

Appendix

Federal DOT Regulations



49 CFR 172.101 – Hazardous Materials Table

Symbols	Hazardous materials description and proper shipping name	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not expected)
(1)	(2)	(3)	(4)	(5)	(6)
	Ammonia solutions, relative density between 0.880 and 0.957 at 15 degrees C in water, with more than 10 percent but not more than 35 percent ammonia	8	UN2672	III	CORROSIVE

Special provisions (§172.102)	(8) Packaging authorizations (§173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
	Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions (§176.84)
(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
T14	154	203	241	5 L	60 L	A	40, 85

(2) The proper shipping name (PSN) is required on shipping papers. See also 172.203 for additional description requirements.

(3) The hazard Class or Division is required on shipping papers and determines labeling and placarding. See also 172.504 for general placarding requirements. Hazard class 8 indicates a corrosive material

(4) The Id number is required on shipping and packages, and usually appears on placecards. See also 172.302 et seq. for general information on marking requirements.

(5) The Packing group indicates the degree of danger of a hazardous material and determines packaging, per hazard class and division.

(6) This indicates minimum labeling requirements.

(7) Special provisions include packaging limitations, restrictions, and added requirements. T14 indicates that special provisions are applicable only to intermodal tanks.

(8A) 173.154 contains detailed packaging exceptions. Containers of not more than 4.0L of aqua ammonia are excepted from labeling requirements if not being offered for air transport.

(8B) (8C) A bulk packaging is defined as one having a maximum capacity greater than 450L for aqua ammonia.

(9A) Transportation on passenger aircraft or passenger railcar is limited to 5L net per package.

(9B) Transportation on cargo-only aircraft is limited to 60L net.

(10) For information on water transport of aqua ammonia, see 172.101(k), 176.63, and 176.84.

49 CFR 173.203 Non-Bulk Packagings For Liquid Hazardous Materials In Packaging Group III

(a) When 172.101 of this subchapter specifies that a liquid hazardous material be packaged under this section, only non-bulk packagings prescribed in this section may be used for its transportation. Each packaging must conform to the general packaging requirements of subpart B of part 173, to the requirements of part 178 of this subchapter at the Packing Group I, II, or III performance level, and to the requirements of the special provisions of Column 7 of the 172.101 Table.

(b) The following combination packagings are authorized:

Outer packagings:

Steel drum: 1A1 or 1A2

Aluminum drum: 1B1 or 1B2

Metal drum other than steel or aluminum: 1N1 or 1N2

Plywood drum: 1D

Fiber drum: 1G

Plastic drum: 1H1 or 1H2

Wooden barrel: 2C2

Steel jerrican: 3A1 or 3A2

Plastic jerrican: 3H1 or 3H2

Steel box: 4A

Aluminum box: 4B

Natural wood box: 4C1 or 4C2

Plywood box: 4D

Reconstituted wood box: 4F

Fiberboard box: 4G

Expanded plastic box: 4H1

Solid plastic box: 4H2

Inner packagings:

Glass or earthenware receptacles

Plastic receptacles

Metal receptacles

Glass ampoules

(c) The following single packagings are authorized:

Steel drum: 1A1 or 1A2

Aluminum drum: 1B1 or 1B2

Metal drum other than steel or aluminum: 1N1

Plastic drum: 1H1 or 1H2

Fiber drum: 1G (with liner)

Wooden barrel: 2C1

Steel jerrican: 3A1 or 3A2

Plastic jerrican: 3H1 or 3H2

Plastic receptacle in steel, aluminum, fiber or plastic drum: 6HA1, 6HB1, 6HG1, 6HH1

Plastic receptacle in steel, aluminum, wooden, plywood or fiberboard box: 6HA2, 6HB2, 6HC, 6HD2 or 6HG2

Glass, porcelain or stoneware in steel, aluminum or fiber drum: 6PA1, 6PB1 or 6PG1

Glass, porcelain or stoneware in steel, aluminum, wooden or fiberboard box: 6PA2, 6PB2, 6PC or 6PG2

Glass, porcelain or stoneware in solid or expanded plastic packaging: 6PH1 or 6PH2

Plastic receptacle in plywood drum: 6HD1

Glass, porcelain or stoneware in plywood drum or wickerwork hamper: 6PD1 or 6PD2

Cylinders, prescribed for any compressed gas, except for Specifications 8 and 3HT

[Source Note: At 56 FR 66271, December 20, 1991, revised paragraph (c) by adding entry of "Fiber drum: 1G (with liner)"; and at 59 FR 67518, December 29, 1994, removed the wording 4A1 of 4A2, 4B1 or 4B2 and 6HH and replaced with 4A, 4B, and 6HH1 in paragraphs (b) and (c).]

49 CFR 173.241 Bulk Packaging For Certain Low Level Hazard Liquid And Solid Materials

When 172.101 of this subchapter specifies that a hazardous material be packaged under this section, only the following bulk packagings are authorized, subject to the requirements of Subparts A and B of Part 173 of this subchapter and the special provisions specified in Column 7 of the 172.101 Table.

Rail cars: DOT Class 103, 104, 105, 109, 111, 112, 114, or 115 tank car tanks; Class 106 or 110 multi-unit tank cars and AAR Class 203W, 206W and 211W tank car tanks,

Cargo Tanks: DOT specification MC 300, MC 301, MC 302, MC 303, MC 304, MC 305, Mc 306, MC 307, MC 310, MC 311, MC 312, MC 330, MC 331, DOT 406, DOT 407, and DOT 412 cargo tank motor vehicles suitable for transport of liquids.

Portable Tanks: DOT 51, 52, 56, 57 and 60 portable tanks; IMO type 1, 2 and 5, and IM 101 and IM 102 portable tanks; marine portable tanks conforming to 46 CFR part 64I and non-DOT specification portable tanks suitable for transport of liquids.

Intermediate bulk containers:

I. Intermediate bulk containers are authorized subject to the conditions and limitations of this paragraph and paragraph (2) of this section provided they conform to the requirements in Subpart O of part 178 of this subchapter at the Packaging Group performance level specified in column 5 of the 172.101 Table of this subchapter for the material being transported.

(A) The following are authorized for liquids of solids:

(a) Composite: 31HZ1 or 31HZE. For each container, the letter “Z” must be replaced with a capital letter which indicates the material of construction of the outer packaging. For example, 31HA1 is a composite intermediate bulk container with a metal outer packaging (see 178.702 of this subchapter);

(b) Metal: 31A, 31B, or 31N; or

(c) Rigid plastic: 31H1 or 31H2

(B) The following are authorized for solids only:

(a) Composite: 11HZ1, 11HZ2, 21HZ1, or 21HZ2. For each composite intermediate bulk container, the letter “Z” must be replaced with a capital letter which indicates the material of construction of the outer packaging. For example, 21HA1 is a composite intermediate bulk container with a metal out packaging (see 178.702 of this subchapter);

(b) Fiberboard: 11G;

(c) Flexible: 13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, or 13M2;

(d) Metal: 11A, 11B, 11N, 21A, 21B, or 21N;

(e) Rigid plastic: 11H1, 11H2, 21H1, or 21H2; or

(f) Wooden: 11C, 11D, 11F.

II. The following conditions and limitations apply to the use of the intermediate bulk containers.

(a) Flexible, fiberboard and wooden intermediate bulk containers are intended for the transport of solids only and may not be used for liquids or materials that may become liquid during transportation.

(b) Only liquids with a vapor pressure less than or equal to 100 kPa (16 psig) at 50° (122°F), or 130 kPa (18.9 psig) at 55°C (131°F), are authorized in meta intermediate bulk containers,; or

(c) Flexible, fiberboard, or wooden intermediate bulk containers containing materials in Packing Group II must be packed in a closed freight container or a closed transport vehicle.

[Source Note: At 56 FR 66275, December 20, 1991, revised (c); and at 59 FR 38067, July 26, 1994, added (d).]