordance with § 172.542(c).

[

55 FR 52593, Dec. 21, 1990, effective Oct. 1, 1991; 56 FR 66255, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.336(c)(3) On a cargo tank containing only fuel oil, if the cargo tank is marked "Fuel Oil" on each side and rear in letters no less than 50 mm (2 inches) high, or is placarded in accordance with 172.544(c).

[55 FR 52593, Dec. 21, 1990, effective Oct. 1, 1991; 56 FR 66255, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.336(c)(4) For each of the different liquid petroleum distillate fuels, including gasoline and gasohol in a compartmented cargo tank or tank car, if the identification number is displayed for the distillate fuel having the lowest flash point.

[52 FR 13038, April 20, 1987]

49 CFR 172.336(c)(5) For each of the different liquid petroleum distillate fuels, including gasoline and gasohol transported in a cargo tank, if the identification number is displayed for the liquid petroleum distillate fuel having the lowest flash point.

[52 FR 13038, April 20, 1987]

49 CFR 172.336(c)(6) On nurse tanks meeting the provisions of 173.315(m) of this subchapter.

49 CFR 172.338 Replacement of identification numbers.

If more than one of the identification number markings on placards, orange panels, or white square-on-point display configurations that are required to be displayed are lost, damaged or destroyed during transportation, the carrier shall replace all the missing or damaged identification numbers as soon as practicable. However, in such a case, the numbers may be entered by hand on the appropriate placard, orange panel or white square- on-point display configuration providing the correct identification numbers are entered legibly using an indelible marking material. When entered by hand, the identification numbers must be located in the white display area specified in 72.332. This section does not preclude required compliance with the placarding requirements of Subpart F of this subchapter.

[52 FR 29528, Aug. 10, 1987]

49 CFR 172.400 General labeling requirements.

[55 FR 52593, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.400(a) Except as specified in 172.400a , each person who offers for transportation or transports a hazardous material in any of the following packages or containment devices, shall label the package or containment device with labels specified for the material in the 172.101 Table and in this subpart:

49 CFR 172.400(a)(1) A non-bulk package;

49 CFR 172.400(a)(2) A bulk packaging, other than a cargo tank, portable tank, or tank car, with a volumetric capacity of less than 18 m3 (640 cubic feet), unless placarded in accordance with subpart F of this part;

49 CFR 172.400(a)(3) A portable tank of less than 3785 L (1000 gallons) capacity, unless placarded in accordance with subpart F of this part;

[56 FR 66255, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.400(a)(4) A DOT Specification 106 or 110 multi-unit tank car tank, unless placarded in

accordance with subpart F of this part; and

49 CFR 172.400(a)(5) An overpack, freight container or unit load device, of less than 18 m3 (640 cubic feet), which contains a package for which labels are required, unless placarded or marked in accordance with § 172.512 of this part.

49 CFR 172.400(b) Labeling is required for a hazardous material which meets one or more hazard class definitions, in accordance with Column 6 of the § 172.101 Table and the following table:

Label design or

Hazard class or section

division Label name (Sec.) reference

1.1..... EXPLOSIVE 1.1..... 172.411

1.2..... EXPLOSIVE 1.2..... 172.411

1.3..... EXPLOSIVE 1.3..... 172.411

1.4..... EXPLOSIVE 1.4..... 172.411

1.5..... EXPLOSIVE 1.5..... 172.411

1.6..... EXPLOSIVE 1.6..... 172.411

2.1..... FLAMMABLE GAS..... 172.417

2.2..... NON-FLAMMABLE GAS..... 172.415

2.3..... POISON GAS..... 172.416

3.. FLAMMABLE LIQUID..... 172.419

Combustible liquid (none)

4.1..... FLAMMABLE SOLID..... 172.420

4.2..... SPONTANEOUSLY COMBUSTIBL..... 172.422

4.3..... DANGEROUS WHEN WET..... 172.423

5.1..... OXIDIZER..... 172.426

5.2..... ORGANIC PEROXIDE..... 172.427

6.1 POISON..... 172.430

Packing Groups I and II).....

6.1.. KEEP AWAY FROM FOOD..... 172.431

III).....

6.2..... INFECTIOUS SUBSTANCE1..... 172.432

7 RADIOACTIVE WHITE-I..... 172.436

7..... RADIOACTIVE YELLOW-II..... 172.438

7..... RADIOACTIVE YELLOW-III..... 172.440

7. EMPTY..... 172.450

8..... CORROSIVE..... 172.442

9..... CLASS 9..... 172.446

1 The ETIOLOGIC AGENT label specified in regulations of the Department of Health and Human Services at 42 CFR 72.3 may apply to packages of infectious substances.

[56 FR 66255, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.400a Exceptions from labeling.

[55 FR 52594, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.400a(a) Notwithstanding the provisions of § 172.400, a label is not required on

49 CFR 172.400a(a)(1) A cylinder, or a Dewar flask conforming to § 173.320 of this subchapter containing a Division 2.1 or Division 2.2 gas that is

[58 FR 50501, Sept. 27, 1993, effective Oct. 1, 1993; 60 FR 49110 , Sept. 21, 1995, effective Oct. 1, 1995]

49 CFR 172.400a(a)(1)(i) Not poisonous;

49 CFR 172.400a(a)(1)(ii) Carried by a private or contract motor carrier;

49 CFR 172.400a(a)(1)(iii) Not overpacked; and

49 CFR 172.400a(a)(1)(iv) Durably and legibly marked in accordance with CGA Pamphlet C-7, appendix A.

49 CFR 172.400a(a)(2) A package or unit of military explosives (including ammunition) shipped by or on behalf of the DOD when in

49 CFR 172.400a(a)(2)(i) Freight containerload, carload or truckload shipments, if loaded and unloaded by the shipper or DOD; or

49 CFR 172.400a(a)(2)(ii) Unitized or palletized break-bulk shipments by cargo vessel under charter to DOD if at least one required label is displayed on each unitized or palletized load.

49 CFR 172.400a(a)(3) A package containing a hazardous material other than ammunition that is

49 CFR 172.400a(a)(3)(i) Loaded and unloaded under the supervision of DOD personnel, and

49 CFR 172.400a(a)(3)(ii) Escorted by DOD personnel in a separate vehicle.

49 CFR 172.400a(a)(4) A compressed gas cylinder permanently mounted in or on a transport vehicle.

49 CFR 172.400a(a)(5) A freight container, aircraft unit load device or portable tank, which

49 CFR 172.400a(a)(5)(i) Is placarded in accordance with Subpart F of this part, or

49 CFR 172.400a(a)(5)(ii) Conforms to paragraph (a)(3) or (b)(3) of § 172.512.

49 CFR 172.400a(a)(6) An overpack or unit load device in or on which labels representative of each hazardous material in the overpack or unit load device are visible.

[58 FR 51531, Oct. 1, 1993]

49 CFR 172.400a(a)(7) A package of low specific activity radioactive material, when transported under 173.425(b) of this subchapter.

49 CFR 172.400a(b) Certain exceptions to labeling requirements are provided for small quantities and limited quantities in applicable sections in part 173 of this subchapter.

49 CFR 172.400a(c) Notwithstanding the provisions of 172.402(a), a subsidiary hazard label is not required on a package containing a Class 8 (corrosive) material which has a subsidiary hazard of Division 6.1 (poisonous) if the toxicity of the material is based solely on the corrosive destruction of tissue rather than systemic poisoning.

[Added at 59 FR 67490 , Dec. 29, 1994, effective Oct. 1, 1995, immediate compliance authorized to facilitate international harmonization]

49 CFR 172.400a(d) For Division 6.1 Packing Group III materials, a POISON label may be used in place of a KEEP AWAY FROM FOOD label.

[Added at 59 FR 67490 , Dec. 29, 1994, effective Oct. 1, 1995, immediate compliance authorized to facilitate international harmonization]

49 CFR 172.401 Prohibited labeling.

49 CFR 172.401(a) Except as provided in this section, no person may offer for transportation and no carrier may transport a package bearing a label specified in this subpart unless:

[55 FR 52594, Dec. 21, 1990, effective Oct. 1, 1991; 58 FR 50501, Sept. 27, 1993, effective Oct. 1, 1993]

49 CFR 172.401(a)(1) The package contains a material that is a hazardous material, and

49 CFR 172.401(a)(2) The label represents a hazard of the hazardous material in the package.

49 CFR 172.401(b) No person may offer for transportation and no carrier may transport a package bearing any marking or label which by its color, design, or shape could be confused with or conflict with a label prescribed by this part.

49 CFR 172.401(c) The restrictions in paragraphs (a) and (b) of this section, do not apply to packages labeled in conformance with:

49 CFR 172.401(c)(1) Any United Nations recommendation, including the class number (see 172.407), in the document entitled "Transport of Dangerous Goods";

49 CFR 172.401(c)(2) The International Maritime Organization (IMO) requirements, including the class number (see 172.407), in the document entitled "International Maritime Dangerous Goods Code";

49 CFR 172.401(c)(3) The ICAO Technical Instructions; or

49 CFR 172.401(c)(4) The TDG Regulations.

49 CFR 172.401(d) The provisions of paragraph (a) of this section do not apply to a packaging bearing a label if that packaging is:

[58 FR 50501, Sept. 27, 1993, effective Oct. 1, 1993]

49 CFR 172.401(d)(1) Unused or cleaned and purged of all residue;

49 CFR 172.401(d)(2) Transported in a transport vehicle or freight container in such a manner that the packaging is not visible during transportation; and

49 CFR 172.401(d)(3) Loaded by the shipper and unloaded by the shipper or consignee.

49 CFR 172.402 Additional labeling requirements.

49 CFR 172.402(a) Subsidiary hazard labels. Each package containing a hazardous material

[55 FR 52594, Dec. 21, 1990, effective Oct. 1, 1991; 56 FR 66255, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.402(a)(1) Shall be labeled with primary and subsidiary hazard labels as specified in Column 6 of the 172.101 Table (unless excepted in paragraph (a)(2) of this section); and

[Revised at 59 FR 67490 , Dec. 29, 1994, effective Oct. 1, 1995, immediate compliance authorized to facilitate international harmonization]

49 CFR 172.402(a)(2) For other than Class 1 or Class 2 materials (for subsidiary labeling requirements for Class 1 or Class 2 materials see paragraph (e) or paragraphs (f) and (g), respectively, of this section), if not already labeled under paragraph (a)(1) of this section), shall be labeled with subsidiary hazard labels in accordance with the following table:

Subsidiary Hazard Labels

Subsidiary Hazard (Class or Division)

Subsidiary hazard level (packing group)

3 4.1 4.2 4.3 5.1 6.1 8

I..... X *** *** X X X X

II..... X X X X X X X

III..... * X X X X X X

XRequired for all modes.

*Required for all modes, except for a material with a flash point at or above 38°C (100°F) transported by rail or highway.

** [Removed and reserved]

***Impossible as subsidiary hazard.

[Amended at 59 FR 67490 , Dec. 29, 1994, effective Oct. 1, 1995; 60 FR 26805 , May 18, 1995, effective Oct. 1, 1995]

49 CFR 172.402(b) Display of hazard class on labels. The appropriate hazard class or, for Division 5.1 or 5.2 the division number, shall be displayed in the lower corner of a primary hazard label and may not be displayed on a subsidiary label.

[56 FR 66255, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.402(c) Cargo Aircraft Only label. Each person who offers for transportation or transports by aircraft a package containing a hazardous material which is authorized on cargo aircraft only shall label the package with a CARGO AIRCRAFT ONLY label specified in 172.448 of this subpart.

[56 FR 66255, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.402(d) Radioactive Materials. Each package containing a radioactive material that also meets the definition of one or more additional hazards, except Class 9, shall be labeled as a radioactive material as required by Sec. 172.403 of this subpart and for each additional hazard.

[

56 FR 66255, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.402(e) Class 1 (explosive) Materials. In addition to the label specified in Column 6 of the 172.101 Table, each package of Class 1 material that also meets the definition for:

[

56 FR 66255, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.402(e)(1) Division 6.1, Packing Groups I or II, shall be labeled POISON; or

49 CFR 172.402(e)(2) Class 7, shall be labeled in accordance with 172.403 of this subpart.

49 CFR 172.402(f) Division 2.2 materials. In addition to the label specified in Column 6 of the § 172.101 Table, each package of Division 2.2 material that also meets the definition for an oxidizing gas (see 171.8 of this subchapter) must be labeled OXIDIZER.

[Added at 59 FR 67490 , Dec. 29, 1994, effective Oct. 1, 1995]

49 CFR 172.402(g) Division 2.3 materials. In addition to the label specified in Column 6 of the

172.101 Table, each package of Division 2.3 material that also meets the definition for:

[Added at 59 FR 67490 , Dec. 29, 1994, effective Oct. 1, 1995]

49 CFR 172.402(g)(1) Division 2.1, must be labeled Flammable Gas;

49 CFR 172.402(g)(2) Division 5.1, must be labeled Oxidizer; and

49 CFR 172.402(g)(3) Class 8, must be labeled Corrosive.

49 CFR 172.403 Radioactive material.

49 CFR 172.403(a) Unless excepted from labeling by 173.421 through 173.425 of this subchapter, each package of radioactive material must be labeled as provided in this section.

49 CFR 172.403(b) The proper label to affix to a package of Class 7 (radioactive) material is based on the radiation level at the surface of the package and the transport index. The proper category of label must be determined in accordance with paragraph (c) of this section. The label to be applied must be the highest category required for any of the two determining conditions for the package. RADIOACTIVE WHITE-I is the lowest category and RADIOACTIVE YELLOW-III is the highest. For example, a package with a transport index of 0.8 and a maximum surface radiation level of 0.6 millisievert (60 millirems) per hour must bear a RADIOACTIVE YELLOW-III label.

[Revised at 60 FR 50305 , Sept. 28, 1995, effective April 1, 1996]

49 CFR 172.403(c) Category of label to be applied to Class 7 (radioactive) materials packages:

[Revised at 60 FR 50305 , Sept. 28, 1995, effective April 1, 1996]

Maximum radiation level at any point on the Transport index external surface

Less than or equal to 0.005 mSv/h (0.5 mrem/h) WHITE-I.

More than 0 but not more than 1 Greater than 0.005 mSv/h (0.5 mrem/h) but less than or equal to 0.5 mSv/h (50 mrem) YELLOW-II.

More than 1 but not more than 10 Greater than 0.05 mSv/h (50 mrem) but

less than or equal to 2 mSv/h mrem/h)(200) YELLOW-III.

More than 10 but less than or shipped under exclusive. Greater than 2 mSv/h mrem/h) (Must be equal to 10 mSv/h (1,000 mrem/h)(200) YELLOW-III

use provisions; see 173.441(b) of this subchapter).

1 Any package containing a `highway route controlled quantity' (173.403 of this subchapter) must be labelled as RADIOACTIVE YELLOW-III.

2 If the measured TI is not greater than 0.05, the value may be considered to be zero.

49 CFR 172.403(d) EMPTY label. See 173.428(d) of this subchapter for EMPTY labeling requirements.

[Revised at 60 FR 50305 , Sept. 28, 1995, effective April 1, 1996]

49 CFR 172.403(e) [Reserved]

[55 FR 52594, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.403(f) Each package required by this section to be labeled with a RADIOACTIVE label must have two of these labels, affixed to opposite sides of the package. (See 172.406(e)(3) for freight container label requirements).

49 CFR 172.403(g) The following applicable items of information must be entered in the blank spaces on the RADIOACTIVE label by legible printing (manual or mechanical), using a durable weather resistant means of marking:

49 CFR 172.403(g)(1) Contents. The name of the radionuclides as taken from the listing of radionuclides in 173.435 of this subchapter (symbols which conform to established radiation protection terminology are authorized, i.e., 99Mo, 60Co, etc.). For mixtures of radionuclides, with consideration of space available on the label, the radionuclides that must be shown must be determined in accordance with 173.433(f) of this subchapter.

[Revised at 60 FR 50305 , Sept. 28, 1995, effective April 1, 1996]

49 CFR 172.403(g)(2) Activity. Activity units must be expressed in appropriate SI units (e.g., Becquerels (Bq), Terabecquerels (TBq), etc.) or in both appropriate SI units and appropriate customary units (Curies (Ci), milliCuries (mCi), microcuries (uCi), etc.). Alternatively, the activity may be expressed solely in terms of curies until April 1, 1997. Abbreviations are authorized. Except for plutonium-238, plutonium-239, and plutonium-241, the weight in grams or kilograms of fissile radionuclides may be inserted instead of activity units. For plutonium-238, plutonium-239, and plutonium-241, the weight in grams or kilograms of fissile radionuclides may be inserted in addition to the activity units.

[Revised at 60 FR 50305 , Sept. 28, 1995, effective April 1, 1996]

49 CFR 172.403(g)(3) "Transportation index." (See 173.403).

49 CFR 172.404 Labels for mixed and consolidated packaging.

49 CFR 172.404(a) Mixed packaging. When hazardous materials having different hazard classes are packed within the same packaging, or within the same outside container or overpack as described in 173.25 and authorized by 173.21 of this subchapter, the packaging, outside container or overpack must be labeled as required for each class of hazardous material contained therein.

49 CFR 172.404(b) Consolidated packaging. When two or more packages containing compatible hazardous material (see 173.21) are placed within the same outside container or overpack, the outside container or overpack must be labeled as required for each class of hazardous material contained therein.

49 CFR 172.405 Authorized label modifications.

[55 FR 52594, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.405(a) For Classes 1, 2, 3, 4, 5, 6, and 8, text indicating a hazard (for example

FLAMMABLE LIQUID) is not required on a primary or subsidiary label when

[57 FR 45458, Oct. 1, 1992]

49 CFR 172.405(a)(1) The label otherwise conforms to the provisions of this subpart, and

49 CFR 172.405(a)(2) The hazard class or, for Division 5.1 or 5.2 the division number, is displayed in the lower corner of the label, if the label corresponds to the primary hazard class of the hazardous material.

49 CFR 172.405(b) For a package containing Oxygen, compressed, or Oxygen, refrigerated liquid, the OXIDIZER label specified in 172.426 of this subpart, modified to display the word OXYGEN" instead of "OXIDIZER", and the class number "2" instead of "5.1", may be used in place of the NON-FLAMMABLE GAS and OXIDIZER labels. Notwithstanding the provisions of paragraph (a) of this section, the word "OXYGEN" must appear on the label.

[56 FR 66255, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.406 Placement of labels.

[55 FR 52594, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.406(a) General.(1) Except as provided in paragraphs (b) and (e) of this section, each label required by this subpart must

[56 FR 66255, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.406(a)(1)(i) Be printed on or affixed to a surface (other than the bottom) of the package or containment device containing the hazardous material; and

49 CFR 172.406(a)(1)(ii) Be located on the same surface of the package and near the proper shipping name marking, if the package dimensions are adequate.

[56 FR 66255, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.406(a)(2) Except as provided in paragraph (e) of this section, duplicate labeling is not required on a package or containment device (such as to satisfy redundant labeling requirements).

49 CFR 172.406(b) Exceptions. A label may be printed on or placed on a securely affixed tag, or may be affixed by other suitable means to:

[56 FR 66255, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.406(b)(1) A package that contains no radioactive material and which has dimensions less than those of the required label;

49 CFR 172.406(b)(2) A cylinder; and

49 CFR 172.406(b)(3) A package which has such an irregular surface that a label cannot be satisfactorily affixed.

49 CFR 172.406(c) Placement of multiple labels. When primary and subsidiary hazard labels are required, they must be displayed next to each other. Placement conforms to this requirement if labels

are within 150 mm (6 inches) of one another.

[56 FR 66255, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.406(d) Contrast with background. Each label must be printed on or affixed to a background of contrasting color, or must have a dotted or solid line outer border.

[56 FR 66255, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.406(e) Duplicate labeling. Generally, only one of each different required label must be displayed on a package. However, duplicate labels must be displayed on at least two sides or two ends (other than the bottom) of

[56 FR 66255, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.406(e)(1) Each package or overpack having a volume of 1.8 m3 (64 cubic feet) or more;

[58 FR 51531, Oct. 1, 1993]

49 CFR 172.406(e)(2) Each non-bulk package containing a radioactive material;

49 CFR 172.406(e)(3) Each DOT 106 or 110 multi-unit tank car tank. Labels must be displayed on each end;

49 CFR 172.406(e)(4) Each portable tank of less than 3,785 L (1000 gallons) capacity; and

49 CFR 172.406(e)(5) Each freight container or aircraft unit load device having a volume of 1.8 m3 (64 cubic feet) or more, but less than 18 m3 (640 cubic feet). One of each required label must be displayed on or near the closure.

49 CFR 172.406(f) Visibility. A label must be clearly visible and may not be obscured by markings or attachments.

[56 FR 66255, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.407 Label specifications.

[55 FR 52595, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.407(a) Durability. Each label, whether printed on or affixed to a package, must be durable and weather resistant. A label on a package must be able to withstand, without deterioration or a substantial change in color, a 30-day exposure to conditions incident to transportation that reasonably could be expected to be encountered by the labeled package.

49 CFR 172.407(b) Design.(1) Except for size and color, the printing, inner border, and symbol on each label must be as shown in 172.411 through 172.448 of this subpart, as appropriate.

49 CFR 172.407(b)(2) The dotted line border shown on each label is not part of the label specification, except when used as an alternative for the solid line outer border to meet the requirements of 172.406(d)of this subpart.

49 CFR 172.407(c) Size.(1) Each diamond (square-on- point) label prescribed in this subpart must be at least 100 mm (3.9 inches) on each side with each side having a solid line inner border 5.0 to 6.3

mm (0.2 to 0.25 inches) from the edge.

49 CFR 172.407(c)(2) The CARGO AIRCRAFT ONLY label must be a rectangle measuring at least 110 mm (4.3 inches) in height by 120 mm (4.7 inches) in width. The word "DANGER" must be shown in letters measuring at least 12.7 mm (0.5 inches) in height.

49 CFR 172.407(c)(3) Except as otherwise provided in this subpart, the hazard class number, or division number, as appropriate, must be at least 6.3 mm (0.25 inches) and not greater than 12.7 mm (0.5 inches).

49 CFR 172.407(c)(4) When text indicating a hazard is displayed on a label, the label name must be shown in letters measuring at least 7.6 mm (0.3 inches) in height except that

49 CFR 172.407(c)(4)(i) For a SPONTANEOUSLY COMBUSTIBLE or DANGEROUS WHEN WET label, respectively, the words "Spontaneously" and "When Wet" must be shown in letters measuring at least 5.1 mm (0.2 inches) in height.

49 CFR 172.407(c)(4)(ii) For a KEEP AWAY FROM FOOD label, the word "HARMFUL" must be shown in letters measuring at least 7.6 mm (0.3 inches) in height.

49 CFR 172.407(c)(5) The symbol on each label must be proportionate in size to that shown in the appropriate section of this subpart.

49 CFR 172.407(d) Color.(1) The background color on each label must be as prescribed in §§ 172.411 through 172.448of this subpart, as appropriate.

49 CFR 172.407(d)(2) The symbol, text, numbers, and border must be shown in black on a label except that

49 CFR 172.407(d)(2)(i) White may be used on a label with a one color background of green, red or blue; and

49 CFR 172.407(d)(2)(ii) White must be used for the text and class number for the CORROSIVE label.

49 CFR 172.407(d)(3) Black and any color on a label must be able to withstand, without substantial change, a 72-hour fadeometer test (for a description of equipment designed for this purpose, see ASTM G 23-69 (1975) or ASTM G 26-70).

49 CFR 172.407(d)(4)(i) A color on a label, upon visual examination, must fall within the color tolerances

[56 FR 66255, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.407(d)(4)(i)(A) Displayed on color charts conforming to the technical specifications for charts set forth in Table 1 or 2 in appendix A to this part; or

49 CFR 172.407(d)(4)(i)(B) For labels printed on packaging surfaces, specified in Table 3 in appendix A to this part.

49 CFR 172.407(d)(4)(ii) Color charts conforming to appendix A to this part are on display in Room 8421, Nassif Building, 400 Seventh Street, SW., Washington DC 20590- 0001.

[56 FR 66255, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.407(d)(5) The specified label color must extend to the edge of the label in the area designated on each label except the CORROSIVE, RADIOACTIVE YELLOW- II AND RADIOACTIVE YELLOW-III labels on which the color must extend only to the inner border.

49 CFR 172.407(e) Form identification. A label may contain form identification information, including the name of its maker, provided that information is printed outside the solid line inner border in no larger than 10- point type.

49 CFR 172.407(f) Exceptions. A label conforming to specifications in the UN Recommendations may be used in place of a corresponding label which conforms to the requirements of this subpart.

49 CFR 172.407(g) Trefoil symbol. The trefoil symbol on the RADIOACTIVE WHITE-I, RADIOACTIVE YELLOW-II, and RADIOACTIVE YELLOW-III labels must meet the appropriate specifications in Appendix B of this part.

[Added at 60 FR 50305 , Sept. 28, 1995, effective April 1, 1996]

49 CFR 172.411 EXPLOSIVE 1.1, 1.2, 1.3, 1.4, 1.5 and 1.6 labels, and EXPLOSIVE Subsidiary label.

[55 FR 52595, Dec. 21, 1990, effective Oct. 1, 1991; 56 FR 66256, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.411(a) Except for size and color, the EXPLOSIVE 1.1, EXPLOSIVE 1.2 and EXPLOSIVE 1.3 labels must be as follows:

49 CFR 172.411(b) In addition to complying with § 172.407, the background color on the EXPLOSIVE 1.1, EXPLOSIVE 1.2 and EXPLOSIVE 1.3 labels must be orange. The "**" shall be replaced with the appropriate division number and compatibility group. The compatibility group letter must be the same size as the division number and must be shown as a capitalized Roman letter.

49 CFR 172.411(c) Except for size and color, the EXPLOSIVE 1.4, EXPLOSIVE 1.5, EXPLOSIVE 1.6 labels, and EXPLOSIVE Subsidiary label must be as follows:

EXPLOSIVE 1.4:

EXPLOSIVE 1.5:

EXPLOSIVE 1.6:

EXPLOSIVE Subsidiary label:

49 CFR 172.411(d) In addition to complying with 172.407, the background color on the EXPLOSIVE 1.4, EXPLOSIVE 1.5, EXPLOSIVE 1.6, and EXPLOSIVE Subsidiary label must be orange. Except for the EXPLOSIVE subsidiary label, the "*" shall be replaced with the appropriate compatibility group. The compatibility group letter must be shown as a capitalized Roman letter. Except for the EXPLOSIVE subsidiary label, division numerals must measure at least 30 mm (1.2 inches) in height and at least 5 mm (0.2 inches) in width.

[Amended at 59 FR 67490 , Dec. 29, 1994, effective Oct. 1, 1995]

49 CFR 172.415 NON-FLAMMABLE GAS Label.

[56 FR 66256, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.415(a) Except for size and color, the NON- FLAMMABLE GAS label must be as follows:

49 CFR 172.415(b) In addition to complying with § 172.407, the background color on the NON-FLAMMABLE GAS label must be green.

49 CFR 172.416 POISON GAS label.

[56 FR 66257, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.416(a) Except for size and color, the POISON GAS label must be as follows:

49 CFR 172.416(b) In addition to complying with § 172.407 , the background on the POISON GAS label must be white. The words "TOXIC GAS" may be used in lieu of the words "POISON GAS".

[Amended at 59 FR 67490 , Dec. 29, 1994, effective Oct. 1, 1995]

49 CFR 172.417 FLAMMABLE GAS label.

[56 FR 66257, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.417(a) Except for size and color, the FLAMMABLE GAS label must be as follows:

49 CFR 172.417(b) In addition to complying with § 172.407, the background color on the FLAMMABLE GAS label must be red.

49 CFR 172.419 FLAMMABLE LIQUID label.

[56 FR 66257, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.419(a) Except for size and color the FLAMMABLE LIQUID label must be as follows:

49 CFR 172.419(b) In addition to complying with § 172.407, the background color on the FLAMMABLE LIQUID label must be red.

49 CFR 172.420 FLAMMABLE SOLID label.

[56 FR 66257, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.420(a) Except for size and color, the FLAMMABLE SOLID label must be as follows:

[Corrected at 59 FR 30530, June 14, 1994]

49 CFR 172.420(b) In addition to complying with 172.407 , the background on the FLAMMABLE SOLID label must be white with vertical red stripes equally spaced on each side of a red stripe placed in the center of the label. The red vertical stripes must be spaced so that, visually, they appear equal in width to the white spaces between them. The symbol (flame) and text (when used) must be overprinted. The text "FLAMMABLE SOLID" may be placed in a white rectangle.

49 CFR 172.422 SPONTANEOUSLY COMBUSTIBLE label.

[56 FR 66257, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.422(a) Except for size and color, the SPONTANEOUSLY COMBUSTIBLE label must be as follows:

[57 FR 45458, Oct. 1, 1992; corrected at 59 FR 30530, June 14, 1994]

49 CFR 172.422(b) In addition to complying with § 172.407, the background color on the lower half of the SPONTANEOUSLY COMBUSTIBLE label must be red and the upper half must be white.

49 CFR 172.423 DANGEROUS WHEN WET label.

[56 FR 66257, Dec. 20, 1991, effective Oct 1, 1991]

49 CFR 172.423(a) Except for size and color, the DANGEROUS WHEN WET label must be as follows:

49 CFR 172.423(b) In addition to complying with § 172.407, the background color on the DANGEROUS WHEN WET label must be blue.

49 CFR 172.426 OXIDIZER label.

[56 FR 66257, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.426(a) Except for size and color, the OXIDIZER label must be as follows:

49 CFR 172.426(b) In addition to complying with 172.407, the background color on the OXIDIZER label must be yellow.

49 CFR 172.427 ORGANIC PEROXIDE label.

[56 FR 66258, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.427(a) Except for size and color, the ORGANIC PEROXIDE label must be as follows:

49 CFR 172.427(b) In addition to complying with § 172.407, the background color on the ORGANIC PEROXIDE label must be yellow.

49 CFR 172.430 POISON label.

[56 FR 66258, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.430(a) Except for size and color, the POISON label must be as follows:

49 CFR 172.430(b) In addition to complying with § 172.407 , the background on the POISON label must be white. The word "TOXIC" may be used in lieu of the word "POISON".

[Amended at 59 FR 67490 , Dec. 29, 1994, effective Oct. 1, 1995]

49 CFR 172.431 KEEP AWAY FROM FOOD label.

[56 FR 66258, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.431(a) Except for size and color, the KEEP AWAY FROM FOOD label must be as follows:

49 CFR 172.431(b) In addition to complying with § 172.407, the background on the KEEP AWAY FROM FOOD label must be white.

49 CFR 172.432 INFECTIOUS SUBSTANCE label.

[56 FR 66258, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.432(a) Except for size and color, the INFECTIOUS SUBSTANCE label must be as follows:

49 CFR 172.432(b) In addition to complying with 172.407 , the background on the INFECTIOUS SUBSTANCE label must be white. The word "TOXIC" may be used in lieu of the word "POISON".

[Amended at 59 FR 67490 , Dec. 29, 1994, effective Oct. 1, 1995]

49 CFR 172.436 RADIOACTIVE WHITE-I label.

[56 FR 66259, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.436(a) Except for size and color, the RADIOACTIVE WHITE-I label must be as follows:

49 CFR 172.436(b) In addition to complying with 172.407 , the background on the RADIOACTIVE WHITE-I label must be white. The printing and symbol must be black, except for the "I" which must be red.

49 CFR 172.438 RADIOACTIVE YELLOW-II label.

[56 FR 66259, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.438(a) Except for size and color, the RADIOACTIVE YELLOW-II must be as follows:

49 CFR 172.438(b) In addition to complying with 172.407, the background color on the RADIOACTIVE YELLOW-II label must be yellow in the top half and white in the lower half. The printing and symbol must be black, except for the "II" which must be red.

49 CFR 172.440 RADIOACTIVE YELLOW-III label.

[56 FR 66259, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.440(a) Except for size and color, the RADIOACTIVE YELLOW-III label must be as follows:

49 CFR 172.440(b) In addition to complying with 172.407, the background color on the RADIOACTIVE YELLOW-III label must be yellow in the top half and white in the lower half. The printing and symbol must be black, except for the "III" which must be red.

49 CFR 172.442 CORROSIVE label.

[56 FR 66259, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.442(a) Except for size and color, the CORROSIVE label must be as follows:

49 CFR 172.442(b) In addition to complying with 172.407 , the background on the CORROSIVE label must be white in the top half and black in the lower half.

49 CFR 172.444 [Removed and reserved]

[55 FR 52599, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.446 CLASS 9 label.

[56 FR 66259, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.446(a) Except for size and color, the "CLASS 9" (miscellaneous hazardous materials) label must be as follows:

49 CFR 172.446(b) In addition to complying with 172.407, the background on the CLASS 9 label must be white with seven black vertical stripes on the top half. The black vertical stripes must be spaced, so that, visually, they appear equal in width to the six white spaces between them. The lower half of the label must be white with the class number "9" underlined and centered at the bottom.

49 CFR 172.448 CARGO AIRCRAFT ONLY label.

[56 FR 66259, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.448(a) Except for size and color, the CARGO AIRCRAFT ONLY label must be as follows:

49 CFR 172.448(b) The CARGO AIRCRAFT ONLY label must be black on an orange background.

49 CFR 172.450 EMPTY Label.

49 CFR 172.450(a) EMPTY label, except for size, must be as follows:

49 CFR 172.450(a)(1) Each side must be at least 6 inches (152 mm.) with each letter at least 1 inch (25.4 mm.) in height.

49 CFR 172.450(a)(2) The label must be white with black printing.

49 CFR 172.500 Applicability of placarding requirements.

[55 FR 52599, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.500(a) Each person who offers for transportation or transports any hazardous material subject to this subchapter shall comply with the applicable placarding requirements of this subpart.

49 CFR 172.500(b) This subpart does not apply to

49 CFR 172.500(b)(1) Infectious substances;

49 CFR 172.500(b)(2) Hazardous materials classed as ORM-D;

49 CFR 172.500(b)(3) Hazardous materials authorized by this subchapter to be offered for

transportation as Limited Quantities when identified as such on shipping papers in accordance with 172.203(b);

49 CFR 172.500(b)(4) Hazardous materials which are packaged as small quantities under the provisions of 173.4 of this subchapter; and

49 CFR 172.500(b)(5) Combustible liquids in non-bulk packagings.

49 CFR 172.502 Prohibited and permissive placarding.

[55 FR 52599, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.502(a) Prohibited placarding. Except as provided in paragraph (b) of this section, no person may affix or display on a packaging, freight container, unit load device, motor vehicle or rail car

[56 FR 66259, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.502(a)(1) Any placard described in this subpart unless

49 CFR 172.502(a)(1)(i) The material being offered or transported is a hazardous material;

49 CFR 172.502(a)(1)(ii) The placard represents a hazard of the hazardous material being offered or transported; and

49 CFR 172.502(a)(1)(iii) Any placarding conforms to the requirements of this subpart.

49 CFR 172.502(a)(2) Any sign or other device that, by its color, design, shape or content, could be confused with any placard prescribed in this subpart.

49 CFR 172.502(b) Exceptions.

[56 FR 66260, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.502(b)(1) The restrictions in paragraph (a) of this section do not apply to a bulk packaging, freight container, unit load device, transport vehicle or rail car which is placarded in conformance with the TDG Regulations, the IMDG Code or the UN Recommendations.

49 CFR 172.502(b)(2) The restrictions of paragraph (a) of this section do not apply to the display of an identification number on a white square-on-point configuration in accordance with 172.336(b) of this part.

49 CFR 172.502(c) Permissive placarding.

[56 FR 66260, Dec. 20, 1991, effective Oct. 1, 1991]

Placards may be displayed for a hazardous material, even when not required, if the placarding otherwise conforms to the requirements of this subpart.

49 CFR 172.503 Identification number display on placards.

For procedures and limitations pertaining to the display of identification numbers on placards, see 172.334.

49 CFR 172.504 General placarding requirements.

[55 FR 52600, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.504(a) General. Except as otherwise provided in this subchapter, each bulk packaging, freight container, unit load device, transport vehicle or rail car containing any quantity of a hazardous material must be placarded on each side and each end with the type of placards specified in Tables 1 and 2 of this section and in accordance with other placarding requirements of this subpart, including the specifications for the placards named in the tables and described in detail in 172.519 through 172.558.

[56 FR 66260, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.504(b) DANGEROUS placard. A freight container, unit load device, transport vehicle or rail car which contains non-bulk packagings with two or more categories of hazardous materials that require different placards specified in Table 2 may be placarded with DANGEROUS placards instead of the separate placarding specified for each of the materials in Table 2. However, when 2,268 kg (5,000 pounds) or more of one category of material is loaded therein at one loading facility, the placard specified in Table 2 of paragraph (e) of this section for that category must be applied.

[56 FR 66260, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.504(c) Exception for less than 454 kg (1,001 pounds). Except for bulk packagings and hazardous materials subject to 172.505 , when hazardous materials covered by Table 2 of this section are transported by highway or rail, placards are not required on

[56 FR 66260, Dec. 20, 1991, effective Oct. 1, 1991; 57 FR 45460, Oct. 1, 1992]

49 CFR 172.504(c)(1) A transport vehicle or freight container which contains less than 454 kg (1001 pounds) aggregate gross weight of hazardous materials covered by Table 2 of paragraph (e) of this section; or

49 CFR 172.504(c)(2) A rail car loaded with transport vehicles or freight containers, none of which is required to be placarded. The exceptions provided in paragraph (c) of this section 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.

49 CFR 172.504(d) Exception for empty non-bulk packages. A non-bulk packaging that contains only the residue of a hazardous material covered by Table 2 of paragraph (e) of this section need not be included in determining placarding requirements.

49 CFR 172.504(e) Placarding tables. Placards are specified for hazardous materials in accordance with the following tables:

Table 1 Category of material (Hazard class or division number and additional

description, as appropriate-

Placard design section Placard name reference

1.1..... EXPLOSIVES 1.1..... 177.522

1.2..... EXPLOSIVES 1.2..... 172.522

1.3..... EXPLOSIVES 1.3..... 172.522

2.3..... POISON GAS..... 172.540

4.3..... DANGEROUS WHEN WET..... 172.548

6.1 POISON..... ... 172.554

(PG I, inhalation hazard only).....

7. RADIOACTIVE1..... 172.556

(Radioactive Yellow III label only).....

1 RADIOACTIVE placard also required for exclusive use shipments of low specific activity material and surface contaminated objects transported in accordance with 173.427(b)(3) or (c) of this subchapter.

[56 FR 66260, Dec. 20, 1991, effective Oct. 1, 1991; 60 FR 50305 , Sept. 28, 1995, effective April 1, 1996]

Table 2 Category of material Hazard class or division number and additional

description, as appropriate

Placard design section Placard name reference (§)

1.4..... EXPLOSIVES 1.4..... 172.523

1.5..... EXPLOSIVES 1.5..... 172.524

1.6..... EXPLOSIVES 1.6..... 172.525

2.1..... FLAMMABLE GAS..... 172.532

2.2..... NON-FLAMMABLE GAS..... 172.528

3..... FLAMMABLE..... 172.542

Combustible liquid..... COMBUSTIBLE..... 172.544

4.1..... FLAMMABLE SOLID..... 172.546

4.2..... SPONTANEOUSLY COM- . 172.547

BUSTIBLE.....

5.1..... OXIDIZER..... 172.550

5.2..... ORGANIC PEROXIDE..... 172.552

6.1 .. POISON..... 172.554

(PG I or II, other than PG I inhalation hazard).....

6.1 (PG III)..... KEEP AWAY FROM FOOD.... 172.553

6.2..... (None).....

8..... CORROSIVE..... 172.558

9..... CLASS 9..... 172.560

ORM-D..... (None).....

[56 FR 66260, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.504(f) Additional placarding exceptions.

49 CFR 172.504(f)(1) When more than one division placard is required for Class 1 materials on a transport vehicle, rail car, freight container or unit load device, only the placard representing the lowest division number must be displayed.

[56 FR 66260, Dec. 20, 1991, effective Oct. 1, 1991; 57 FR 45460, Oct. 1, 1992]

49 CFR 172.504(f)(2) A FLAMMABLE placard may be used in place of a COMBUSTIBLE placard on

49 CFR 172.504(f)(3) A NON-FLAMMABLE GAS placard is not required on a transport vehicle which contains non-flammable gas if the transport vehicle also contains flammable gas or oxygen and it is placarded with FLAMMABLE GAS or OXYGEN placards, as required.

[56 FR 66260, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.504(f)(4) OXIDIZER placards are not required for Division 5.1 materials on freight containers, unit load devices, transport vehicles or rail cars which also contain Division 1.1 or 1.2 materials and which are placarded with EXPLOSIVES 1.1 or 1.2 placards, as required.

[56 FR 66260, Dec. 20, 1991, effective Oct. 1, 1991; 57 FR 45460, Oct. 1, 1992]

49 CFR 172.504(f)(5) For transportation by transport vehicle or rail car only, an OXIDIZER placard is not required for Division 5.1 materials on a transport vehicle, rail car or freight container which also contains Division 1.5 explosives and is placarded with EXPLOSIVES 1.5 placards, as required.

[56 FR 66260, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.504(f)(6) The EXPLOSIVE 1.4 placard is not required for those Division 1.4 Compatibility Group S (1.4S) materials that are not required to be labeled 1.4S.

49 CFR 172.504(f)(7) For domestic transportation of oxygen, compressed or oxygen, refrigerated liquid, the OXYGEN placard in § 172.530 of this subpart may be used in place of a NON-FLAMMABLE GAS placard.

[56 FR 66260, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.504(f)(8) Except for a material classed as a combustible liquid that also meets the

definition of a Class 9 material, a COMBUSTIBLE placard is not required for a material classed as a combustible liquid when transported in a non-bulk packaging. For a material in a non-bulk packaging classed as a combustible liquid that also meets the definition of a Class 9 material, the CLASS 9 placard may be substituted for the COMBUSTIBLE placard.

[56 FR 66260, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.504(f)(9) For domestic transportation, a Class 9 placard is not required. A bulk packaging containing a Class 9 material must be marked with the appropriate identification number displayed on a Class 9 placard, an orange panel or a white-square-on-point display configuration as required by subpart D of this part.

[57 FR 45460, Oct. 1, 1992; 57 FR 59310, Dec. 15, 1992]

49 CFR 172.504(f)(10) For domestic transportation of Division 6.1, PG III materials, a POISON placard may be used in place of a KEEP AWAY FROM FOOD placard.

[57 FR 45460, Oct. 1, 1992]

49 CFR 172.504(g) For shipments of Class 1 (explosive) materials by aircraft or vessel, the applicable compatibility group letter must be displayed on the placards required by this section.

[56 FR 66260, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.505 Placarding for subsidiary hazards.

[55 FR 52601, Dec. 21, 1990, effective Oct. 1, 1991; 56 FR 66260, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.505(a) Each transport vehicle, freight container, portable tank or unit load device that contains a poisonous material subject to the "Poison-Inhalation Hazard" shipping description of 172.203(m)(3) must be placarded with a POISON or POISON GAS placard, as appropriate, on each side and each end, in addition to any other placard required for that material in § 172.504. Duplica tion of the POISON or POISON GAS placard is not required.

[56 FR 66260, Dec. 20, 1991, effective Oct. 1, 1991; 57 FR 45460, Oct. 1, 1992; 59 FR 49133, Sept. 26, 1994]

49 CFR 172.505(b) In addition to the RADIOACTIVE placard which may be required by Sec. 172.504(e) of this subpart, each transport vehicle, portable tank or freight container that contains 454 kg (1001 pounds) or more gross weight of fissile or low specific activity uranium hexafluoride shall be placarded with a CORROSIVE placard on each side and each end.

[56 FR 66260, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.505(c) Each transport vehicle, portable tank, freight container or unit load device that contains a material which has a subsidiary hazard of being dangerous when wet, as defined in 173.124 of this subchapter, shall be placarded with DANGEROUS WHEN WET placards, on each side and each end, in addition to the placards required by 172.504.

49 CFR 172.505(d) Hazardous materials that possess secondary hazards may exhibit subsidiary placards that correspond to the placards described in this part, even when not required by this part

(see also 172.519(b)(4) of this subpart).

[56 FR 66260, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.506 Providing and affixing placards: highway.

49 CFR 172.506(a) Each person offering a motor carrier a hazardous material for transportation by highway shall provide to the motor carrier the required placards for the material being offered prior to or at the same time the material is offered for transportation, unless the carrier's motor vehicle is already placarded for the material as required by this subpart.

49 CFR 172.506(a)(1) No motor carrier may transport a hazardous material in a motor vehicle unless the placards required for the hazardous material are affixed thereto as required by this subpart.

49 CFR 172.507 Special placarding provisions: Highway.

49 CFR 172.507(a) Each motor vehicle used to transport a package of highway route controlled quantity Class 7 (radioactive) materials (see 173.403 of this subchapter) must have the required RADIOACTIVE warning placard placed on a square background as described in 172.527.

[Revised at 60 FR 50305 , Sept. 28, 1995, effective April 1, 1996]

49 CFR 172.507(b) A nurse tank, meeting the provisions of 173.315(m) of this subchapter, is not required to be placarded on an end containing valves, fittings, regulators or gauges when those appurtenances prevent the markings and placard from being properly placed and visible.

[51 FR 5968, Feb. 18, 1986]

49 CFR 172.508 Placarding and affixing placards; rail.

49 CFR 172.508(a) Each person offering a hazardous material for transportation by rail shall affix to the rail car containing the material, the placards specified by this subpart. Placards displayed on motor vehicles, transport containers, or portable tanks may be used to satisfy this requirement, if the placards otherwise conform to the provisions of this subpart.

[55 FR 52601, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.508(b) No rail carrier may accept a rail car containing a hazardous material for transportation unless the placards for the hazardous material are affixed thereto as required by this subpart.

49 CFR 172.510 Special placarding provisions: Rail.

49 CFR 172.510(a) Square background required.(1) A material classed in Division 1.1 or 1.2 transported by rail, and which require EXPLOSIVES 1.1 or EXPLOSIVES 1.2 placards affixed to a rail car, must have the placard placed on a square background as described in 172.527.

[55 FR 52601, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.510(a)(2) A material classed in Division 2.3, Hazard Zone A or 6.1, Packing Group I, Hazard Zone A which is transported by rail and which requires POISON GAS or POISON placards affixed to a rail car, must have the placards placed on a square background as described in 172.527.

[55 FR 52601, Dec. 21, 1990, effective Oct. 1, 1991; 56 FR 66260, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.510(a)(3) A tank car which contains a residue of a Division 2.3, Hazard Zone A or 6.1, Packing Group I, Hazard Zone A material, and which require POISON GASRESIDUE or POISON-RESIDUE placards affixed to a rail car, must have the RESIDUE placard placed on a square background as described in § 172.527.

[55 FR 52601, Dec. 21, 1990, effective Oct. 1, 1991; 56 FR 66260, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.510(b) [Reserved]

[52 FR 36671, Sept. 30, 1987]

49 CFR 172.510(c) RESIDUE and subsidiary placards. Each tank car containing the residue of a hazardous material must have each primary placard changed to the corresponding RESIDUE placard. See § 172.505 of this subpart for display requirements for subsidiary hazards.

[56 FR 66260, Dec. 20, 1991, effective Oct. 1, 1991; 57 FR 45460, Oct. 1, 1992]

49 CFR 172.510(d) FUMIGATION placard. Each transport vehicle and freight container containing lading that has been fumigated or treated with poisonous liquid, solid, or gas, and that is offered for transportation by rail must have the placard specified in 173.9 of this subchapter affixed on or near each door.

[51 FR 5968, Feb. 18, 1986]

49 CFR 172.510(e) Chemical ammunition. Each rail car containing Division 1.1 or 1.2 (explosive) ammunition which also meets the definition of a material poisonous by inhalation (see 171.8 of this subchapter) must be placarded EXPLOSIVES 1.1 or EXPLOSIVES 1.2 and POISON GAS or POISON.

[52 FR 5968, Feb. 18, 1986; 57 FR 45460, Oct. 1, 1992]

49 CFR 172.512 Freight containers and aircraft unit load devices.

[48 FR 53712, Nov. 29, 1983]

49 CFR 172.512(a) Capacity of 640 cubic feet or more. Each person who offers for transportation, and each person who loads and transports, a hazardous material in a freight container or aircraft unit load device having a capacity of 640 cubic feet or more shall affix to the freight container or aircraft unit load device the placards specified for the material in accordance with 172.504. However:

49 CFR 172.512(a)(1) The placarding exception provided in 172.504(c) applies to motor vehicles transporting freight containers and aircraft unit load devices,

[52 FR 36671, Sept. 30, 1987]

49 CFR 172.512(a)(2) The placarding exception provided in 172.504(c) applies to each freight container and aircraft unit load device being transported for delivery to a consignee immediately following an air or water shipment, and

[51 FR 5968, Feb. 18, 1986]

49 CFR 172.512(a)(3) Placarding is not required on a freight container or aircraft unit load device if it is only transported by air and is identified as containing a hazardous material in the manner provided in Part 5, Chapter 2, Section 2.7, of the ICAO Technical Instructions.

49 CFR 172.512(b) Capacity less than 640 cubic feet. Each person who offers for transportation by air, and each person who loads and transports by air, a hazardous material in a freight container or aircraft unit load device having a capacity of less than 18 m3 (640 cubic feet) shall affix one placard of the type specified by paragraph (a) of this section unless the freight container or aircraft unit load device:

49 CFR 172.512(b)(1) Is labeled in accordance with subpart E of this part, including 172.406(e) ;

[55 FR 52601, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.512(b)(2) Contains radioactive materials requiring the Radioactive Yellow III label and is placarded with one Radioactive placard and is labeled in accordance with subpart E of this part, including 172.406(e); or,

[55 FR 52601, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.512(b)(3) Is identified as containing a hazardous material in the manner provided in Part 5, Chapter 2, Section 2.7, of the ICAO Technical Instructions. When Hazardous materials are offered for transportation, not involving air transportation, in a freight container having a capacity of less than 640 cubic feet the freight container need not be placarded. However, if not placarded it must be labeled in accordance with Subpart E of this part.

49 CFR 172.512(c) Notwithstanding paragraphs (a) and (b) of this section, packages containing hazardous materials, other than ORM-D, offered for transportation by air in freight containers are subject to the inspection requirements of 175.30 of this chapter.

49 CFR 172.514 Bulk packagings other than tank cars.

[55 FR 52601, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.514(a) Except as provided in paragraph (c) of this section, each person who offers for transportation a bulk packaging, other than a tank car, which contains a hazardous material, shall affix the placards specified for the material in 172.504 and 172.505.

49 CFR 172.514(b) Each bulk packaging, other than a tank car, that is required to be placarded when it contains a hazardous material, must remain placarded when it is emptied, unless it is

49 CFR 172.514(b)(1) Sufficiently cleaned of residue and purged of vapors to remove any potential hazard; or

49 CFR 172.514(b)(2) Refilled, with a material requiring different placards or no placards, to such an extent that any residue remaining in the packaging is no longer hazardous.

49 CFR 172.514(c) Exceptions. The following packagings may be placarded on only two opposite sides or, alternatively, may be labeled instead of placarded in accordance with subpart E of this part:

49 CFR 172.514(c)(1) A portable tank having a capacity of less than 3,785 L (1000 gallons);

49 CFR 172.514(c)(2) A DOT 106 or 110 multi-unit tank car tank;

49 CFR 172.514(c)(3) A bulk packaging other than a portable tank, cargo tank, or tank car (e.g., a bulk bag or box) with a volumetric capacity of less than 18 m3 (640 cubic feet); and

[Revised at 59 FR 38064, July 26, 1994, effective Sept. 30, 1994]

49 CFR 172.514(c)(4) An intermediate bulk container.

[Added at 59 FR 38064, July 26, 1994, effective Sept. 30, 1994]

49 CFR 172.516 Visibility and display of placards.

49 CFR 172.516(a) Each placard on a motor vehicle and each placard on a rail car must be readily visible from the direction it faces except from the direction of another motor vehicle or rail car to which the motor vehicle or rail car is coupled. This requirement may be met by the placards displayed on the freight containers or portable tanks loaded on a motor vehicle or rail car.

49 CFR 172.516(b) The required placarding of the front of a motor vehicle may be on the front of a truck-tractor instead of or in addition to the placarding on the front of the cargo body to which a truck-tractor is attached.

49 CFR 172.516(c) Each placard on a transport vehicle, bulk packaging, freight container or aircraft unit load device must

[55 FR 52601, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.516(c)(1) Be securely attached or affixed thereto or placed in a holder thereon. (See Appendix C to this part.)

49 CFR 172.516(c)(2) Be located clear of appurtenances and devices such as ladders, pipes, doors, and tarpaulins;

49 CFR 172.516(c)(3) So far as practicable, be located so that dirt or water is not directed to it from the wheels of the transport vehicle;

49 CFR 172.516(c)(4) Be located away from any marking (such as advertising) that could substantially reduce its effectiveness, and in any case at least 3 inches (76.0 mm.) away from such marking.

49 CFR 172.516(c)(5) Have the words or identification number (when authorized) printed on it displayed horizontally, reading from left to right.

49 CFR 172.516(c)(6) Be maintained by the carrier in a condition so that the format, legibility, color, and visibility of the placard will not be substantially reduced due to damage, deterioration, or obscurement by dirt or other matter.

49 CFR 172.516(c)(7) Be affixed to a background of contrasting color, or must have a dotted or solid line outer border which contrasts with the background color.

[55 FR 52601, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.516(d) Recommended specifications for a placard holder are set forth in Appendix C of this part. Except for a placard holder similar to that contained in Appendix C to this part, the means used to attach a placard may not obscure any part of its surface other than the borders.

49 CFR 172.516(e) A placard or placard holder may be hinged provided the required format, color, and legibility of the placard are maintained.

49 CFR 172.519 General specifications for placards.

[55 FR 52601, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.519(a) Strength and durability. Placards must conform to the following:

49 CFR 172.519(a)(1) A placard may be made of any plastic, metal or other material capable of withstanding, without deterioration or a substantial reduction in effectiveness, a 30-day exposure to open weather conditions.

49 CFR 172.519(a)(2) A placard made of tagboard must be at least equal to that designated commercially as white tagboard. Tagboard must have a weight of at least 80 kg (176 pounds) per ream of 610 by 910 mm (24 by 36-inch) sheets, waterproofing materials included. In addition, each placard made of tagboard must be able to pass a 414 kPa (60 p.s.i.) Mullen test.

[56 FR 66260, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.519(a)(3) Reflective or retroreflective materials may be used on a placard if the prescribed colors, strength and durability are maintained.

[56 FR 66260, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.519(b) Design.(1) Except as provided in 172.332 of this part, each placard must be as described in this subpart, and except for size and color, the printing, inner border and symbol must be as shown in 172.521 through 172.558 of this subpart, as appropriate.

49 CFR 172.519(b)(2) The dotted line border shown on each placard is not part of the placard specification. However, a dotted or solid line outer border may be used when needed to indicate the full size of a placard that is part of a larger format or is on a background of a non-contrasting color.

49 CFR 172.519(b)(3) For other than Class 7 or the OXYGEN placard, text indicating a hazard (for example, "FLAMMABLE") is not required.

[57 FR 45460, Oct. 1, 1992]

49 CFR 172.519(b)(4) For a placard corresponding to the primary hazard class of a material, the hazard class or division number must be displayed in the lower corner of the placard. However, no hazard class or division number may be displayed on a placard corresponding to a subsidiary hazard of the material.

49 CFR 172.519(c) Size.(1) Each placard prescribed in this subpart must measure at least 273 mm (10.8 inches) on each side and must have a solid line inner border approximately 12.7 mm (0.5 inches) from each edge.

49 CFR 172.519(c)(2) Except as otherwise provided in this subpart, the hazard class or division number, as appropriate, must be shown in numerals measuring at least 41 mm (1.6 inches) in height.

49 CFR 172.519(c)(3) Except as otherwise provided in this subpart, when text indicating a hazard is displayed on a placard, the printing must be in letters measuring at least 41 mm (1.6 inches) in height.

49 CFR 172.519(d) Color.(1) The background color, symbol, text, numerals and inner border on a placard must be as specified in 172.521 through 172.558 of this subpart, as appropriate.

49 CFR 172.519(d)(2) Black and any color on a placard must be able to withstand, without substantial change

49 CFR 172.519(d)(2)(i) A 72-hour fadeometer test (for a description of equipment designed for this purpose, see ASTM G 23-69 or ASTM G 26-70); and

49 CFR 172.519(d)(2)(ii) A 30-day exposure to open weather.

49 CFR 172.519(d)(3) Upon visual examination, a color on a placard must fall within the color tolerances displayed on the appropriate Hazardous Materials Label and Placard Color Tolerance Chart (see 172.407(d) (4)).

49 CFR 172.519(d)(4) The placard color must extend to the inner border and may extend to the edge of the placard in the area designated on each placard except the color on the CORROSIVE and RADIOACTIVE placards (black and yellow, respectively) must extend only to the inner border.

49 CFR 172.519(e) Form identification. A placard may contain form identification information, including the name of its maker, provided that information is printed outside of the solid line inner border in no larger than 10-point type.

49 CFR 172.519(f) Exceptions. For a shipment under the provisions of 171.11,171.12 or 171.12a of this subchapter, a placard conforming to specifications in the ICAO Technical Instructions, the IMDG Code, or the TDG Regulations, respectively, may be used in place of a corresponding placard which conforms to the requirements of this subpart.

[56 FR 66260, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.519(g) Trefoil symbol. The trefoil symbol on the RADIOACTIVE placard must meet the appropriate specification in Appendix B of this part.

49 CFR 172.521 DANGEROUS placard.

49 CFR 172.521(a) Except for size and color, the DANGEROUS placard must be as follows:

[Corrected at 59 FR 30530, June 14, 1994]

49 CFR 172.521(b) In addition to meeting the requirements of 172.519, and Appendix B to this part, the DANGEROUS placard must have a red upper and lower triangle. The placard center area and 1/2-inch (12.7 mm.) border must be white. The inscription must be black with the 1/8- inch (3.2 mm.) border marker in the white area at each end of the inscription red.

49 CFR 172.522 EXPLOSIVES 1.1, EXPLOSIVES 1.2 and EXPLOSIVES 1.3 placards.

[55 FR 52602, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.522(a) Except for size and color, the EXPLOSIVES 1.1, EXPLOSIVES 1.2 and EXPLOSIVES 1.3 placards must be as follows:

49 CFR 172.522(b) In addition to complying with 172.519 of this subpart, the background color on the EXPLOSIVES 1.1, EXPLOSIVES 1.2, and EXPLOSIVES 1.3 placards must be orange. The "*" shall be replaced with the appropriate division number and, when required, appropriate compatibility group letter. The symbol, text, numerals and inner border must be black.

[56 FR 66260, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.523 EXPLOSIVES 1.4 placard.

[55 FR 52602, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.523(a) Except for size and color, the EXPLOSIVES 1.4 placard must be as follows:

[56 FR 66261, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.523(b) In addition to complying with 172.519 of this subpart, the background color on the EXPLOSIVES 1.4 placard must be orange. The "*" shall be replaced, when required, with the appropriate compatibility group letter. The division numeral, 1.4, must measure at least 64 mm (2.5 inches) in height. The text, numerals and inner border must be black.

[56 FR 66261, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.524 EXPLOSIVES 1.5 placard.

[55 FR 52602, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.524(a) Except for size and color, the EXPLOSIVES 1.5 placard must be as follows:

[56 FR 66261, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.524(b) In addition to complying with the 172.519 of this subpart, the background color on EXPLOSIVES 1.5 placard must be orange. The "*" shall be replaced, when required, with the appropriate compatibility group letter. The division numeral, 1.5, must measure at least 64 mm (2.5 inches) in height. The text, numerals and inner border must be black.

[56 FR 66261, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.525 EXPLOSIVES 1.6 placard.

[55 FR 52603, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.525(a) Except for size and color the EXPLOSIVES 1.6 placard must be as follows:

[56 FR 66261, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.525(b) In addition to complying with 172.519 of this subpart, the background color on the EXPLOSIVES 1.6 placard must be orange. The "*" shall be replaced, when required, with the appropriate compatibility group letter. The division numeral, 1.6, must measure at least 64 mm (2.5

inches) in height. The text, numerals and inner border must be black.

[56 FR 66261, Dec. 20, 1991, effective Oct. 1, 1991; 58 FR 51531, Oct. 1, 1993]

49 CFR 172.526 Standard requirements for the RESIDUE placard.

[55 FR 52603, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.526(a) Each RESIDUE placard must be as follows:

49 CFR 172.526(a)(1) Except as provided in paragraph (a)(3) of this section, the lower triangle of the RESIDUE placard must be black and the word "RESIDUE" must be in white letters approximately 25 mm (1 inch) high, made with approximately 6.3 mm (0.25 inch) stroke.

[56 FR 66261, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.526(a)(2) Except for the RADIOACTIVE, EXPLOSIVES 1.1, 1.2, 1.3, 1.4, 1.5 or 1.6, DANGEROUS, or subsidiary placard required by 172.505 of this subpart, the RESIDUE placard may be used to display the appropriate identification number in accordance with the provisions of subpart D of this part.

[56 FR 66261, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.526(a)(3) For a combustible liquid residue, the lower triangle of the RESIDUE placard must be white and the word "RESIDUE" must be in black letters.

49 CFR 172.526(a)(4) Otherwise, the RESIDUE placard must be as specified in 172.519,172.528, 172.530, 172.532, 172.540, 172.542, 172.544,172.546,172.547, 172.548, 172.550,172.552, 172.553, 172.554, 172.558 and 172.560 as appropriate for the residue of the hazardous material being transported and required by this subchapter to be placarded. No other placard may be used as a RESIDUE placard.

[56 FR 66261, Dec. 20, 1991, effective Oct. 1, 1991; 57 FR 45460, Oct. 1, 1992]

49 CFR 172.526(b) Except for size and color, the RESIDUE placard shall be as illustrated by the FLAMMABLE-RESIDUE placard:

[51 FR 34985, Oct. 1, 1986; 58 FR 51531, Oct. 1, 1993]

49 CFR 172.526(c) The RESIDUE placard must be as shown in paragraph (b) of this section and may be

49 CFR 172.526(c)(1) A separate placard,

49 CFR 172.526(c)(2) On the reverse side of a placard, or

49 CFR 172.526(c)(3) A composite made according to the specifications in this section. The lower triangle of the appropriate placard should have a black triangle bearing the word RESIDUE in white letters with the appropriate hazard class number in white.

[56 FR 66261, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.527 Background requirements for certain placards.

49 CFR 172.527(a) Except for size and color, the square background required by 172.510(a) for certain placards on rail cards, and 172.507 for placards on motor vehicles containing a package of highway route controlled quantity radioactive materials, must be as follows:

49 CFR 172.527(b) In addition to meeting the requirements of 172.519 for minimum durability and strength, the square background must consist of a white square measuring 14¼ inches (362.0 mm.) on each side surrounded by a black border extending to 15¼ inches (387.0 mm.) on each side.

49 CFR 172.528 NON-FLAMMABLE GAS placard.

[55 FR 52603, Dec. 21, 1990, effective Oct. 1, 1991; 56 FR 66261, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.528(a) Except for size and color, the NON- FLAMMABLE GAS placard must be as follows:

49 CFR 172.528(b) In addition to complying with 172.519, the background color on the NON-FLAMMABLE GAS placard must be green. The letters in both words must be at least 38 mm (1.5 inches) high. The symbol, text, class number and inner border must be white.

49 CFR 172.530 OXYGEN placard.

[56 FR 66262, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.530(a) Except for size and color, the OXYGEN placard must be as follows:

49 CFR 172.530(b) In addition to complying with 172.519 of this subpart, the background color on the OXYGEN placard must be yellow. The symbol, text, class number and inner border must be black.

49 CFR 172.532 FLAMMABLE GAS placard.

[56 FR 66262, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.532(a) Except for size and color, the FLAMMABLE GAS placard must be as follows:

49 CFR 172.532(b) In addition to complying with 172.519, the background color on the FLAMMABLE GAS placard must be red. The symbol, text, class number and inner border must be white.

49 CFR 172.536 [Removed]

[55 FR 52603, Dec. 21, 1990, effective Oct. 1, 1991]

49 CFR 172.540 POISON GAS placard.

[56 FR 66262, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.540(a) Except for size and color, the POISON GAS placard must be as follows:

49 CFR 172.540(b) In addition to complying with 172.519, the background color on the POISON GAS placard must be white. The symbol, text, class number and inner border must be black. The

words "TOXIC GAS" may be used in lieu of the words "POISON GAS".

[Amended at 59 FR 67490 , Dec. 29, 1990, effective Oct. 1, 1995]

49 CFR 172.542 FLAMMABLE placard.

[56 FR 66262, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.542(a) Except for size and color, the FLAMMABLE placard must be as follows:

49 CFR 172.542(b) In addition to complying with 172.519, the background color on the FLAMMABLE placard must be red. The symbol, text, class number and inner border must be white.

49 CFR 172.542(c) The word "GASOLINE" may be used in place of the word "FLAMMABLE" on a placard that is displayed on a cargo tank or a portable tank being used to transport gasoline by highway. The word "GASOLINE" must be shown in white.

49 CFR 172.544 COMBUSTIBLE placard.

[56 FR 66262, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.544(a) Except for size and color, the COMBUSTIBLE placard must be as follows:

49 CFR 172.544(b) In addition to complying with 172.519, the background color on the COMBUSTIBLE placard must be red. The symbol, text, class number and inner border must be white. On a COMBUSTIBLE placard with a white bottom as prescribed by 172.332(c)(4), the class number must be red or black.

49 CFR 172.544(c) The words "FUEL OIL" may be used in place of the word "COMBUSTIBLE" on a placard that is displayed on a cargo tank or portable tank being used to transport by highway fuel oil that is not classed as a flammable liquid. The words "FUEL OIL" must be shown in white.

49 CFR 172.546 FLAMMABLE SOLID placard.

[56 FR 66263, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.546(a) Except for size and color, the FLAMMABLE SOLID placard must be as follows:

[Corrected at 59 FR 30530, June 14, 1994]

49 CFR 172.546(b) In addition to complying with 172.519 , the background on the FLAMMABLE SOLID placard must be white with seven vertical red stripes. The stripes must be equally spaced, with one red stripe placed in the center of the label. Each red stripe and each white space between two red stripes must be 25 mm (1.0 inches) wide. The letters in the word "SOLID" must be at least 38.1 mm (1.5 inches) high. The symbol, text, class number and inner border must be black.

49 CFR 172.547 SPONTANEOUSLY COMBUSTIBLE placard.

[56 FR 66263, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.547(a) Except for size and color, the SPONTANEOUSLY COMBUSTIBLE placard must be as follows:

49 CFR 172.547(b) In addition to complying with 172.519, the background color on the SPONTANEOUSLY COMBUSTIBLE placard must be red in the lower half and white in upper half. The letters in the word "SPONTANEOUSLY" must be at least 12 mm (0.5 inches) high. The symbol, text, class number and inner border must be black.

[Amended at 59 FR 67490 , Dec. 29, 1994, effective Oct. 1, 1995]

49 CFR 172.548 DANGEROUS WHEN WET placard.

[56 FR 66263, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.548(a) Except for size and color, the DANGEROUS WHEN WET placard must be as follows:

49 CFR 172.548(b) In addition to complying with 172.519, the background color on the DANGEROUS WHEN WET placard must be blue. The letters in the words "WHEN WET" must be at least 25 mm (1.0 inches) high. The symbol, text, class number and inner border must be white.

49 CFR 172.550 OXIDIZER placard.

[56 FR 66263, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.550(a) Except for size and color, the OXIDIZER placard must be as follows:

49 CFR 172.550(b) In addition to complying with 172.519, the background color on the OXIDIZER placard must be yellow. The symbol, text, division number and inner border must be black.

49 CFR 172.552 ORGANIC PEROXIDE placard.

[56 FR 66263, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.552(a) Except for size and color, the ORGANIC PEROXIDE placard must be as follows:

49 CFR 172.552(b) In addition to complying with 172.519, the background color on the ORGANIC PEROXIDE placard must be yellow. The symbol, text, division number and inner border must be black.

49 CFR 172.553 KEEP AWAY FROM FOOD placard.

[56 FR 66263, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.553(a) Except for size and color, the KEEP AWAY FROM FOOD placard must be as follows:

49 CFR 172.553(b) In addition to complying with 172.519, the background on the KEEP AWAY FROM FOOD placard must be white. The size of the lettering below the word "HARMFUL" must be proportional to that shown. The symbol, text, class number and inner border must be black.

49 CFR 172.554 POISON placard.

[56 FR 66264, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.554(a) Except for size and color, the POISON placard must be as follows:

49 CFR 172.554(b) In addition to complying with 172.519 , the background on the POISON placard must be white. The symbol, text, class number and inner border must be black. The word "TOXIC" may be used in lieu of the word "POISON".

49 CFR 172.556 RADIOACTIVE placard.

[56 FR 66264, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.556(a) Except for size and color, the RADIOACTIVE placard must be as follows:

[Corrected at 59 FR 30530, June 14, 1994]

49 CFR 172.556(b) In addition to complying with 172.519, the background color on the RADIOACTIVE placard must be white in the lower portion with a yellow triangle in the upper portion. The base of the yellow triangle must be 29 mm ± 5mm (1.1 inches ± 0.2 inches) above the placard horizontal center line. The symbol, text, class number and inner border must be black.

[58 FR 51531, Oct. 1, 1993]

49 CFR 172.558 CORROSIVE placard.

[56 FR 66264, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.558(a) Except for size and color, the CORROSIVE placard must be as follows:

49 CFR 172.558(b) In addition to complying with 172.519, the background color on the CORROSIVE placard must be black in the lower portion with a white triangle in the upper portion. The base of the white triangle must be 38 mm ± 5mm (1.5 inches ± 0.2 inches) above the placard horizontal center linetext and class number must be white. The symbol and inner border must be black.

49 CFR 172.560 CLASS 9 placard.

[56 FR 66264, Dec. 20, 1991, effective Oct. 1, 1991]

49 CFR 172.560(a) Except for size and color the CLASS 9 (miscellaneous hazardous materials) placard must be as follows:

49 CFR 172.560(b) In addition to conformance with 172.519, the background on the CLASS 9 placard must be white with seven black vertical stripes on the top half extending from the top of the placard to one inch above the horizontal centerline. The black vertical stripes must be spaced so that, visually, they appear equal in width to the six white spaces between them. The space below the vertical lines must be white with the class number 9 underlined and centered at the bottom.

[57 FR 45460, Oct. 1, 1992]

49 CFR 172.600 Applicability and general requirements.

49 CFR 172.600(a) Scope. Except as provided in paragraph (d) of this section, this subpart prescribed 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.

49 CFR 172.600(b) Applicability. This subpart applies to persons who offer for transportation, accept for transportation, transfer or otherwise handle hazardous materials during transportation.

49 CFR 172.600(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:

49 CFR 172.600(c)(1) Emergency response information conforming to this subpart is immediately available for use at all times and hazardous material is present; and

49 CFR 172.600(c)(2) Emergency response information, including the emergency response telephone number, 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.

[55 FR 33712, Aug. 17, 1990, effective Dec. 31, 1990; 59 FR 49133, Sept. 26, 1994]

49 CFR 172.600(d) Exception. The requirements of this subpart do not apply to hazardous materials which are excepted from the shipping paper requirements of this subchapter.

49 CFR 172.602 Emergency response information.

49 CFR 172.602(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;

49 CFR 172.602(a)(1) The description of the hazardous material required by 172.202 and 172.203;

49 CFR 172.602(a)(2) Immediate hazards to health;

49 CFR 172.602(a)(3) Risks of fire or explosion;

49 CFR 172.602(a)(4) Immediate precautions to be taken in the event of an accident or incident;

49 CFR 172.602(a)(5) Immediate methods for handling small or large fires;

49 CFR 172.602(a)(6) Initial methods for handling spills or leaks in the absence of fire; and

49 CFR 172.602(a)(7) Preliminary first aid measures.

49 CFR 172.602(b) Form of information. The information required for a hazardous material by paragraph (a) of this section must be:

49 CFR 172.602(b)(1) Printed legibly in English;

49 CFR 172.602(b)(2) Available for use away from the package containing the hazardous material; and

49 CFR 172.602(b)(3) Presented

49 CFR 172.602(b)(3)(i) On a shipping paper;

49 CFR 172.602(b)(3)(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

49 CFR 172.602(b)(3)(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.

49 CFR 172.602(c) Maintenance of information. Emergency response information shall be maintained as follows:

49 CFR 172.602(c)(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.

49 CFR 172.602(c)(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.

49 CFR 172.604 Emergency response telephone number.

49 CFR 172.604(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

49 CFR 172.604(a)(1) Monitored at all times the hazardous material is in transportation, including storage incidental to transportation;

[55 FR 33713, Aug. 17, 1990, effective Dec. 31, 1990]

49 CFR 172.604(a)(2) The number of a person who is either knowledgeable of the hazards and characteristics of the hazardous material being shipped and has comprehensive emergency response and incident mitigation information for that material, or has immediate access to a person who possesses such knowledge and information; and

[55 FR 33713, Aug. 17, 1990, effective Dec. 31, 1990]

49 CFR 172.604(a)(3) Entered on a shipping paper, as follows:

49 CFR 172.604(a)(3)(i) Immediately following the description of the hazardous material required by Subpart C of this Part; or

[Revised at 59 FR 49133, Sept. 26, 1994]

49 CFR 172.604(a)(3)(ii) 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: ***).

49 CFR 172.604(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.

49 CFR 172.700 Purpose and scope.

49 CFR 172.700(a) Purpose. This subpart prescribes requirements for training hazmat employees.

49 CFR 172.700(b) Scope. Training as used in this subpart means a systematic program that ensures a hazmat employee has familiarity with the general provisions of this subchapter, is able to recognize and identify hazardous materials, has knowledge of specific requirements of this subchapter applicable to functions performed by the employee, and has knowledge of emergency response information, self-protection measures and accident prevention methods and procedures (see 172.704).

49 CFR 172.700(c) Modal-specific training requirements. Additional training requirements for the individual modes of transportation are prescribed in parts 174, 175, 176, and 177 of this subchapter.

49 CFR 172.701 Federal/State relationship.

This subpart and the parts referenced in 172.700(c) prescribe minimum training requirements for the transportation of hazardous materials. For motor vehicle drivers, however, a State may impose more stringent training requirements only if those requirements

49 CFR 172.701(a) Do not conflict with the training requirements in this subpart and in part 177 of this subchapter; and

49 CFR 172.701(b) Apply only to drivers domiciled in that State.

49 CFR 172.702 Applicability and responsibility for training and testing.

[57 FR 22182, May 27, 1992, effective July 1, 1992]

49 CFR 172.702(a) A hazmat employer shall ensure that each of its hazmat employees is trained in accordance with the requirements prescribed in this subpart.

49 CFR 172.702(b) A hazmat employee who performs any function subject to the requirements of this subchapter may not perform that function unless trained in accordance with the requirements prescribed in this subpart. It is the duty of each hazmat employer to comply with the applicable requirements of this subchapter and to thoroughly instruct each hazmat employee in relation thereto.

49 CFR 172.702(c) Training may be provided by the hazmat employer or other public or private sources.

49 CFR 172.702(d) A hazmat employer shall ensure that each of its hazmat employees is tested by appropriate means on the training subjects covered in 172.704.

[57 FR 22182, May 27, 1992, effective July 1, 1992]

49 CFR 172.704 Training requirements.

49 CFR 172.704(a) Hazmat employee training shall include the following:

49 CFR 172.704(a)(1) General awareness/familiarization training. Each hazmat employee shall receive general awareness/familiarization training designed to provide familiarity with the requirements of this subchapter, and to enable the employee to recognize and identify hazardous materials consistent with the hazard communication standards of this subchapter.

[58 FR 5852, Jan. 22, 1993, effective Feb. 22, 1993]

49 CFR 172.704(a)(2) Function-specific training.(i) Each hazmat employee shall receive function-specific training concerning requirements of this subchapter, or exemptions issued under subchapter A of this chapter, which are specifically applicable to the functions the employee performs.

[58 FR 5852, Jan. 22, 1993, effective Feb. 22, 1993; 60 FR 49110 , Sept. 21, 1995, effective Oct. 1, 1995]

49 CFR 172.704(a)(2)(ii) As an alternative to function-specific training on the requirements of this subchapter, training relating to the requirements of the ICAO Technical Instructions and the IMDG Code may be provided to the extent such training addresses functions authorized by 171.11 and 171.12 of this subchapter.

[58 FR 5852, Jan. 22, 1993, effective Feb. 22, 1993]

49 CFR 172.704(a)(3) Safety training. Each hazmat employee shall receive safety training concerning

49 CFR 172.704(a)(3)(i) Emergency response information required by subpart G of part 172;

49 CFR 172.704(a)(3)(ii) Measures to protect the employee from the hazards associated with hazardous materials to which they may be exposed in the work place, including specific measures the hazmat employer has implemented to protect employees from exposure; and

49 CFR 172.704(a)(3)(iii) Methods and procedures for avoiding accidents, such as the proper procedures for handling packages containing hazardous materials.

49 CFR 172.704(b) OSHA or EPA Training. Training conducted by employers to comply with the hazard communication programs required by the Occupational Safety and Health Administration (OSHA) of the Department of Labor (29 CFR 1910.120) or the Environmental Protection Agency (EPA) (40 CFR 311.1), to the extent that training addresses the training specified in paragraph (a) of this section, may be used to satisfy the training requirements in paragraph (a) of this section, in order to avoid unnecessary duplication of training.

49 CFR 172.704(c) Initial and recurrent training. (1) Initial training. Each hazmat employer shall train each hazmat employee as follows:

49 CFR 172.704(c)(1)(i) Training for a hazmat employee employed on or before July 2, 1993, shall be completed prior to October 1, 1993.

[58 FR 5852, Jan. 22, 1993, effective Feb. 22, 1993]

49 CFR 172.704(c)(1)(ii) Training for a hazmat employee employed after July 2, 1993, shall be completed within 90 days after employment.

[58 FR 5852, Jan. 22, 1993, effective Feb. 22, 1993]

49 CFR 172.704(c)(1)(iii) A hazmat employee who changes hazardous materials job functions shall complete training in the new job function(s) within 90 days after the change.

49 CFR 172.704(c)(1)(iv) A hazmat employee described in paragraph (c)(1) (ii) or (iii) of this section, may perform new hazardous materials job functions prior to the completion of training provided the employee performs those functions under the supervision of a properly trained and knowledgeable hazmat employee.

49 CFR 172.704(c)(2) Recurrent Training. A hazmat employee shall receive the training required by this subpart at least once every two years.

49 CFR 172.704(c)(3) Relevant Training. Relevant training received from a previous employer or other source may be used to satisfy the requirements of this subpart provided a current record of training is obtained from hazmat employees' previous employer.

49 CFR 172.704(c)(4) Compliance. Each hazmat employer is responsible for compliance with the requirements of this subchapter regardless of whether the training required by this subpart has been completed.

49 CFR 172.704(d) Recordkeeping. A record of current training, inclusive of the preceding two years, in accordance with this subpart shall be created and retained by each hazmat employer for each hazmat employee for as long as that employee is employed by that employer as a hazmat employee and for 90 days thereafter. The record shall include:

49 CFR 172.704(d)(1) The hazmat employee's name;

49 CFR 172.704(d)(2) The most recent training completion date of the hazmat employee's training;

49 CFR 172.704(d)(3) A description, copy, or the location of the training materials used to meet the requirements in paragraph (a) of this section;

49 CFR 172.704(d)(4) The name and address of the person providing the training; and

49 CFR 172.704(d)(5) Certification that the hazmat employee has been trained and tested, as required by this subpart.

49 CFR 172.704(e) Limitation. A hazmat employee who repairs, modifies, reconditions, or tests packagings as qualified for use in the transportation of hazardous materials, and who does not perform any other function subject to the requirements of this subchapter, is not subject to the safety

training requirement of paragraph (a)(3) of this section.

49 CFR 172.801 Applicability of the radiation protection program.

49 CFR 172.801(a) Scope. This subpart prescribes requirements for developing and maintaining a radiation protection program.

49 CFR 172.801(b) Applicability. This subpart applies to persons who offer for transportation, accept for transportation, or transports Class 7 (radioactive) materials.

49 CFR 172.803 Radiation protection program.

Each person who offers for transportation, accepts for transportation, or transports Class 7 (radioactive) materials must develop, implement and maintain a written radiation protection program in accordance with the following:

49 CFR 172.803(a) Radiation exposures must be kept as low as reasonably achievable (ALARA), with economic and social factors being taken into account.

49 CFR 172.803(b) Radiation exposures must be control such that:

49 CFR 172.803(b)(1) An occupationally exposed hazmat employee's annual effective dose equivalent for occupational radiation exposure will not exceed 12.5 mSv (1.25 rem) in any 3 month period or 50 mSv (5 rem) in any 12 month period. For workers under the age of eighteen, the radiation dose will not exceed 1.250 mSv (0.125 rem) in any 3 month period or 5.0 mSv (0.5 rem) in any 12 month period;

49 CFR 172.803(b)(2) Radiation exposures to members of the general public must be less than 0.02 mSv (2 mrem) per hour. This level will be measured as if an individual were present for an hour in any area where the general public could be exposed to radiation during the course of transportation, except that, if there is an occurrence where the dose to a member of the general public equals or exceeds 0.02 mSv (2 mrem) in one hour, the program must provide limits that will prevent an individual from receiving cumulative doses totaling 1.0 mSv (100 mrem) in any week or 5.0 mSv (500 mrem) in any twelve-month period;

49 CFR 172.803(b)(3) The radiation dose to an embryo- fetus in a pregnant female occupationally exposed hazmat employee, who has declared her pregnancy to her employer, must not exceed 5.0 mSv (500 mrem) during the pregnancy. This limit is to be achieved by limiting the radiation dose of the declared pregnant worker to not more than 5.0 mSv (500 mrem) during the nine months and not greater than 0.5 mSv (50 mrem) in any one month; and

49 CFR 172.803(b)(4) The radiation doses received by occupationally exposed hazmat employees must be monitored by radiation dosimetry devices.

49 CFR 172.803(c) The Environmental Protection Agency report entitled "Radiation Protection Guidance to Federal Agencies for Occupational Exposure (January 1987)". This document is available from the U.S. Environmental Protection Agency, Washington, DC 20460.

49 CFR 172.803(d) Exceptions.

49 CFR 172.803(d)(1) The requirements of this subpart do not apply to:

49 CFR 172.803(d)(1)(i) Persons who offer for transportation or transport less than 200 TI of packages in a 12-month period; or

49 CFR 172.803(d)(1)(ii) Those persons whose operations will not result in a hazmat employee receiving an exposure of 5 mSv (500 mrem) or more per year. This evaluation must consider the hazmat employers Class 7 (radioactive) materials transportation activities for a period of at least 12 months. An evaluation must be conducted by a person experienced with radiation protection programs and transportation regulations and programs. The evaluator's competency may be evidenced by being certified by the American Board of Health Physics, or by a letter of recommendation from any Regional Administrator of the Nuclear Regulatory Commission or from a State Radiation Offi cial listed in the most current issue of the "Directory of Personnel Responsible For Radiological Health Programs" published annually by the Conference of Radiation Control Program Directors, Frankfort, KY.

49 CFR 172.803(d)(2) The requirements of this subpart may be satisfied by any radiation protection program that has been approved by an appropriate federal or state agency.

49 CFR 172.803(e) Guidance. Each hazmat employer should review and follow the guidance provided in the following documents when establishing and maintaining their radiation protection program:

49 CFR 172.803(e)(i) National Council on Radiation Protection and Measurements (NCRP) Report No. 59, "Operational Radiation Safety Program (1978)". The guidance in this report should be tailored to the practical needs and operations of the hazmat employer and their occupationally exposed hazmat employees.

49 CFR 172.803(e)(ii) NCRP Report No. 116, "Limitation of Exposure to Ionizing Radiation (1993)".

49 CFR 172.803(e)(ii)(2) The reports referenced in paragraph (e)(1) of this section are available from NCRP Publications, 7910 Woodmont Avenue, Bethesda, MD 20814.

49 CFR 172.805 Recordkeeping and notifications.

49 CFR 172.805(a) A hazmat employer must document their radiation protection program and maintain written records of the radiation protection program activities, including dosimetry records, described in this subpart. These records must be made available to the Associate Administrator for Hazardous Materials Safety or other authorized officials in written form within seven days of a written request.

49 CFR 172.805(b) A hazmat employer must keep a record of the radiation dose that each hazmat employee has received and provide it to the employee in reasonable time following a request during employment and no more than three months after end of employment.

49 CFR 172.805(c) Each hazmat employer must notify the Associate Administrator for Hazardous Materials Safety, in writing, if a hazmat employee receives a dose exceeding 12.5 mSv (1250 mrem) in any calendar quarter or 50 mSv (5,000 mrem) in one year, or if a member of the general public is likely to receive a dose exceeding 5 mSv (500 mrem) in one year as a result of the hazmat employer's transportation activities. Such a notification must be made as soon as practicable following awareness of the occurrence.

49 CFR 172.805(d) If an offeror or carrier of Class 7 (radioactive) materials is not required to establish a radiation protection program, they must develop and keep records which demonstrate why a program is not required (i.e., either the total TI of packages transported in any 12 month period is less than 200, or that the current Class 7 (radioactive) materials transport activities are the same as the activities that were reviewed by a competent radiation protection specialist whose evaluation demonstrated that no worker will receive a dose exceeding 5 mSv (500 mrem) in one year).