

§ 176.116 General stowage conditions for Class 1 (explosive) materials.

(a) *Heat and sources of ignition:* (1) Class 1 (explosive) materials must be stowed in a cool part of the ship and must be kept as cool as practicable while on board. Stowage must be well away from all sources of heat, including steam pipes, heating coils, sparks, and flame.

(2) Except where the consignment of Class 1 (explosive) materials consists only of explosive *articles*, the wearing of shoes or boots with unprotected metal nails, heels, or tips of any kind is prohibited.

(b) *Watertightness:* (1) Spaces where Class 1 (explosive) materials are stowed below deck must be dry. In the event of the contents of packages being affected by water when on board immediate advice must be sought from the shippers; pending this advice handling of the packages must be avoided.

(2) Bilges and bilge sections must be examined and any residue of previous cargo removed before Class 1 materials (explosive) are loaded onto the vessel.

(c) *Security:* All compartments, magazines, and transport units containing Class 1 (explosive) materials must be locked or suitably secured in order to prevent unauthorized access.

(d) *Secure stowage:* Class 1 (explosive) materials must be securely stowed to prevent movement in transit; where necessary, precautions must be taken to prevent cargo sliding down between the frames at the ship's sides.

(e) *Separation from accommodation spaces and machinery spaces:* (1) Class 1 (explosive) materials must be stowed as far away as practicable from any accommodation spaces or any machinery space and may not be stowed directly above or below such a space. The requirements in paragraphs (e)(2) through (e)(4) of this section are minimum requirements in addition to the applicable requirements of 46 CFR chapter I. Where the requirements of this subpart are less stringent than those of 46 CFR chapter I, the 46 CFR chapter I requirements must be satisfied for ships to which they are applicable.

(2) There must be a permanent A Class steel bulkhead between any accommodation space and any compart-

ment containing Class 1 (explosive) materials. Division 1.1, 1.2, 1.3, or 1.5 materials may not be stowed within 3 m (10 feet) of this bulkhead; in the decks immediately above or below an accommodation space they must be stowed at least 3 m (10 feet) from the line of this bulkhead projected vertically.

(3) There must be a permanent A Class steel bulkhead between a compartment containing Class 1 (explosive) materials and any machinery space. Class 1 (explosive) materials, except those in Division 1.4 (explosive), may not be stowed within 3 m (10 feet) of this bulkhead; and in the decks above or below the machinery space they must be stowed at least 3 m (10 feet) from the line of this bulkhead projected vertically. In addition to this separation, there must be insulation to Class A60 standard as defined in 46 CFR 72.05–10(a)(1) if the machinery space is one of Category 'A' unless the only Class 1 (explosive) materials carried are in Division 1.4S (explosive).

(4) Where Class 1 (explosive) materials are stowed away from bulkheads bounding any accommodation space or machinery space, the intervening space may be filled with cargo that is not readily combustible.

[Amdt. 176–30, 55 FR 52696, Dec. 21, 1990, as amended at 66 FR 45384, 45385, Aug. 28, 2001]

§ 176.118 Electrical requirement.

(a) Electrical equipment and cables installed in compartments in which Class 1 (explosive) materials are stowed which do not need to be energized during the voyage must be isolated from the supply so that no part of the circuit within the compartment is energized. The method of isolation may be by withdrawal of fuses, opening of switches or circuit breakers, or disconnection from bus bars. The means, or access to the means, of disconnection/reconnection must be secured by a locked padlock under the control of a responsible person.

(b) Electrical equipment and cables in a cargo space in which Class 1 (explosive) materials are stowed which are energized during the voyage for the safe operation of the ship must meet the requirements of subchapter J of 46

CFR chapter I. Before Class 1 (explosive) materials are loaded aboard a vessel, all cables must be tested by a skilled person to ensure that they are safe and to determine satisfactory grounding, insulation resistance, and continuity of the cable cores, metal sheathing or armoring.

(c) All Class 1 (explosive) materials must be stowed in a safe position relative to electrical equipment and cables. Additional physical protection must be provided where necessary to minimize possible damage to the electrical equipment or cables, especially during loading and unloading.

(d) Cable joints in the compartments must be enclosed in metal-clad junction boxes.

(e) All lighting equipment and cables must be of the fixed type, and must meet the relevant inspection, test, and installation standards of 46 CFR chapter I, subchapter J.

[Amdt. 176-30, 55 FR 52696, Dec. 21, 1990, as amended by Amdt. 176-34, 58 FR 51533, Oct. 1, 1993]

§ 176.120 Lightning protection.

A lightning conductor grounded to the sea must be provided on any mast or similar structure on a vessel on which Class 1 (explosive) materials are stowed unless effective electrical bonding is provided between the sea and the mast or structure from its extremity and throughout to the main body of the hull structure. (Steel masts in ships of all welded construction comply with this requirement).

§ 176.122 Stowage arrangements under deck.

When stowed under deck, Class 1 (explosive) materials must be in conformance with one of the stowage arrangements described in §§176.124 through 176.136 of this subpart.

§ 176.124 Ordinary stowage.

(a) Ordinary stowage is authorized for most explosive articles carried by vessel. The exceptions are those for which this subpart prescribes "magazine" or "special" stowage.

(b) Class 1 (explosive) materials requiring ordinary stowage must be stowed in accordance with §176.116 of this subpart.

§ 176.128 Magazine stowage, general.

(a) Magazine stowage is sub-divided into three different types of magazines designated by the letters A, B, and C. A magazine may be a fixed structure in the vessel, a closed freight container, or a portable magazine unit. Freight containers, portable magazines, and vehicles must be properly secured in position. Magazines may be positioned in any part of the vessel conforming to the general stowage conditions for Class 1 (explosive) materials, except magazines which are fixed structures must be constructed in a location in which their doors, where fitted, are easily accessible.

(b) Magazine stowage is required for all explosive substances, except "Explosive Substances, n.o.s." in compatibility groups G, L, or S. Magazine stowage type A is required for those substances which must be kept clear of steelwork. All other explosive substances must be given magazine stowage type B, except those in compatibility group A for which magazine stowage type C is prescribed.

(c) Magazine stowage type B is required for Charges, propelling, for cannon, UN 0279, UN 0414, and UN 0242; and Charges, supplementary, explosive, UN 0600, in compatibility group C or D. Magazine stowage type C is required for detonators and similar articles in divisions and compatibility group 1.1B and 1.2B (explosive).

[Amdt. 176-30, 55 FR 52696, Dec. 21, 1990, as amended at 66 FR 33438, June 21, 2001; 66 FR 45384, Aug. 28, 2001; 67 FR 61015, Sept. 27, 2002]

§ 176.130 Magazine stowage Type A.

(a) In addition to protecting the Class 1 (explosive) materials and preventing unauthorized access, magazine stowage type A guards against friction between any spilled contents of packages and the vessel's sides and bulkheads.

(b) Class 1 (explosive) materials requiring magazine stowage type A must be stowed in a magazine which is tightly sheathed with wood on its inner sides and floor.

(c) When utilized as part of the magazine structure, the vessel's sides and bulkheads must be clean, free from