

(m) *Provisions for segregation groups:*
 (1) For the purpose of segregation, materials having certain similar chemical properties have been grouped together in segregation groups. The segregation groups (such as “acids”, “chlorates”, “permanganates”) and the entries allocated to each of these groups include the substances identified in section 3.1.4 of the IMDG Code. When column (10B) of the §172.101 Table refers to a numbered stowage provision set forth in §176.84(b) such as “Stow ‘away from’ acids”, that particular stowage/segregation requirement applies to all the materials allocated to the respective segregation group.

(2) Not all hazardous materials falling within a segregation group are listed by name in the regulations. These materials are shipped under “n.o.s.” entries. Although these “n.o.s.” entries are not listed themselves in the above groups, the shipper must decide wheth-

er allocation under a segregation group is appropriate. Mixtures, solutions or preparations containing hazardous materials falling within a segregation group and shipped under an “n.o.s.” entry are also considered to fall within that segregation group.

(3) The segregation groups described above do not address materials which fall outside the classification criteria of the hazardous materials regulations although it is recognized that some non-hazardous materials have certain chemical properties similar to hazardous materials listed in the segregation groups. A shipper or the person responsible for packing the materials into a cargo transport unit who does have knowledge of the chemical properties of such non-hazardous materials may identify a relevant segregation group and apply the segregation requirements for that segregation group.

[Amdt. 176–30, 55 FR 52690, Dec. 21, 1990, as amended at 56 FR 66282, Dec. 20, 1991; 57 FR 45465, Oct. 1, 1992; Amdt. 176–34, 58 FR 51533, Oct. 1, 1993; Amdt. 176–38, 60 FR 49111, Sept. 21, 1995; 64 FR 10781, 10782, Mar. 5, 1999; 66 FR 45184, 45384, Aug. 28, 2001; 68 FR 45039, July 31, 2003; 69 FR 76180, Dec. 20, 2004; 70 FR 3310, Jan. 24, 2005; 70 FR 34399, June 14, 2005]

§ 176.84 Other requirements for stowage and segregation for cargo vessels and passenger vessels.

(a) *General.* When Column 10B of the §172.101 Table refers to a numbered or alpha-numeric stowage provision for water shipments, the meaning and requirements of that provision are set forth in this section. Terms in quotation marks are defined in §176.83. Other terms used in the table in this section such as “acids”, “chlorates” and “permanganates” indicate different chemical groups referred to here as segregation groups. Materials falling within a segregation group are considered to have certain similar chemical properties and, although not exhaustive in nature, the materials belonging to each group include those substances identified in section 3.1.4 of the IMDG Code as set forth in §176.83(m).

(b) *Table of provisions:*

Code	Provisions
1	[Reserved]
2	Temperature controlled material.

Code	Provisions
3	Do not stow with high explosives.
4	Stow “Separated from” liquid organic materials.
5	Stow “Separated from” powdered metals and their compounds.
6	Emergency temperature material.
7	[Reserved]
8	Glass carboys not permitted on passenger vessels.
9	Glass carboys not permitted under deck.
10	Glass bottles not permitted under deck.
11	Keep away from heat and open flame.
12	Keep as cool as reasonably practicable.
13	Keep as dry as reasonably practicable.
14	For metal drums, stowage permitted under deck on cargo vessels.
15	May be stowed in portable magazine or metal locker.
16	No other cargo may be stowed in the same hold with this material.
17	Segregation same as for flammable gases but “away from” dangerous when wet.
18	Prohibited on any vessel carrying explosives (except explosives in Division 1.4, Compatibility group S).
19	Protect from sparks and open flames.
20	Segregation same as for corrosives.
21	Segregation same as for flammable liquids.
22	Segregation same as for flammable liquids if flash point below 61 °C (142 °F).
23	Segregation same as for flammable liquids if flash point between 23 °C (73 °F) and 61 °C (142 °F).
24	Segregation same as for flammable solids.

Code	Provisions	Code	Provisions
25	Shade from radiant heat.	79	The maximum net quantity in one package for this material shipped aboard a passenger vessel is limited to 22.7 kg (50 pounds).
26	Stow "away from" acids.	80	Toy torpedoes must not be packed with other special fireworks.
27	Stow "away from" alkaline compounds.	81	Under deck stowage permitted only if an indicating substance such as chloropicrin has been added.
28	Stow "away from" flammable liquids.	82	Under deck stowage is permitted only if containing not more than 36 percent by weight of hydrazine.
29	Stow "away from" ammonium compounds.	83	[Reserved]
30	Stow "away from" animal or vegetable oils.	84	Under deck stowage must be in well-ventilated space.
31	Stow "away from" combustible materials.	85	Under deck stowage must be in mechanically ventilated space.
32	Stow "away from" copper, its alloys and its salts.	86	Stow "separated by a complete compartment or hold from" explosives Division 1.3.
33	Stow "away from" fluorides.	87	Stow "separated from" Class 1 (explosives) except Division 1.4.
34	Stow "away from" foodstuffs.	88	Stow "separated by a complete compartment or hold from" Class 1 (explosives) except Division 1.4.
35	Stow "away from" all odor-absorbing cargo.	89	Segregation same as for oxidizers.
36	Stow "away from" heavy metals and their compounds.	90	Stow "separated from" radioactive materials.
37	Stow "away from" hydrazine.	91	Stow "separated from" flammable liquids.
38	Stow "away from" all other corrosives.	92	Stow "separated from" powdered materials.
39	Stow "away from" liquid halogenated hydrocarbons.	93	Stow not accessible to unauthorized persons on passenger vessels.
40	Stow "clear of living quarters".	94	Plastic jerricans and plastic drums not permitted under deck.
41	Stow "away from" mercury and its compounds.	95	Stow "separated from" foodstuffs.
42	Stow "away from" nitric acids and perchloric acids not exceeding 50 percent acid by weight.	96	Glass carboys not permitted under deck on passenger vessels.
43	Stow "away from" organic materials.	97	Stow "away from" azides.
44	Stow "away from" oxidizers.	98	Stow "away from" all flammable materials.
45	Stow "away from" permanganates.	99	Only new metal drums permitted on passenger vessels.
46	Stow "away from" powdered metals.	100	Stow "away from" flammable solids.
47	Stow "away from" sodium compounds.	101	Stow "separated from" iron oxide.
48	Stow "away from" sources of heat.	102	Stow "separated from" all odor absorbing cargoes.
49	Stow "away from" corrosives.	103	Only to be loaded under dry weather conditions.
50	Stow "away from" sources of heat where temperatures in excess of 55°C (131 °F) for a period of 24 hours or more will be encountered.	104	Stow "separated from" bromine.
51	Stow "separated from" acetylene.	105	As approved by the Competent Authority of the country concerned.
52	Stow "separated from" acids. ¹	106	Stow "separated from" powdered metal.
53	Stow "separated from" alkaline compounds.	107	Stow "separated from" peroxides and superoxides.
54	Stow "separated from" animal or vegetable oils.	108	The transport temperature should be indicated on the tank.
55	Stow "separated from" ammonia.	109	Label as a flammable liquid if flash point is 61 °C (142 °F) or below.
56	Stow "separated from" ammonium compounds.	110	Packaging Group II if concentration does not exceed 70 percent acid.
57	Stow "separated from" chlorine.	111	If concentration exceeds 50 percent acid, notes 66, 74, 89, and 90 apply.
58	Stow "separated from" cyanides.	112	Packaging Group II for concentrations not less than 50 percent and Packaging Group III for concentrations less than 50 percent.
59	Stow "separated from" combustible materials.	113	Packaging Group II if concentrations does not exceed 60 percent acid.
60	Stow "separated from" chlorates, chlorites, hypochlorites, nitrites, perchlorates, permanganates, and metallic powders.	114	Corrosive subsidiary risk label required unless concentration is less than 80 percent.
61	Stow "separated from" corrosive materials.	115	If packaged in glass or earthenware inner packagings in wooden or fiberboard outer packagings, the maximum quantity on any vessel is 500 kg (equivalent to 450 L).
62	Stow "separated from" diborane.		
63	Stow "separated from" diethylene triamine.		
64	Stow "separated from" explosives.		
65	Stow "separated from" flammable substances.		
66	Stow "separated from" flammable solids.		
67	Stow "separated from" halides.		
68	Stow "separated from" hydrogen.		
69	Stow "separated from" hydrogen peroxide.		
70	Stow "separated from" mercury salts.		
71	Stow "separated from" nitric acid.		
72	Stow "separated from" nitrogen compounds.		
73	Stow "separated from" chlorates.		
74	Stow "separated from" oxidizers.		
75	Stow "separated from" permanganates.		
76	Stow "separated by a complete compartment or hold from" organic peroxides.		
77	Stow "separated longitudinally by a complete compartment or hold from" explosives.		
78	Stow "separated longitudinally by an intervening complete compartment or hold from" explosives.		

§ 176.84

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Code	Provisions
116	In a cargo space capable of being opened up in an emergency. The possible need to open hatches in case of fire to provide maximum ventilation and to apply water in an emergency and the consequent risk to the stability of the ship through flooding of the cargo space should be considered before loading.
117	In a clean cargo space capable of being opened up in an emergency. In the case of bagged fertilizer in freight containers, it is sufficient if in the case of an emergency, the cargo is accessible through free approaches (hatch entries) and mechanical ventilation enables the master to exhaust any gases or fumes resulting from decomposition. The possible need to open hatches in case of fire to provide maximum ventilation and to apply water in an emergency and the consequent risk to the stability of the ship through flooding of the cargo space should be considered before loading.
118	Stowage—Category D, Category E freight containers and pallet boxes only. Ventilation may be required. The possible need to open hatches in a case of fire to provide maximum ventilation and to supply water in an emergency, and the consequent risk to the stability of the ship through flooding of the cargo space, should be considered before loading.
119	Double strip stowage recommended.
120	Provide good surface and through ventilation.
121	Packaging group III when the flash point of the flammable liquid is 23°C (73°F) or above.
122	Stow “separated from” infectious substances.
123	Stow “away from” infectious substances.
124	Stow “separated from” bromates.
125	Segregation same as for flammable liquids, but also “away from” flammable solids.
126	Segregation same as for Class 9, miscellaneous hazardous materials.
127	For packages carrying a subsidiary risk of Class 1 (explosives), segregation same as for Class 1, Division 1.3.
128	Stow in accordance with the IMDG Code, Sub-section 7.1.10.3 (incorporated by reference; see § 171.7 of this subchapter).
129	Stowage Category A applies, except for uranyl nitrate hexahydrate solution for which Category D applies.
130	Stowage Category A applies, except for uranyl nitrate hexahydrate solution, uranium metal hexahydrate solution, uranium metal pyrophoric and thorium metal pyrophoric for which Category D applies.
131	Stowage Category A applies, except for uranyl nitrate hexahydrate solution, uranium metal pyrophoric and thorium metal pyrophoric for which Category D applies, and taking into account any supplementary requirements specified in the transport documents.
132	Stowage A applies, taking into account any supplementary requirements specified in the transport documents.
133	Stow “separated from” sulfur.
134	Stow “separated from” UN2716.
135	Stow “Separated from” mercury and mercury compounds.

Code	Provisions
136	Stow “Separated from” carbon tetrachloride.
137	For arsenic sulphides, Stow “separated from” acids.
138	Stow “Separated from” peroxides.
139	Stow “Separated from” mercury salts.
140	Stow “Separated from” UN3052 and UN3461.
141	Stow “away from” radioactive materials.
142	Packages in cargo transport units must be stowed so as to allow for adequate air circulation throughout the cargo.
143	Prohibited on any vessel carrying explosives (except explosives in Division 1.4, Compatibility group S).
M1—M6	[Reserved]

¹For waste cyanides or waste cyanide mixtures or solutions, refer to § 173.12(e) of this subchapter.

(c) *Provisions for the stowage of Class 1 (explosive) materials:* (1) Explosive substances and explosive articles must be stowed in accordance with Column (10A) and Column (10B) of the 172.101 Table of this subchapter.

(2) The following notes in column 10B of the § 172.101 Table apply to the transport of Class 1 (explosive) materials by vessel:

Notes	Provisions
5E	Stow “away from” lead and its compounds.
7E	Stowage category “04” for projectiles or cartridges for guns, cannons or mortars; Stowage category “08” for other types.
8E	When under deck, special stowage is required.
14E	On deck, cargo transport unit must be steel.
15E	On deck, cargo transport unit must be leak-proof.
17E	On deck stowage is recommended.
19E	“Away from” explosives containing chlorates or perchlorates.
20E	Stowage category “03” for projectiles or cartridges for guns, cannons or mortars; Stowage category “07” for other types; magazines must be of steel construction that prevents leakage.
21E	Cargo space ventilation must be carefully controlled to avoid excessive condensation.
22E	“Away from” ammonium compounds and explosives containing ammonium compounds or salts.
23E	“Separated from” Division 1.4 and “separated longitudinally by an intervening complete compartment or hold from” Division 1.1, 1.2, 1.3, 1.5, and 1.6 except from explosives of compatibility group J.
26E	Stowage category “13” and, for on deck stowage, non-metallic lining of closed cargo transport unit is required when not in effectively sealed, sift-proof packages; Stowage category “10” permitted when in effectively sealed, sift-proof packages.
27E	For closed cargo transport units, a non-metallic lining is required.

[Amdt. 176-30, 55 FR 52693, Dec. 21, 1990, as amended at 56 FR 66282, Dec. 20, 1991; Amdt. 176-43, 62 FR 24742, May 6, 1997; 66 FR 33438, June 21, 2001; 66 FR 45185, 45384, Aug. 28, 2001; 67 FR 15744, Apr. 3, 2002; 68 FR 45040, July 31, 2003; 69 FR 76183, Dec. 20, 2004; 70 FR 3310, Jan. 24, 2005]

Subpart E—Special Requirements for Transport Vehicles Loaded With Hazardous Materials and Transported on Board Ferry Vessels

§ 176.88 Applicability.

The requirements in this subpart are applicable to transport vehicles containing hazardous materials being transported on board ferry vessels and are in addition to any prescribed elsewhere in this subchapter. Vessels in a service similar to a ferry service, but not over a designated ferry route, may be treated as a ferry vessel for the purpose of this subpart if approved in writing by the District Commander.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-1A, 41 FR 40690, Sept. 20, 1976]

§ 176.89 Control of transport vehicles.

(a) A transport vehicle containing hazardous materials may be transported on board a ferry vessel, subject to the following conditions:

(1) The operator or person in charge of the vehicle shall deliver to the vessel's representative a copy of the shipping papers and certificate required by §§ 176.24 and 176.27;

(2) The vehicle shall be placed at the location indicated by the vessel's representative;

(3) The parking brakes of the vehicle shall be set securely to prevent movement;

(4) The motor of a highway vehicle shall be shut off and not restarted until the vessel has completed its voyage and docked;

(5) All vehicle lights shall be cut off and not relighted until the vessel has completed its voyage and docked;

(6) The operator of a highway vehicle shall remain with the vehicle;

(7) No repairs or adjustments must be made to the vehicle while it is on the vessel;

(8) No hazardous materials are to be released from the vehicle; and

(9) Any instructions given by the vessel's representative during the voyage, and during "roll on" and "roll off" operations must be observed.

(b) Smoking by any person in or around a vehicle is prohibited.

§ 176.90 Private automobiles.

A private automobile which is carrying any Class 1 (explosive) material (except permitted fireworks or small arms ammunition) may not be transported on a passenger-carrying ferry vessel unless the Class 1 (explosive) material is in compliance with packaging, labeling, marking, and certification requirements of this subchapter. Permitted fireworks and small arms ammunition may be carried without the required packaging, labeling, marking, or certification if they are in tight containers.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-30, 55 FR 52695, Dec. 21, 1990]

§ 176.91 Motorboats.

A motorboat may be transported on board a ferry vessel with gasoline in the tank and two other containers not exceeding 23 L (six gallons) capacity each if they are in the motorboat, closed, and in good condition.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-30, 55 FR 52695, Dec. 21, 1990]

§ 176.92 Cylinders laden in vehicles.

Any cylinder of Class 2 (compressed gas) material which is required to have a valve protection cap fitted in place may be transported on board a ferry vessel without having the valve protection cap in place when it is laden in a transport vehicle and is not removed from the vehicle while on the vessel.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-30, 55 FR 52695, Dec. 21, 1990]

§ 176.93 Vehicles having refrigerating or heating equipment.

(a) A transport vehicle fitted with refrigerating or heating equipment using a flammable liquid or Division 2.1 (flammable gas) material, or diesel oil