

§ 176.84

49 CFR Ch. I (10–1–06 Edition)

(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 whether 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.
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.
25	Shade from radiant heat.
26	Stow “away from” acids.
27	Stow “away from” alkaline compounds.
28	Stow “away from” flammable liquids.
29	Stow “away from” ammonium compounds.
30	Stow “away from” animal or vegetable oils.

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

Code	Provisions
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.
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.

Code	Provisions
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.

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