Table K—Classification:

Descriptive name of article	Characteristic properties, cautions, markings required	Label required	Required conditions for transportation
			Cargo vessel
Ferrophosphorus briquets	*A mixture of ferrophosphorus with water and a binder such as cement and molded into briquets. This premixing with water eliminates possibility of harmful amounts of gases being liberated should briquets subsequently come in contact with water or moisture.*	No label required.	No restrictions
Ferrosilicon Ferrosilicon that has been made in a furnace previously used for making calcium carbide or ferrophosphorus shall not be offered or accepted for transportation unless the furnace has been entirely relined previous to the manufacture of the ferrosilicon.	*Alloys of iron and silicon* *May evolve poisonous gas in contact with moisture.*		Ferrosilicon of such silicon content as is permitted for transportation on board vessels as set forth in these regulations shall be stowed in a dry compartment having ventilating means so located that any escaping gases cannot reach the quarters of the crew or passengers. Such stowage shall furnish complete protection from bilge water, deck drainage, spray or other moisture. Stow well away from strong or moderately strong alkaline substances such as caustic lye, caustic potash, and soda ash.
Ferrosilicon, *containing between 48% and 65% silicon.* The originating bill of lading or other shipping paper shall bear the shipper's certifying statement as to silicon content.	Outside containers shall be marked either "Ferrosilicon" or "Hazardous article."	No label required.	Stowage: "On deck under cover." "Tween decks." "Under deck." Outside containers: Steel barrels or drums. Wooden barrels or kegs. Wooden boxes, not over 500 lbs. gr. wt. Tight box cars.
Ferrosilicon *containing between 45% and 48% or containing between 65% and 70% silicon.* The originating bill of lading or other shipping paper shall bear the shipper's certifying statement as to silicon content and when offered for transportation on board passenger vessels shall also certify as complying with the special conditions for ferrosilicon of this content.	Outside containers shall be marked either "Ferrosilicon" or "Hazardous article."	No label required.	Stowage: "On deck under cover." "Tween decks." "Under deck." Outside containers: Steel barrels or drums. Wooden barrels or kegs. Wooden boxes, not over 500 lbs. gr. wt. Tight box cars. (See Note in columns 5, 6, and 7.)

Hazardous articles—Continued

Required conditions for transportation—Continued		
Passenger vessel	Ferry vessel, passenger or vehicle	R. R. car ferry, passenger or vehicle
No restrictions	No restrictions	No restrictions.
Ferrosilicon of such silicon content as is permitted for transportation on board vessels as set forth in these regulations shall be stowed in a dry compartment having ventilating means so located that any escaping gases cannot reach the quarters of the crew or passengers. Such stowage shall furnish complete protection from bilge water, deck drainage, spray or other moisture. Stow well away from strong or moderately strong alkaline substances such as caustic lye, caustic potash, and soda ash.	Ferrosilicon of such silicon content as is permitted for transportation on board vessels as set forth in these regulations shall be stowed in a dry compartment having ventilating means so located that any escaping gases cannot reach the quarters of the crew or passengers. Such stowage shall furnish complete protection from bilge water, deck drainage, spray or other moisture. Stow well away from strong or moderately strong alkaline substances such as caustic lye, caustic potash, and soda ash.	Ferrosilicon of such silicon content as is permitted for transportation on board vessels as set forth in these regulations shall be stowed in a dry compartment having ventilating means so located that any escaping gases cannot reach the quarters of the crew or passengers. Such stowage shall furnish complete protection from bilge water, deck drainage, spray or other moisture. Stow well away from strong or moderately strong alkaline substances such as caustic lye, caustic potash, and soda ash.
Not permitted	Ferry stowage (AA) Outside containers: Steel barrels or drums. Wooden barrels or kegs. Wooden boxes, not over 500 lbs. gr. wt.	Ferry stowage (BB). Outside containers: Steel barrels or drums. Wooden barrels or kegs. Wooden boxes, not over 500 lbs. gr. wt. Tight box cars.
Stowage: "On deck under cover." "Tween decks." "Under deck." Outside containers: Steel barrels or drums. Wooden barrels or kegs. Wooden boxes, not over 500 lbs. gr. wt.	Ferry stowage (AA) Outside containers: Steel barrels or drums. Wooden barrels or kegs. Wooden boxes, not over 500 lbs. gr. wt.	Ferry stowage (BB). Outside containers: Steel barrels or drums. Wooden barrels or kegs. Wooden boxes, not over 500 lbs. gr. wt. Tight box cars.

NOTE: Transportation of ferrosilicon of this content on board passenger vessels shall be in accordance with the provisions as indicated by the asterisk(*) below:

*(A) When a certificate of analysis as to silicon content, satisfactory to the carrier is supplied and the shipper satisfies the carrier that the material has been stored in the size in which it is packed and shipped for a period of at least one month.

*(B) Lump ferrosilicon shall have been stored in piles not higher than 3 feet. It need not be turned over during storage.

*(C) Crushed ferrosilicon (material crushed to pass a 2-inch or finer meshed screen) shall be stored in piles not higher than 18 inches and the piles shall have been turned over so as to bring the material at the bottom of the pile into free contact with the air at least once during the period of storage. At least a week shall have elapsed between a turning over of the pile and its packing for shipment.

*(D) This ferrosilicon shall not be coated with oil, paraffin or other foreign substance.

*(E) If after one month's storage any odor of phosphine is noted or if the lumps of ferrosilicon can be crumbled in the hand, carrier shall refuse shipment of such portions of the pile as are affected if they can readily be separated from unaffected portions or, in his discretion, may refuse shipment of the whole pile.

Table K—Classification:

Descriptive name of article	Characteristic properties, cautions, markings required	Label required	Required conditions for transportation — Cargo vessel
Ferrosilicon, *containing less than 45% or more than 70% silicon.* May be accepted for transportation as ordinary cargo provided the originating bill of lading or other shipping paper bears the shipper's certifying statement as to silicon content.	Outside containers shall be marked either "Ferrosilicon" or "Hazardous article."	No label required.	Stowage: "On deck under cover." "Tween decks." "Under deck." Outside containers: Steel barrels or drums. Wooden barrels or kegs. Wooden boxes. Burlap bags, not over 300 lbs. net wt. Tight box cars. Bulk. NOTE: It is not required that the above containers be ICC specification containers, although ICC specification containers are acceptable but the officer in charge of loading the vessel shall satisfy himself that they are sufficient in all respects for the purpose intended. He shall refuse any containers showing damage, leakage, or an inability to properly contain the substance.
Ferrosilicon briquets	*A mixture of ferrosilicon with water and a binder such as cement molded into briquets. This premixing with water eliminates possibility of harmful amounts of gases being liberated should briquets subsequently come in contact with water or moisture.*	No label required.	No restrictions
Fibers (*jute, hemp, flax, sisal, coir, kapok, and similar vegetable fibers*).	*Fibers of vegetable origin, other than cotton, offered in commercial transportation.* Great care must be exercised to prevent sparks from coming in contact with this material. Keep dry and cool. Stow well away from vegetable or animal oils and all sources of artificial heat. No marking required.	No label required.	Stowage: "On deck under cover." "Tween decks." "Under deck away from heat." Outside containers: Bales. Bales shall be compressed reasonably tight and bound with wire, metal hoops, rope, rattan or withes. Unbaled consignments shall not be accepted.

Hazardous articles—Continued

Required conditions for transportation—Continued		
Passenger vessel	Ferry vessel, passenger or vehicle	R. R. car ferry, passenger or vehicle
Stowage: "On deck under cover." "Tween decks." "Under deck." Outside containers: Steel barrels or drums. Wooden barrels or kegs. Wooden boxes. Burlap bags, not over 300 lbs. net wt.	Ferry stowage (AA) Outside containers: Steel barrels or drums. Wooden barrels or kegs. Wooden boxes. Burlap bags, not over 300 lbs. net wt.	Ferry stowage (BB). Outside containers: Steel barrels or drums. Wooden barrels or kegs. Wooden boxes. Burlap bags, not over 300 lbs. net wt. Tight box cars.
NOTE: It is not required that the above containers be ICC specification containers, although ICC specification containers are acceptable, but the officer in charge of loading the vessel shall satisfy himself that they are sufficient in all respects for the purpose intended. He shall refuse any containers showing damage, leakage, or an inability to properly contain the substance.		
No restrictions	No restrictions	No restrictions.
Stowage: "On deck under cover." "Tween decks." "Under deck away from heat." "Cargo hatch trunkway." Outside containers: Bales. Bales shall be compressed reasonably tight and bound with wire, metal hoops, rope, rattan or withes. Unbaled consignments shall not be accepted.	Ferry stowage (AA) Outside containers: Bales. Bales shall be compressed reasonably tight and bound with wire, metal hoops, rope, rattan or withes. Unbaled consignments shall not be accepted.	Ferry stowage (BB). Outside containers Bales. Bales shall be compressed reasonably tight and bound with wire, metal hoops, rope, rattan or withes. Unbaled consignments shall not be accepted.

Table K—Classifications

Hazardous articles—Continued

Descriptive name of article	Characteristic properties, cautions, markings required	Label required	Required conditions for transportation			
			Cargo vessel	Passenger vessel	Ferry vessel, passenger or vehicle	R. R. car ferry, passenger or vehicle
Fish scrap, or fish meal. *Containing at least 6% and not more than 12% moisture.* The original bill of lading or other shipping paper shall bear the shipper's certifying statement that the fish meal when offered for shipment aboard the vessel contains at least 6% and not more than 12% moisture and that the temperature of the material does not exceed 120° F. Fish scrap or fish meal containing less than 6% or more than 12% moisture shall be shipped as a flammable solid in airtight metal containers (see §146.22-100—Table E).	*Fish scrap or fish meal consists of ground and dried fish residue. Is subject to spontaneous heating and ignition. Offensive odor. Will contaminate foodstuffs.* Smoking shall not be permitted in hatches in which fish meal or fish scrap is stowed or being handled. Check temperature of material before loading on board the vessel. Reject bags if temperature exceeds 120° F. Fish meal or fish scrap packed in wet or damp bags shall not be accepted for shipment. Keep dry. Do not load during rain. Protect shipment from bilge water, deck drainage or spray. Observe temperatures during voyage for signs of heating. Outside containers shall be marked "Fish meal" or "Fish scrap."	No label required.	Stowage: "On deck under cover." "Tween decks readily accessible." "Under deck." Outside containers: Burlap (jute) bags. Double-walled paper bags. Polyethylene lined burlap or paper bags. Railroad freight cars. (See Note in columns 5, 6 and 7.	Stowage: "On deck under cover." "Tween decks readily accessible." Outside containers: Burlap (jute) bags. Double-walled paper bags Polyethylene lined burlap or paper bags.	Ferry stowage (AA). Outside containers: Burlap (jute) bags. Double-walled paper bags. Polyethylene lined burlap or paper bags.	Ferry stowage (BB). Outside containers: Burlap (jute) bags. Double-walled paper bags Polyethylene lined burlap or paper bags. Railroad freightcars.
Fish scrap, wet acidulated. Having a moisture content of more than 40%. The originating bill of lading or other shipping paper shall bear the shipper's certifying statement as to the moisture content of the shipment.	No marking required.	No label required.	No restrictions.	No restrictions.	No restrictions.	No restrictions.
Garbage tankage (*containing 8% or more of moisture*).			See: "*Tankages.*"			
Hay. Straw. (When pressed into bales and well bound and secured).	Is readily ignited by external sparks. Protect from open flame and fire. Keep dry. Enforce "No smoking" regulations. Reject bales with broken bindings. Stow away from oils and all oxidizing (yellow label) materials. Do not stow in same hold with corrosive (white label) or inflammable (red label) liquids. When stowing quantities in one hold provide vent flues through the stowage to give free circulation of air. No marking required.	No label required.	Stowage: "On deck under cover." "Tween decks." "Under deck." Outside containers: Bales.	Stowage: "On deck under cover." "Tween decks readily accessible." "Under deck." Outside containers: Bales.	Ferry stowage (AA). Outside containers: Bales.	Ferry stowage (BB) Outside containers: Bales.
Hay. Straw. (*Loose, wet or damp.*)			Not permitted.	Not permitted.	Not permitted.	Not permitted.
Hemp.			See "Fibers."			
Hexachloroethane.	*Colorless crystals with a camphor-like odor. Insoluble in water. Avoid inhalation of dust. Avoid contact with the skin. Should be stowed in spaces capable of being ventilated.* Stow away from living quarters and foodstuffs. Do not stow with explosives, inflammable liquids, inflammable solids, corrosive liquids, or cotton. Containers must be marked "Hexachloroethane."	No label required.	Stowage: "On deck in open." "On deck protected." "On deck under cover." "Tween decks." "Under deck." Outside containers: Any ICC specification container for solids as shown in the Class B, less dangerous poisons table (§146.25-200) for cargo vessels.	Stowage: "On deck in open." "On deck protected." "On deck under cover." "Tween decks." "Under deck." Outside containers: Any ICC specification container for solids as shown in the Class B, less dangerous poisons table (§ 146.25-200) for passenger vessels.	Ferry stowage (AA). Outside containers: Any ICC specification container for solids as shown in the Class B, less dangerous poisons table (§ 146.25-200) for ferry vessels.	Ferry stowage (BB). Outside containers: Any ICC specification container for solids as shown in the Class B, less dangerous poisons table (§ 146.25-200) for car ferries.

NOTE: Fish meal and fish scrap shall be stowed so that free ventilation is provided to the entire stowage. This shall be accomplished as follows:

(a) Do not stow nearer than 4 feet to any bulkhead subject to artificial heat.
(b) Do not overstow with any other cargo.
(c) Provide a clear space of at least one foot between top of bags and underside of deck beams.
(d) Use only dry dunnage.
(e) Place two layers of plank dunnage on the deck or tank tops. The first layer shall be laid fore and aft and the second athwartships. The dunnage shall be laid no further than nine inches apart in either layer.
(f) Stack the bags hard against those battens where ships' holds are provided with cargo battens. If battens are not provided, dunnage must be placed against the ship's sides or bulkheads in such a manner as to provide a clear space of at least four inches between the bags and the metal surfaces.
(g) In addition to the above requirements, stowage shall be according to one of the following methods:

1. Strip stowage:

(i) The stowage shall be double rows of bags stowed athwartship with four inch ventilation channels on both sides of the double rows of bags. The bags shall be placed with the ends in a fore and aft direction. The flaps of the bags shall be placed inward in the double rows.

(ii) Along the width of every seventh tier of bags, a single layer of dunnage shall be placed on every third bag with boards running fore and aft. The dunnage must butt hard against the bulkheads fore and aft, and at least 18 inches overlap shall be allowed at the end of one board and the beginning of another in the same fore and aft line to provide stability. Not more than four layers of bags and not less than three should be above the top layer of dunnage.

2. Block stowage:

Sufficient dunnage shall be used between every third tier of bags to provide free circulation of air. The entire stowage shall be so arranged to permit ventilation to all parts of the stowage.

Table K—Classifications:

Descriptive name of article	Characteristic properties, cautions, markings required	Label required	Required conditions for transportation
			Cargo vessel
Insulation tape (*varnished cloth type*).			See "Oiled textiles."
Iron mass, wet Iron sponge, wet. Iron oxide, wet. (Shall not be shipped in burlap bags or other containers which are susceptible to spontaneous heating when wet.)	*Iron mass or sponge consisting of a mixture of wood shavings with a hydrated ferric oxide used to remove sulfur from coal gas. Iron oxide in the form of dense, dark red, powder or lumps used to remove sulfur from coal gas.* Stow separate from inflammable liquids (red label) or inflammable solids and oxidizing materials (yellow label).	No label required.	Stowage: "On deck in open." "On deck under cover." "Tween decks readily accessible." Outside containers: Steel barrels or drums, not over 1,760 lbs. gr. wt.
Jute			See: "Fibers."
Lead dross Lead scrap.	*Consists of the scrap, dross, or waste from sulfuric acid tanks. Is a mixture of metallic lead, lead sulfate and free sulfuric acid.* Reject containers showing signs of leakage. Outside containers shall be marked either "Lead dross" or "Lead scrap" or "Hazardous article."	No label required.	Stowage: "On deck under cover." "Tween decks." "Under decks." Outside containers: Steel barrels or drums. Tight wooden barrels or kegs. Tight wooden boxes.

Hazardous articles—Continued

Required conditions for transportation—Continued		
Passenger vessel	Ferry vessel, passenger or vehicle	R. R. car ferry, passenger or vehicle
Not permitted	Ferry stowage (AA) Outside containers: Steel barrels or drums, not over 1,760 lbs. gr. wt.	Ferry stowage (BB). Outside containers: Steel barrels or drums, not over 1,760 lbs. gr. wt.
Stowage: "On deck under cover." "Tween decks readily accessible" Outside containers: Steel barrels or drums. Tight wooden barrels or kegs. Tight wooden boxes.	Ferry stowage (AA) Outside containers: Steel barrels or drums. Tight wooden barrels or kegs. Tight wooden boxes.	Ferry stowage (BB). Outside containers: Steel barrels or drums. Tight wooden barrels or kegs. Tight wooden boxes.

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Table K—Classification

Descriptive name of article	Characteristic properties, cautions, markings required	Label required	Required conditions for transportation
			Cargo vessel
Lime, unslaked Quicklime.	*Unslaked Lime (Quicklime) is shipped in the form of white, hard lumps or pebbles or crushed or pulverized. It is obtained by burning limestone, dolomite or oyster shells.* *Unslaked lime combines with water to form calcium hydroxide or hydrated lime. This reaction develops heat which in the absence of enough water and under confined conditions may be sufficient to cause ignition in contact with combustible substances.* *Unslaked lime absorbs moisture from the air when exposed.* Stow away from foodstuffs, organic materials, acids and explosives. Keep dry. Outside containers shall be marked either "Lime, Unslaked" or "Quicklime" or "Hazardous Article."	No label required.	Stowage: * "On deck under cover." "Tween decks readily accessible." "Under deck." Outside containers: Steel barrels or drums. Siftproof wooden barrels or kegs. Siftproof wooden boxes. Moistureproofed multiwall paper bags (MIN-W10) not over 100 lbs. net wt. Moistureproofed paperlined burlap bags (MIN-W11) not over 100 lbs. net wt. Siftproof railroad freight cars. (See Note in columns 5, 6, and 7.)
Metal borings, shavings, turnings, cuttings.	*May be small pieces mixed with cutting oils, and combustible waste.* *Some of these materials when shipped in bulk are subject to heating and spontaneous ignition.* *Before loading, temperature tests of the material should be taken at several points in the pile to determine if there is any heating. In the event the temperature is over 110° F., the shipment should be carefully watched. If the temperature rises to 150° F. or above, the material should not be accepted for transportation.* Remove wooden sweat battens and dunnage and clean hold of debris before loading bulk shipments. Observe temperatures of cargo during voyage for signs of heating. Do not stow explosives in a hold above, below or adjacent to stowage of this material. Do not stow in same hold or compartment with explosives, inflammable or combustible cargo or oxidizing materials.	No label required.	Stowage: "On deck." "Tween decks." "Under deck." Outside containers: Metal barrels or drums. Bulk.

Hazardous articles—Continued

Required conditions for transportation—Continued		
Passenger vessel	Ferry vessel, passenger or vehicle	R. R. car ferry, passenger or vehicle
Stowage: * "On deck under cover." "Tween decks readily accessible." Outside containers: Steel barrels or drums. Siftproof wooden barrels or kegs. Siftproof wooden boxes. Moistureproofed multiwall paper bags (MIN-W10) not over 100 lbs. net wt. Moistureproofed paper-lined burlap bags (MIN-W11) not over 100 lbs. net wt.	Ferry stowage (AA) Outside containers: Steel barrels or drums. Siftproof wooden barrels or kegs. Siftproof wooden boxes. Moistureproofed multiwall paper bags (MIN-W10) not over 100 lbs. net wt. Moistureproofed paper-lined burlap bags (MIN-W11) not over 100 lbs. net wt. Vehicles with lime in nonspecification bags may be transported provided the loading shows no sign of sifting of the lime.	Ferry stowage (BB). Outside containers: Steel barrels or drums. Siftproof wooden barrels or kegs. Siftproof wooden boxes. Moistureproofed multiwall paper bags (MIN-W10) not over 100 lbs. net wt. Moistureproofed paper-lined burlap bags (MIN-W11) not over 100 lbs. net wt. Siftproof railroad freight cars.

NOTE:
It is not required that the above barrels, drums, kegs or boxes be ICC or CFC specification containers, although these specification containers are acceptable, but the officer in charge of loading the vessel shall satisfy himself they are sufficient in all respects for the purpose intended. He shall refuse any containers showing damage, leakage or an inability to properly contain the substance.

*Stowage of unslaked lime: All Unslaked Lime shall be stowed in cool, dry, ventilated compartments in position to permit jettisoning in an emergency and in conformity with the following conditions:

(a) Stowage shall be completely protected from water or other liquids, including spray, rain, exhaust steam or drainage.

(b) Lime in moistureproofed multiwall paper bags or moistureproofed paper-lined burlap bags shall not be stowed resting on deck.

(c) Dry wood dunnaging shall be provided in way of decks, bulkheads, ship's side and frames to prevent drainage, sweat or other moisture contacting the bags. Dunnaging on deck shall be so laid as to provide drainage channels to scuppers, sumps or drain wells.

(d) Lime may be stowed on skips, skids or portable trucks.

(e) Lime in paper or burlap bags stowed without benefit of skips, skids or other trucks shall not be stowed more than ten tiers high and no stowage shall be solid between two bulkheads nor from shell to shell.

Stowage: "On deck." "Tween decks." "Under deck." Outside containers: Metal barrels or drums.	Ferry stowage (AA) Outside containers: Metal barrels or drums. Bulk in highway vehicles.	Ferry stowage (BB). Outside containers: Metal barrels or drums. Bulk in railroad cars. Bulk in highway vehicles.

Table K—Classification:

Descriptive name of article	Characteristic properties, cautions, markings required	Label required	Required conditions for transportation
			Cargo vessel
Naphthalene Naphthalin. (Crude or refined).	*White, crystalline, volatile flakes or powder with a strong coal tar odor. Readily ignited by sparks. Gives off heavy, dense smoke when burning and will add materially to a fire. Gives off strong penetrating odor similar to camphor.* *Melting point about 175° F. Will evolve inflammable vapors at or below its melting point.* *Insoluble in water.* *Shipped in the form of flakes, balls, crushed, blocks, grains, tablets.* Stow away from foodstuffs, living quarters and explosives. Outside containers shall be marked either "Naphthalene" or "Naphthalin" or "Hazardous article."	No label required.	Stowage: "On deck protected." "On deck under cover." "Tween decks readily accessible." "Under deck (in a cool, dry, well-ventilated hold)." Outside containers: Wooden barrels or kegs. Wooden boxes. Fiberboard boxes. Metal drums. *Authorized for Naphthalene having a melting point not lower than 167° F.* Burlap (jute) bags, not over 224 lbs. net wt.
Oakum Twisted jute packing (rope) (treated or untreated).	*Oakum is the fiber of hemp or mixtures of hemp with other fibers and impregnated with pine tar or pitch or other similar substances. Marine oakum is usually made from long, soft pure fiber twisted and is the least hazardous of the various grades of oakum. Plumber's oakum is a mixture of hemp, tow and other fibers.* *Principal risk of these fibers in an oiled condition is their ready ignition by sparks.* Do not stow against bulkheads subject to heat or on deck in open in the rays of the sun. Stow bales in a manner to provide circulation of air and thus reduce chances of heating. Boxes shall be marked either "Oakum" or "Hazardous article."	No label required.	Stowage: "On deck under cover." "Tween decks." Outside containers: Wooden boxes. Bales. Bales shall be compressed reasonably tight and bound with wire, metal hoops, rattan, rope or withes. Unbaled or unboxed consignments shall not be accepted. Fiberboard boxes.
Oiled clothing Oiled paper. Oiled textiles. Treated paper. Treated textiles. (*Manufactured articles properly dried to prevent spontaneous heating*). NOTE: For regulations governing shipment of oiled or treated paper or textiles not manufactured into finish articles see: "Fibers or fabrics with animal or vegetable oil" in the Inflammable solids table. (§146.22-100).	*Paper or fabric materials which have been treated with preparations containing linseed or other oxidizing oil and then properly dried.* *May include painted, oiled, waterproofed or varnished cloth or canvas or paper, etc., manufactured into finished articles.* *If not completely and properly dried the material is liable to spontaneous heating and ignition.* Keep cool. Stow away from all sources of artificial heat. Stow as to permit checking in order to observe any spontaneous heating. Outside containers shall be marked either "Oiled clothing" or "Oiled paper" or "Oiled textiles" or "Treated paper" or "Treated textiles" or "Hazardous article."	No label required.	Stowage: "On deck protected." "On deck under cover." "Tween decks readily accessible." "Under deck away from heat." Outside containers: Wooden boxes. Fiberboard boxes. Tight rolls—wrapped and sealed with heavy paper.
Paper scrap Paper waste (*When dry, clean and free from oil.*)	*Scrap paper of all descriptions.* *The hazard of this type of cargo lies in its susceptibility to fire from open flame or sparks.* Do not stow in any compartment with corrosive liquids (white label) or oxidizing materials (yellow label). No marking required.	No label required.	Stowage: "On deck under cover." "Tween decks." "Under deck." Outside containers: Tight bales. Unbaled consignments shall not be accepted.

Hazardous articles—Continued

Required conditions for transportation—Continued		
Passenger vessel	Ferry vessel, passenger or vehicle	R.R. car ferry, passenger or vehicle
Stowage: "On deck protected," "On deck under cover." "Tween decks readily accessible." Outside containers. Wooden barrels or kegs. Wooden boxes. Fiberboard boxes. Metal drums. *Authorized for Naphthalene having a melting point not lower than 167° F.* Burlap (jute) bags, not over 224 lbs. net wt.	Ferry stowage (AA) Outside containers: Wooden barrels or kegs. Wooden boxes. Fiberboard boxes. Metal drums. *Authorized for Naphthalene having a melting point not lower than 167° F.* Burlap (jute) bags, not over 224 lbs. net wt., when transported within closed body vehicles.	Ferry stowage (BB). Outside containers: Wooden barrels or kegs. Wooden boxes. Fiberboard boxes. Metal drums. *Authorized for Naphthalene having a melting point not lower than 167° F.* Burlap (jute) bags, not over 224 lbs. net wt., when transported within closed railroad freight cars.
Stowage: "On deck under cover." "Tween decks." Outsidecontainers: Wooden boxes. Bales. Bales shall be comprssed, reasonably tight and boundwith wire, metal hoops, rattan rope or withes. Unbaled or unboxed consignments shall not be accepted. Fiberboard boxes.	Ferry stowage (AA) Outside containers: Wooden boxes. Bales. Bales shall be compressed reasonably tight and bound with wire, metal hoops, rattan, rope or withes. Unbaled or unboxed consignments shall not be accepted. Fiberboard boxes.	Ferry stowage (BB). Outside containers: Wooden boxes. Bales. Bales shall be compressed reasonably tight and bound with wire, metal hoops, rattan, rope or withes. Unbaled or unboxed consignments shall not be accepted. Fiberboard boxes.
Stowage: "On deck protected." "On deck under cover." "Tween decks readily accessible." Outside containers: Wooden boxes. Fiberboard boxes. Tight rolls—wrapped and sealed with heavy paper.	Ferry stowage (AA) Outside containers: Wooden boxes. Fiberboard boxes. Tight rolls—wrapped and sealed with heavy paper.	Ferry stowage (BB). Outside containers: Wooden boxes. Fiberboard boxes. Tight rolls—wrapped and sealed with heavy paper.
Stowage: "On deck under cover." "Tween decks." "Under deck." Outside containers: Tight bales. Unbaled consignments shall not be accepted.	Ferry stowage (AA) Outside containers: Tight bales. Unbaled consignments shall not be accepted.	Ferry stowage (BB). Outside containers: Tight bales. Unbaled consignments shall not be accepted.

Table K—Classification:

Descriptive name of article	Characteristic properties, cautions, markings required	Label required	Required conditions for transportation
			Cargo vessel
Petroleum coke	*A black finely divided residue, in the form of powder and small lumps.* *Before loading, temperature tests of the material should be taken at several points in the pile to determine if there is any heating. If the temperature is over 110° F. the shipment should be carefully watched. If the temperature rises to 130° F. or above, the material shall not be accepted for transportation.* Remove wooden sweat battens and dunnage and clean hold of debris before loading bulk shipments. Observe temperatures of cargo during voyage for signs of heating. Do not stow explosives in a hold above, below or adjacent to stowage of this material. Do not stow in same hold or compartment with explosives, inflammable or combustible cargo or oxidizing materials.	No label required.	Stowage: "On deck." "Tween decks." "Under deck." Outside containers: Metal barrels or drums. Bulk.
Phosphoric acid	*Usually shipped in aqueous solutions varying from 50% to 88%.* *Odorless, ordinarily has no warning properties.* *May cause painful burns.* Do not stow with explosives, inflammable liquids, inflammable solids, oxidizing materials, and any cargo or articles of an organic nature. Outside containers shall be marked "Phosphoric acid."	No label required.	Stowage: "On deck protected." "On deck under cover." "Tween decks." "Under deck away from heat." Outside containers: For concentrations containing over 50% H_3PO_4 by weight: Metal barrels or drums WIL not over 55 gal. cap. Stainless steel drums not over 55 gal. cap. Wooden boxes WIC not over 200 lb. gr. wt. Fiberboard boxes WIC not over 90 lb. gr. wt. NOTE: Containers are not specified for concentrations of 50% H_3PO_4 or less, but the officer in charge of loading the vessel shall satisfy himself that they are sufficient in all respects for the purpose intended. He shall refuse any container showing damage, leakage or inability to properly contain the substance. For any concentration: Tank cars (ICC-103E-W, 103BW). Tank motor vehicles with stainless steel or rubber lined tanks. Bulk as specifically approved by Commandant.

Hazardous articles—Continued

Required conditions for transportation—Continued		
Passenger vessel	Ferry vessel, passenger or vehicle	R. R. car ferry, passenger or vehicle
Stowage: "On deck." "Tween decks." "Under deck." Outside containers: Metal barrels or drums.	Ferry stowage (AA). Outside containers: Metal barrels or drums. Bulk in highway vehicles.	Ferry stowage (BB). Outside containers: Metal barrels or drums. Bulk in railroad cars. Bulk in highway vehicles.
Stowage: "On deck protected." "On deck under cover." "Tween decks." "Under deck away from heat." Outside containers: For concentrations containing over 50% H_3PO_4 by weight: Metal barrels or drums WIL not over 55 gal. cap. Stainless steel drums not over 55 gal. cap. Wooden boxes WIC not over 200 lb. gr. wt. Fiberboard boxes WIC not over 90 lb. gr. wt. NOTE: Containers are not specified for concentrations of 50% H_3PO_4 or less, but the officer in charge of loading the vessel shall satisfy himself that they are sufficient in all respects for the purpose intended. He shall refuse any container showing damage, leakage or inability to properly contain the substance.	Ferry stowage (AA). Outside containers: For concentrations containing over 50% H_3PO_4 by weight: Metal barrels or drums WIL not over 55 gal. cap. Stainless steel drums not over 55 gal. cap. Wooden boxes WIC not over 200 lb. gr. wt. Fiberboard boxes WIC not over 90 lb. gr. wt. NOTE: Containers are not specified for concentrations of 50% H_3PO_4 or less, but the officer in charge of loading the vessel shall satisfy himself that they are sufficient in all respects for the purpose intended. He shall refuse any container showing damage, leakage or inability to properly contain the substance. For any concentration: Tank motor vehicles with stainless steel or rubber lined tanks.	Ferry stowage (BB). Outside containers: For concentration containing over 50% H_3PO_4 by weight: Metal barrels or drums WIL not over 55 gal. cap. Stainless steel drums not over 55 gal. cap. Wooden boxes WIC not over 200 lb. gr. wt. Fiberboard boxes WIC not over 90 lb. gr. wt. NOTE: Containers are not specified for concentrations of 50% H_3PO_4 or less, but the officer in charge of loading the vessel shall satisfy himself that they are sufficient in all respects for the purpose intended. He shall refuse any container showing damage, leakage or inability to properly contain the substance. For any concentration: Tank cars (ICC-103E-W, 103BW). Tank motor vehicles with stainless steel or rubber lined tanks.

Table K—Classification:

Descriptive name of article	Characteristic properties, cautions, markings required	Label required	Required conditions for transportation
			Cargo vessel
Photographic flash lamps (*capable, upon breakage, of igniting inflammable vapors or finely divided combustible substances*). These lamps shall not be shipped described as "Incandescent lamps." The originating bill of lading or other shipping paper shall describe the shipment as "Hazardous."	*A bulb similar in appearance and shape to an incandescent electric bulb, but containing a priming element, flash illuminating substance and gas, energized electrically for the purpose of producing a brilliant instantaneous light.* Do not stow in the same compartment with explosives, compressed gases, inflammable or combustible liquids or inflammable solids or oxidizing materials. Outside containers shall be marked either "Photographic flash lamps" or "Hazardous article."	No label required.	Stowage: "On deck under cover." "Tween decks readily accessible." Outside containers: Fiberboard boxes (ICC-12B) (CFC R 41). Not exceeding 100 lamps in any one outside container. Lamps shall be in individual carton sleeves, and when packed in tiers, each tier within the container shall be separated with a fiberboard partition.
Photographic flash lamps (*that will not, upon breakage, ignite inflammable vapors or finely divided combustible substances*).	No marking required	No label required.	No restrictions
Potassium hydroxide			See: "Caustic potash, solid."
Quicklime			See: "Lime, unslaked."
Rags, scrap (*when dry, clean, and free from excess oil*). The originating bill of lading or other shipping paper shall bear the shipper's certifying statement that the rags are dried, clean, and do not contain more than 5% of animal or vegetable oils. NOTE: For regulations governing shipments of oily or wet rags see "Rags, oily," "Rags, wet" in the inflammable solids table (§ 146.22-100).	*Scraps of textile fabrics.* Do not stow with vegetable or animal oils, turpentine, paints, or other oxidizing materials. *The hazard in this type of cargo lies in its susceptibility to fire from open flame or sparks.* No markings required.	No label required.	Stowage: "On deck under cover." "Tween decks readily accessible." "Under deck away from heat." "Cargo hatch trunkway." Outside containers: Wooden barrels or kegs. Wooden boxes. Bags. Tight bales—bound with wire or metal bands. Shipments of loose scrap rags shall not be accepted.

Hazardous articles—Continued

Required conditions for transportation—Continued		
Passenger vessel	Ferry vessel, passenger or vehicle	R. R. car ferry, passenger or vehicle
Stowage: "On deck under cover." Outside containers: Fiberboard boxes (ICC-12B) (CFC R 41). Not exceeding 100 lamps in any one outside container. Lamps shall be in individual carton sleeves, and when packed in tiers each tier within the container shall be separated with a fiberboard partition.	Ferry stowage (AA) Outside containers: Fiberboard boxes (ICC-12B) (CFC R 41). Not exceeding 100 lamps in any one outside container. Lamps shall be in individual carton sleeves, and when packed in tiers, each tier within the container shall be separated with a fiberboard partition.	Ferry stowage (BB). Outside containers: Fiberboard boxes (ICC-12B) (CFC R 41). Not exceeding 100 lamps in any one outside container. Lamps shall be in individual carton sleeves, and when packed in tiers, each tier within the container shall be separated with a fiberboard partition.
No restrictions	No restrictions	No restrictions.
Stowage: "On deck under cover." "Tween decks readily accessible." "Under deck away from heat." "Cargo hatch trunkway." Outside containers: Wooden barrels or kegs. Wooden boxes. Bags. Tight bales—bound with wire or metal bands. Shipments of loose scrap rags shall not be accepted.	Ferry stowage (AA) Outside containers: Wooden barrels or kegs. Wooden boxes. Bags. Tight bales—bound with wire or metal bands. Shipments of loose scrap rags shall not be accepted.	Ferry stowage (BB). Outside containers: Wooden barrels or kegs. Wooden boxes. Bags. Tight bales—bound with wire or metal bands. Shipments of loose scrap rags shall not be accepted.

Table K—Classification:

Descriptive name of article	Characteristic properties, cautions, markings required	Label required	Required conditions for transportation
			Cargo vessel
Rosin (*Colophony*)	*Any of various solid or semisolid organic substances.* *Chiefly of vegetable origin.* *Rosin is a term applied to the hard resin, commonly amber colored, left after distilling off the volatile oil of turpentine.* *Insoluble in water.* *Readily combustible.* Outside containers shall be marked either "Resin" or "Hazardous article."	No label required.	Stowage: "On deck in open." "On deck protected." "On deck under cover." "Tween decks." "Under deck." Outside containers: Steel barrels or drums. Wooden barrels or kegs. Wooden boxes. Fiberboard boxes. Fiber drums. Burlap bags, paper lined, not over 100 lbs. net wt. (at least 7½ oz. burlap with waterproofed paper lining). Multiwall paper bags, 6 ply (not over 100 lbs. net wt.) 4 ply (not over 50 lbs. net wt.): CFC. Rule 40–4 ply paper bags (not over 100 lbs net wt.)
Road asphalt or tar			See "Asphalt."
Rough ammoniate tankages (containing 7% or more of moisture).			See: "Tankages."
Sawdust Wood shavings. (*When dry, clean, and free from oil.*)	*Small fragments or dust or long fine, curled wood shavings.* *The hazard in this type of cargo lies in its susceptibility to fire from open flame or sparks.* Do not stow in proximity to vegetable or animal oils, paints, corrosive liquids (white label) or oxidizing materials (yellow label). Keep dry. Reject wet or insecurely packed consignments. Outside containers shall be marked either "Sawdust" or "Wood shavings" or "Hazardous article." Bales not required to be marked.	No label required.	Stowage: "On deck under cover." "Tween decks." "Under deck." Outside containers: Steel barrels or drums. Wooden barrels or kegs. Wooden boxes. Fiberboard boxes. Bags. Bales—slatted and compactly bound with wire or metal bands. Bulk in "EB" type barge.
Sodium hydroxide			See: "Caustic soda, solid."
Straw			See: "Hay."

Hazardous articles—Continued

Required conditions for transportation—Continued		
Passenger vessel	Ferry vessel, passenger or vehicle	R. R. car ferry, passenger or vehicle
Stowage: "On deck in open." "On deck protected." "On deck under cover." "Tween decks." "Under deck." Outside containers: Steel barrels or drums. Wooden barrels or kegs. Wooden boxes. Fiberboard boxes. Fiber drums. Burlap bags, paper lined, not over 100 lbs. net wt. (at least 7½ oz. burlap with waterproofed paper lining). Multiwall paper bags, 6 ply (not over 100 lbs. net wt.) 4 ply (not over 50 lbs. net wt.): CFC. Rule 40–4 ply papor bags (not over 100 lbs. net wt.)	Ferry stowage (AA) Outside containers: Steel barrels or drums. Wooden barrels or kegs. Wooden boxes. Fiberboard boxes. Fiber drums. Burlap bags, paper lined, not over 100 lbs. net wt. (at least 7½ oz. burlap with waterproofed paper lining). Multiwall paper bags, 6 ply (not over 100 lbs. net wt.) 4 ply (not over 50 lbs. net wt.): CFC. Rule 40–4 ply papor bags (not over 100 lbs. net wt.)	Ferry stowage (BB). Outside containers: Steel barrels or drums. Wooden barrels or kegs. Wooden boxes. Fiberboard boxes. Fiber drums. Burlap bags, paper lined, not over 100 lbs. net wt. (at least 7½ oz. burlap with waterproofed paper lining). Multiwall paper bags, 6 ply (not over 100 lbs. net wt.) 4 ply (not over 50 lbs. net wt.): CFC. Rule 40–4 ply paper bags (not over 100 lbs. net wt.)
Stowage: "On deck under cover." "Tween decks." "Under deck." "Cargo hatch trunkway." Outside containers: Steel barrels or drums. Wooden barrels or kegs. Wooden boxes. Fiberboard boxes. Bags. Bales—slatted and compactly bound with wire or metal bands.	Ferry stowage (AA) Outside containers: Steel barrels or drums. Wooden barrels or kegs. Wooden boxes. Fiberboard boxes. Bags. Bales—slatted and compactly bound with wire or metal bands.	Ferry stowage (BB). Outside containers: Steel barrels or drums. Wooden barrels or kegs. Wooden boxes. Fiberboard boxes. Bags. Bales—slatted and compactly bound with wire or metal bands.

Table K—Classification:

Descriptive name of article	Characteristic properties, cautions, markings required	Label required	Required conditions for transportation
			Cargo vessel
Sulfur Flowers of sulfur. Sulfur flower. Brimstone. Sulphur.	*A mineral substance in the form of hard lumps or amorphous powder.* *Insoluble in water.* *Crude sulfur in bulk is dangerously inflammable and readily fusible by heat. Will ignite by friction. When burning gives off sulfur dioxide, a suffocating gas.* *Sulfur dust given off in loading crude sulfur in proper proportions with air forms an explosive mixture and may be ignited by static electricity, open flame or spark.* Do not stow sulfur with carbon, charcoal, lampblack, fats, oils, chlorates, phosphates, phosphorus, or other carriers of oxygen. In the presence of carbon, charcoal, lampblack, and other carbonaceous substances, fats and oils may produce spontaneous heating and ignition; while with chlorates, phosphates, phosphorus and other oxygen carriers it may produce explosive mixtures. Outside barrels, boxes or bags shall be marked with the shipping name of the product as shown herein or "Hazardous Article."	No label required.	Stowage: "On deck in open." "On deck under cover." "Tween decks." "Under deck." Outside containers: Tight siftproof barrels and boxes. Siftproof multiwall paper bags. Siftproof paperlined burlap bags. Tight siftproof railroad freight cars. Bulk. (See Note in columns 5, 6, and 7).
Tank cars, empty Tank cars previously containing an inflammable liquid; inflammable solid or oxidizing material; acids or corrosive liquids; poisonous liquids or solids, Class B; compressed inflammable gas; compressed non-inflammable gas.	*The hazard connected with the shipment of empty tank cars that previously contained any dangerous substance lies in the possible presence of residue contents in the tank car.* No marking required.	Dangerous—empty.	Stowage: "On deck in open." "Under deck." "Tween decks." (See Note in columns 5, 6, and 7.)
Tank trucks, empty Tank trucks previously containing an inflammable liquid, corrosive liquid, compressed gas or a poison Class B.	*The hazard connected with the shipment of empty tank trucks that previously contained any dangerous substance lies in the possible presence of residue contents in the tank.* Shall be marked in such manner as will identify previous lading of the tank.	No label required.	Stowage: "On deck in open." (See Note in columns 5, 6, and 7.)

Hazardous articles—Continued

Required conditions for transportation—Continued		
Passenger vessel	Ferry vessel, passenger or vehicle	R. R. car ferry, passenger or vehicle
Stowage: "On deck under cover." "Tween decks." Outside containers: Tight siftproof barrels and boxes. Siftproof multiwall paper bags. Siftproof paperlined burlap bags.	Ferry stowage (AA) Outside containers: Tight siftproof barrels and boxes. Siftproof multiwall paper bags. Siftproof paperlined burlap bags. Vehicles loaded with sulfur in bulk may be transported provided the loading shows no sign of sifting of the sulfur.	Ferry stowage (BB). Outside containers: Tight siftproof barrels and boxes. Siftproof multiwall paper bags. Siftproof paperlined burlap bags. Tight siftproof railroad freight cars. Vehicles loaded with sulfur in bulk may be transported provided the loading shows no sign of sifting of the sulfur.

NOTE: In the loading, handling and unloading of sulfur in bulk the following conditions shall be complied with:

(a) When sulfur in bulk is loaded in a deep hold with general cargo in the tween deck hold above the sulfur a dust proof wooden bulkhead enclosure shall be built in the hatchways from the over deck of the lower hold to the weather deck forming a tight enclosure to prevent sulfur dust entering the tween decks during loading.

(b) Holds shall be cleaned of all debris.

(c) Ceiling shall be made tight to prevent sulfur dust finding its way into the bilges; any chinking necessary in the way of tank tops or bilges shall be with non-combustible material.

(d) In order to minimize the movement of fine sulfur dust, cowl ventilators serving the hold into which sulfur is being loaded or discharged shall be blanked off to prevent circulation of air.

(e) "No Smoking" signs shall be conspicuously displayed, and the officer in charge shall ensure that they are observed.

(f) An oxygen breathing apparatus, or proper gas mask, shall be made readily available.

(g) A fire hose, preferably supplied with fresh water from a shore supply source, shall be available at each hatch through which sulfur is being worked.

(h) Upon completion of loading, the sulfur shall be leveled off and the sulfur dust deposited during the process of loading, being extremely inflammable, shall be cared for by sweeping or washing it down. This applies to the decks and to the overhead structure within the holds.

(j) After unloading, all residue of sulfur or sulfur dust shall be thoroughly cleaned out of cargo holds before loading other cargo therein.

(k) When sulfur is loaded by metal chute method, provision shall be made for proper grounding of the chute, using flexible cable to prevent static discharge.

Not permitted	Not permitted	Ferry stowage (BB).

NOTE:

May be accepted upon permitted vessels under the following conditions:

(A) Provided dome covers are securely fastened in place.

(B) Provided discharge pipe cap is securely in place.

(C) Provided there is no leakage from discharge pipe cap or any other portion of the tank.

(D) Provided no excess residue of a former lading is adhering to any part of the tank or car.

(E) The vessel's officer assigned to supervise the receipt of such tank cars on board the vessel shall personally check each requirement and make an entry in a record book specifically provided for such purpose stating all conditions are found to be satisfactory and give the car initials and number.

(F) Tank cars found not to be satisfactory shall be refused transportation and an entry made in the record book noting such rejection and reason, together with identification of the car. Rejection reports shall be forwarded to the nearest Officer in Charge, Marine Inspection.

Not permitted	Ferry stowage (AA)	Ferry stowage (BB).

NOTE:

May be accepted upon permitted vessels under the following conditions:

(A) Provided that the driver of the vehicle furnishes a signed statement setting forth the name of the lading last contained within the cargo tank of the vehicle, and its flashpoint, if an inflammable liquid. The statement shall also show the name and business address of the owner of the vehicle and the identity of the particular vehicle by number or registration.

(B) Provided dome covers are securely fastened in place.

(C) Provided all valves in piping to tank are tightly closed.

(D) Provided there is no leakage from pipe lines or any other part of tank.

(E) Provided no excess residue of a former lading is adhering to any part of the tank or vehicle.

(F) The person assigned to supervise the receipt of such tank vehicles on board the vessel shall personally check each requirement.

(G) Vehicles found not to be satisfactory shall be refused transportation and an entry made in the record book noting such rejection and reason, together with an identification of the vehicle. Rejection reports shall be forwarded to the nearest Officer in Charge, Marine Inspection.

Table K—Classification:

Descriptive name of article	Characteristic properties, cautions, markings required	Label required	Required conditions for transportation
			Cargo vessel
Tankages: Garbage tankage (*containing 8 percent or more of moisture*). Rough ammoniate tankages (*containing 7 percent or more of moisture*). Tankage fertilizers (*containing 8 percent or more of moisture.*) The originating bill of lading or other shipping paper shall bear the shipper's certifying statement as to the moisture content of the shipment and also state the temperature of the material when shipment originated which temperature shall be less than 100° F.	*A dried and ground product of garbage. Consists principally of vegetable fibers. Offensive odor.* *Is subject to spontaneous heating with possible ignition.* Check temperature of material before loading on board vessel. Reject if temperature exceeds 100° F. Observe temperature during voyage for signs of heating. Outside containers shall be marked either "Garbage tankage," "Rough ammoniate tankages" or "Tankage fertilizers" or "Hazardous article."	No label required.	Stowage: "On deck under cover." "Tween decks." "Under deck but not overstowed." Outside containers: Burlap (jute) bags. Railroad freight cars. Bulk.
Tetrachloroethane	*Colorless liquid with a chloroform-like odor.* *Vapors 4.8 times heavier than air.* *Toxic.* *Do not breathe fumes.* *Boiling point 295° F.* Keep away from heat and open flame. Stow away from living quarters and foodstuffs. Must be stowed in spaces capable of being ventilated. Do not stow with explosives, inflammable solids, oxidizing materials, corrosive liquids or cotton. Containers must be marked "Tetrachloroethane."	No label required.	Stowage: "On deck protected." "On deck under cover." "Tween decks." "Under deck away from heat." Outside containers: Any ICC specification container for liquids as shown in the Class B, less dangerous poisons table (§ 146.25-200) for cargo vessels. *Also:* Metal barrels or drums (CFC R 40) not over 55 gal. cap. Wooden boxes, nonspecification WIC not over 200 lb. gr. wt. Fiberboard boxes (CFC R 41) WIC not over 90 lb. gr. wt. Bulk as specifically approved by Commandant. NOTE: Containers shall be of a design and constructed of materials that will not react dangerously with nor be decomposed by the chemical packed therein.

Hazardous articles—Continued

Required conditions for transportation—Continued		
Passenger vessel	Ferry vessel, passenger or vehicle	R. R. car ferry, passenger or vehicle
Stowage: "On deck under cover." "Tween decks readily accessible." Outside containers: Burlap (jute) bags.	Ferry stowage (AA). Outside containers: Burlap (jute) bags.	Ferry stowage (BB). Outside containers: Burlap (jute) bags. Railroad freight cars.
Stowage: "On deck protected." "On deck under cover." "Tween decks." "Under deck away from heat." Outside containers: Any ICC specification container for liquids as shown in the Class B, less dangerous poisons table (§ 146.25-200) for passenger vessels. *Also:* Metal barrels or drums (CFC R 40) not over 55 gal. cap. Wooden boxes, nonspecification WIC, not over 200 lb. gr. wt. Fiberboard boxes (CFC R 41) WIC, not over 90 lb. gr. wt. NOTE: Containers shall be of a design and constructed of materials that will not react dangerously with nor be decomposed by the chemical packed therein.	Ferry stowage (AA). Outside containers: Any ICC specification container for liquids as shown in the Class B, less dangerous poisons table (§ 146.25-200) for ferry vessels. *Also:* Metal barrels or drums (CFC R 40) not over 55 gal. cap. Wooden boxes, nonspecification WIC, not over 200 lb. gr. wt. Fiberboard boxes (CFC R 41) WIC, not over 90 lb. gr. wt. Tank motor vehicles complying with ICC motor carrier regulations. NOTE: Containers shall be of a design and constructed of materials that will not react dangerously with nor be decomposed by the chemical packed therein.	Ferry stowage (BB). Outside containers: Any ICC specification container for liquids as shown in the Class B, less dangerous poisons table (§ 146.25-200) for car ferries. *Also:* Metal barrels or drums (CFC B 40) not over 55 gal. cap. Wooden boxes, nonspecification WIC, not over 200 lb. gr. wt. Fiberboard boxes (CFC R 41) WIC, not over 90 lb. gr. wt. Tank cars complying with ICC rail carrier regulations. Tank motor vehicles complying with ICC motor carrier regulations. NOTE: Containers shall be of a design and constructed of materials that will not react dangerously with nor be decomposed by the chemical packed therein.

[CGFR 53-26, 18 F.R. 5240, Sept. 1, 1953, as amended by CGFR 53-54, 18 F.R. 8247, Dec. 16, 1953; 19 F.R. 821, Feb. 12, 1954, as amended by CGFR 54-16, 19 F.R. 4934, Aug. 6, 1954; CGFR 55-20, 20 F.R. 4082, June 10, 1955; CGFR 56-29, 21 F.R. 7141, Sept. 30, 1956; CGFR 56-47, 21 F.R. 8973, Nov. 17, 1956; CGFR 57-33, 22 F.R. 8722, Oct. 29, 1957; CGFR 58-9, 23 F.R. 4947, June 28, 1958; CGFR 59-14, 24 F.R. 5276, June 30, 1959; CGFR 60-33, 25 F.R. 5243, June 11, 1960; CGFR 61-11, 26 F.R. 3925, May 5, 1961; CGFR 62-11, 27 F.R. 5287, June 5, 1962; CGFR 63-19, 28 F.R. 5384, May 30, 1963; CGFR 64-20, 29 F.R. 6795, May 23, 1964; CGFR 65-17, 30 F.R. 7443, June 5, 1965]

Subpart 146.28—Temporary Amendments to Regulations

SOURCE: The provisions of this Subpart 146.28 appear at 8 F.R. 4794, Apr. 13, 1943, unless otherwise noted.

§ 146.28–1 Scope.

The regulations contained in the sections under the heading "Subpart—Temporary Amendments to Regulations" are supplementary and amendatory to the regulations in this part and are effective for the duration of the National Emergency proclaimed by the President on December 16, 1950 (Proclamation 2914, 3 CFR, 1950 Supp.), except as hereafter modified or rescinded.

[CGFR 52–8, 17 F.R. 6548, July 17, 1952]

§ 146.28–2 Reused single-trip containers.

Notwithstanding the provisions of § 146.05–10(h), single-trip containers may be, for the duration of the National Emergency proclaimed by the President on December 16, 1950 (Proclamation 2914, 3 CFR, 1950 Supp.), reused if retested and approved for service in accordance with the regulations of the Interstate Commerce Commission in effect at the time of shipment.

[CGFR 52–8, 17 F.R. 6548, July 17, 1952]

§ 146.28–6 Additional containers for rubber scrap.

Rubber scrap without cotton or fabric, if ground, powdered or granulated with rubber content exceeding 45 percent and rubber buffings from any grade of rubber, irrespective of the percentage of rubber content, may in addition to the containers authorized in § 146.22–100 also be accepted for transportation on board cargo vessels, ferry vessels (passenger or vehicle), and railroad car ferries (passenger or vehicle), when packed in: Wooden barrels or kegs (ICC–10A); fiberboard boxes (ICC–12B); fiber drums (ICC–21A); wooden drums (ICC–22A); tank cars tightly and securely closed.

§ 146.28–7 Additional type tank cars for gasoline.

Gasoline may, in addition to the tank cars prescribed in § 146.21–100, also be accepted in tank cars specifications Emergency USG–A, USG–B and USG–C.

§ 146.28–8 Additional containers for gasoline.

Gasoline shipments offered by or consigned to the Army and Navy Departments of the United States Government or governments of any country whose defense is deemed vital to the defense of the United States may, in addition to the containers authorized in § 146.21–100, also be accepted in metal barrels or drums (ICC–5L).

§ 146.28–13 Additional type tank cars for inflammable liquids.

Inflammable liquids weighing not over 8 pounds per gallon and having vapor pressure not exceeding 16 pounds per square inch, absolute, at 100 degrees F., may in addition to the tank cars prescribed in § 146.21–100 also be accepted in tank cars specifications emergency USG–A, USG–B and USG–C.

§ 146.28–14 Additional containers for inflammable liquids.

Inflammable liquids permitted by the provisions of § 146.21–100 for transportation on board vessels when packed in fiberboard boxes with inside containers (ICC–12B) may also be accepted on board vessels when packed in fiberboard boxes with inside containers (ICC–12D).

§ 146.28–15 Additional containers for rubber cement.

Rubber cement not containing any carbon bisulfide may be accepted for transportation on board vessels when packed in wooden barrels or kegs (ICC–10A).

§ 146.28–17 Additional containers for chromic acid solution.

Chromic acid solution may be accepted for transportation on board vessels when packed in (ICC–12B) fiberboard boxes with one inside glass container of capacity not over 4 fluid ounces in a wax lined cylindrical fiber carton and surrounded with asbestos.

§ 146.28–20 Additional containers for methyl bromide, liquid.

Methyl bromide, liquid, may be accepted for transportation on board vessels when packed in (ICC–5A) metal drums not to exceed 30 gallons capacity.

§ 146.28–21 Additional containers for poisonous liquids.

Poisonous liquids other than such liquids for which special requirements are prescribed by the Interstate Commerce Commission regulations may be accepted for transportation on board vessels when packed in (ICC–12D) fiberboard boxes WIC not more than 75 pounds gross weight or not containing more than 4 inside containers of a capacity greater than 5 pints each.

§ 146.28–22 Increase of weight limitation for Class B poisonous solids.

Class B poisonous solids other than such poisonous solids for which special requirements are prescribed may be accepted for transportation on board vessels when packed in metal drums (ICC–17E, 17H, and 37D) having a gross weight not over 375 pounds in lieu of 300 pounds now specified.

[CGFR 52–8, 17 F.R. 6548, July 17, 1952]

Subpart 146.29—Detailed Regulations Governing the Transportation of Military Explosives and Hazardous Munitions on Board Vessels

SOURCE: The provisions of this Subpart 146.29 contained in CGFR 62–11, 27 F.R. 5287, June 5, 1962 unless otherwise noted.

§ 146.29–1 Effective date.

The regulations in this subpart will become effective on and after July 1, 1962.

§ 146.29–3 Scope.

(a) The provisions of the regulations contained in this subpart apply to the transportation of military explosives and hazardous munitions, as cargo, on board all vessels that are subject to the regulations in this part. (See § 146.02–2.)

(b) Commercial shipments of explosives and other dangerous or hazardous articles shall be tendered and transported in compliance with the applicable provisions of the regulations contained in the other subparts of this part.

(c) Where reference is made to other dangerous articles in this subpart, the regulations contained in §§ 146.02–1 to 146.27–100, inclusive, are applicable except as noted in § 146.29–5.

§ 146.29–5 Regulations not applicable.

Sections 146.02–11, 146.02–21, 146.03–3, 146.06–9, 146.09–1 to 146.09–6, inclusive, 146.10–6(b), 146.20–15 to 146.20–51, inclusive, 146.20–85, 146.20–87, 146.20–90, 146.20–100 to 146.20–300, inclusive, 146.23–25 (a), (b), 146.24–55, the entries "Chemical ammunition containing Class 'A' poisons, liquids or gases," "chemical ammunition containing Class 'B' poisons, liquids or gases," and "chemical ammunition containing Class 'C' liquids, gases or solids" appearing in §§ 146.25–100, 146.25–200, and 146.25–300; 146.27–5 to 146.27–20, 146.27–30, inclusive, and 146.27–100 are hereby declared inapplicable to the transportation of military explosives.

[CGFR 65–17, 30 F.R. 7444, June 5, 1965]

§ 146.29–7 Port security regulations.

The applicable provisions of 33 CFR Parts 6, and 121 to 126, inclusive, shall, unless specifically authorized to the contrary by any provision of this subpart, be complied with by vessels, masters, agents, or charterers thereof and by all persons engaged in handling, loading, stowing or unloading explosives.

§ 146.29–9 Import shipments.

Import shipments of military explosives shall be made in accordance with the provisions of the regulations in this subpart.

§ 146.29–11 Definitions and abbreviations.

For the purpose of the regulations in this subpart, certain words, phrases, and abbreviations are defined as follows:

(a) *Military explosives.* Military explosives for the purpose of this subpart consist of all Interstate Commerce Commission's Classes A, B, and C explosives as defined below shipped by, for, or to the Departments of the Army, Navy, or Air Force of the United States or similar types of explosives shipped by, for, or to the government of any country whose defense is deemed vital to the defense of the United States. However, this definition shall not include those explosives shipped by, for, or to the Corps of Engineers, Department of the Army, for use in river and harbor works or other works under permits issued by that Agency, in which case the regulations in this part pertaining to commercial explosives shall apply. Military explosives are divided into two classes, as follows:

(1) *Ammunition.* Ammunition consists of all types of projectiles, cartridges, grenades, bombs, mines, torpedoes, torpedo warheads, propellant powder charges, pyrotechnics, rockets, missiles, special weapons, chemical, smoke or incendiary ammunition, or other "made up" explosive devices that are utilized by the armed forces in the prosecution of a war.

(2) *Explosives in bulk.* Explosives in bulk consist of any high explosives, black powder, and low explosives or propellant explosives in accordance with the definitions in §§ 146.20–1, 146.20–7, and 146.20–9, when such substances are shipped in containers other than containers such as bombs, grenades, mines, torpedoes, powder bags in individual containers, cartridges, projectiles, fuzes, detonators, caps, primers, and similar "made up" ammunition devices.

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(b) *Hazardous munitions.* Hazardous munitions for the purpose of these regulations are those dangerous articles used as oxidizers or fuels for missile propulsive systems. Such fuels and oxidizers are listed in Tables XI–C and XI–D and will be stowed and handled in accordance with these tables when shipped with military explosives. When shipment is made on a vessel not carrying military explosives, the hazardous munitions may be shipped under the regulations contained in 46 CFR 146.20 through 146.27.

(c) *Related terms*—(1) *Adjacent hold; hold adjacent.* Any hold which has as one of its boundaries a permancnt steel bulkhead that is common, either partially or in its entirety, to another hold shall be termed "adjacent hold" or "hold adjacent" to the focal hold. This shall not be construed as meaning a hold above or a hold below said hold nor shall it include a hold that is situated diagonally from said hold and has only a corner as a common boundary.

(2) *Any hold above.* "Any hold above" shall mean any hold that is partially or entirely in the same vertical plane over another hold even though there may be a hold or holds intervening.

(3) *Any hold below.* "Any hold below" shall mean any hold that is partially or entirely in the same vertical plane under another hold even though there may be a hold or holds intervening.

(4) *Ammunition for cannon.* Ammunition for cannon is fixed, semi-fixed or separate loading ammunition which is fired from a cannon, mortar, gun, howitzer or recoilless rifle.

(5) *Ammunition for cannon with empty projectiles, inert-loaded projectiles, solid projectiles or without projectiles, and catapult charges exceeding 2 inches in diameter.* Ammunition for cannon with empty projectiles, inert-loaded projectiles, solid projectiles or without projectiles, and catapult charges exceeding 2 inches in diameter, is fixed ammunition assembled in a unit consisting of the cartridge case containing the propelling charge and primer with empty, inert-loaded, or solid projectiles, or without projectiles, which is fired from a cannon, mortar, gun, howitzer, or recoilless rifle.

(6) *Ammunition for cannon with projectiles.* Ammunition for cannon with explosive projectiles, gas projectiles, smoke projectiles, incendiary projectiles or illuminating projectiles is fixed ammunition assembled in a unit consisting of the cartridge case containing the propelling charge and primer, and the projectiles, fuzed or unfuzed.

(7) *Ammunition for small arms with explosive bullets or explosive projectiles.* Ammunition for small arms with explosive bullets or ammunition for small arms with explosive projectiles is fixed ammunition to be used in machine guns or similar fire arms and consists of a metallic cartridge case, the primer and the propelling charge, with explosive bullet or explosive projectile with or without detonating fuze, the component parts necessary for one firing being all in one assembly.

(8) *Boosters, bursters and supplementary charges.* Boosters and supplementary charges consist of a casing containing a high explosive and are used to increase the intensity of explosion of the detonator of a detonating fuze. Bursters consist of a casing containing a high explosive and are used to rupture a projectile or bomb to permit release of its contents.

(9) *Cargo hold.* A cargo hold is a space allotted entirely to the carriage of cargo and is bounded by permanent steel bulkheads, decks and the shell of the vessel; the deck openings being provided with means of effectively closing the hold against the weather, and in the case of superimposed holds, effectively closing off each hold.

(10) *Cargo net.* A cargo net is a net made of fiber or wire rope and used as a means of handling loose or package cargo to and from the hold of a vessel.

(11) *Chemical ammunition.* Chemical ammunition used in warfare is all kinds of explosive chemical projectiles, bombs, grenades, mines, etc., loaded with toxic, tear, or other gas, smoke or incendiary agent, also such miscellaneous apparatus as cloud-gas cylinders, smoke generators, etc., that may be utilized to project chemicals.

(12) *Compartment.* A compartment is any space formed by permanent steel bulkheads and the ship's side and decks. The limits of a compartment are determined by the integrity of the bulkheads, shell or decks forming its boundaries. Access openings fitted with doors, hatch covers (steel or wood) or bolted plates are accepted as preserving the integrity of deck, bulkhead or shell.

(13) *Complete round.* A complete round of "cannon ammunition," "artillery ammunition" or "gun ammunition" includes ammunition used in cannon or gun of caliber .75 in. and above. It includes complete round with components. The complete round comprises all of the components necessary to fire the cannon or gun once. These components are, in general, the projectile, fuze, propelling charge and primer. Depending upon both the type of propelling charge and method of loading the required components into the weapon, complete rounds of "cannon ammunition," "artillery ammunition" or "gun ammunition" are described as fixed, semifixed, separated or separate loading ammunition.

(14) *Definitions of other dangerous articles.* For definitions of:

(i) Inflammable liquids, see § 146.21–1.

(ii) Inflammable solids and oxidizing materials, see § 146.22–1.

(iii) Corrosive liquids, see § 146.23–1.

(iv) Compressed gases, see § 146.24–1.

(v) Poisons, Class A, see § 146.25–5; Class B, see § 146.25–10; Class C, see § 146.25–15; Class D, see § 146.25–20.

(vi) Combustible liquids, see § 146.26–1.

(vii) Hazardous articles, see § 146.27–1.

(15) *Detonating fuzes.* (i) Detonating fuzes, Class A are used in the military service to detonate the high explosive bursting charges of projectiles, mines, bombs, torpedoes, and grenades. In addition to a powerful detonator, they may contain several ounces of a high explosive, such as tetryl or dry nitrocellulose, all assembled in a heavy steel envelope. They may also contain a small amount of radioactive component.

(ii) Detonating fuzes, Class C are those that are so made and packed that they will not cause functioning of other fuzes, explosives, or explosive devices in the same or adjacent containers.

(16) *Division bulkhead.* (i) When part of a compartment or hold is utilized for the stowage of military explosives, the remaining portion of such compartment or hold may be utilized for the stowage of general cargo provided a temporary wooden bulkhead is constructed in the compartment or hold to completely divide and protect the stowage of military explosives from the general cargo. The scantlings and construction of such bulkheads shall be as follows: For tween deck compartments or holds construction shall be of commercial 2-inch boarding, secured on 4" x 6" uprights spaced not to exceed 30 inches center to center. For lower holds construction shall be of commercial 2-inch boarding secured on 6" x 6" uprights, spaced not more than 24 inches center to center. Random widths of boarding may be used. The boarding shall be close fitted edge to edge and butt to butt to form a smooth surface facing the explosive stowage. Nails shall not protrude beyond the surface of the boarding.

(17) *Dunnage.* Lumber of not less than 1-inch commercial thickness laid over tank tops, decks or against bulkheads, frames, plating, ladders, etc., or used for filling up voids, or fitted around the cargo for the purpose of preventing damage during transportation.

(18) *Explosive bombs.* Explosive bombs are metal or other containers filled with explosives. They are used in warfare and include aeroplane bombs and depth bombs.

(19) *Explosive mines.* Explosive mines are metal or other containers filled with a high explosive.

(20) *Explosive projectiles.* Explosive projectiles are projectiles, guided missiles with warheads, warheads, or rocket heads, loaded with explosives or bursting charges, with or without other materials, for use in cannons, guns, tubes, mortars, or other firing or launching devices.

(21) *Explosive torpedoes.* Explosive torpedoes, such as are used in warfare, are metal devices containing a means of propulsion and a quantity of high explosives.

(22) *Fixed ammunition.* Fixed ammunition describes "cannon ammunition," "artillery ammunition" or "gun ammunition" of the type comprising a cartridge case with primer, a propellant charge and a projectile (fuzed or unfuzed) all of these components being assembled as a unit for one firing.

(23) *Grenades.* Grenades, hand or rifle, are small metal or other containers designed to be thrown by hand or projected from a rifle. They are filled with an explosive or a liquid, gas or solid material such as a toxic or tear gas or an incendiary or smoke producing material and a bursting charge.

(24) *Hatch.* An opening in the weather deck and all decks below in the same vertical plane through which cargo, etc., is passed. This term is also used in the regulations in this subpart to designate the entire series of holds served through one weather deck hatch.

(25) *Igniters.* Igniters consist of fiberboard, plastic, paper or metal tubes containing a small quantity of igniting

compound which is ignited by the action of a primer, pull wire or scratch composition.

(26) *Jet thrust units (jato), explosive (Class A), or igniters jet thrust (jato), explosive (Class A).* Jet thrust units (jato), explosive (Class A), are metal cylinders containing a mixture of chemicals capable of burning rapidly and producing considerable pressure. Under certain conditions the chemical fuel with which the unit is loaded may explode. Jet thrust units are designed to be ignited by an electric igniter. They are used to assist aeroplanes to take off, to propel large missiles and to drive moving targets for practice firing. Igniters jet thrust (jato), explosive (Class A), are devices consisting of an electrically operated or remotely controlled igniting element and a fast-burning composition assembled in a unit for use in igniting the propelling charge of jet thrust units. Under certain conditions the burning composition may explode.

(27) *Jet thrust units (jato), Class B.* Jet thrust units (jato), Class B are metal cylinders containing a mixture of chemicals capable of burning rapidly and producing considerable pressure. Jet thrust units are designed to be ignited by an electric igniter. They are used to assist aeroplanes to take off, to propel large missiles, and to drive moving targets for practice firing.

(i) Igniters, jet thrust (jato), Class B, are devices consisting of an electrically operated or remotely controlled igniting element and a fast-burning composition assembled in a unit for use in igniting the propelling charge of jet thrust units.

(ii) Starter cartridges, jet engine, consist of plastic and/or rubber cases, each containing a propellant explosive and having in the top of the case a small plastic compartment that encloses an electric squib and small amounts of black powder, which constitute an igniter. The starter cartridge is used to activate a mechanical starter for jet engines.

(28) *On deck.* "On deck" means that that article may be stowed on the open weather deck of the vessel.

(29) *Overstow.* The term "overstow" as used in these regulations shall mean to stow directly over.

(30) *Pallet.* A pallet is a tray so designed as to be picked up by a fork truck or similar cargo handling equipment. Pallets are not usually equipped with sideboards.

(31) *Palletized unit.* Individual packages or unpackaged items stowed in a compact mass upon a pallet or skids and banded together and to the pallet or skids by metal straps to form a unit consisting of pallet and packages.

(32) *Partition bulkhead.* A partition bulkhead is a temporary bulkhead constructed of commercial 1-inch lumber of widths not less than 4 inches, secured alternately on both sides of the uprights and spaced not more than 6 inches apart. The uprights are at least 2'' x 4'' size, spaced not more than 30 inches apart.

(33) *Percussion fuzes, combination fuzes, and time fuzes.* Percussion fuzes, combination fuzes, and time fuzes are devices designed to ignite powder charges of ammunition or to initiate an intermediate charge (booster) in projectiles, bombs, etc. When such fuzes are assembled with booster charges they are properly described as "detonating fuzes."

(34) *Permitted explosives.* Permitted expolsives as used in § 146.29-100 shall mean explosives that have compatibility in accordance with the admixture charts in § 146.29-99.

(35) *Pieplate.* A pieplate is the term generally applied to a round, oval or hexagonal tray without sideboards.

(36) *Primers.* Primers are devices used to ignite the powder charges of ammunition. For small-arms ammunition, the primers are "small-arms primers" or "percussion caps."

(37) *Propellant explosives, solid, Class A.* Propellant explosives, Class A, are solid chemicals or solid chemical mixtures which are designed to function by rapid combustion of successive layers, generally with little or no smoke. The combustion is controlled by composition, size, and form of grain. Propellant explosives, Class A, include some types of smokeless powder for small arms and some types of solid propellant explosives for jet thrust units, rockets, or other devices. Any propellant explosive is Class A which detonates in any one out of five trials when tested in the packages in which it is offered for transportation. In conducting the test, one propellant container shall be surrounded by inert loaded containers of the same weight, including one inert container placed on top of the propellant container. The propellant shall be ignited by means of a commercial electric squib placed within 4 inches of the bottom of the container. The presence of a crater and absence of flame shall be considered as evidences of detonation.

(38) *Propellant explosives, solid, Class B.* Propellant explosives, Class B, are solid chemicals or solid chemical mixtures which function by rapid combustion of successive layers, generally with little or no smoke. The combustion is controlled by composition, size, and form of grain. Any propellant explosive is Class B which fails to detonate in five trials when tested in the packages in which it is offered for shipment. (See (37) for test.) Propellant explosives, Class B, include smokeless powder for cannon, smokeless powder or solid propellant explosives for rockets, jet thrust units, or other devices. Black powder is not include in this classification.

(39) *Rocket ammunition.* Rocket ammunition is fixed ammunition which is fired from a tube, launcher, rails, trough, or other device as distinguished from cannon ammunition which is fired from a cannon, gun, or mortar.

(40) *Semifixed ammunition (Army).* Complete rounds composed of a projectile (fuzed) and a cartridge case with a primer and propellant charge which is in a cloth bag or bags of small size. The base of the projectile fits free in the neck of the cartridge case and may be readily detached from the cartridge case. The round is loaded into the cannon with the projectile assembled to the cartridge case and is handled similarly to fixed ammunition in loading. It may be packed with the projectile disassembled from the cartridge case containing the propellant. The projectile is usually assembled loosely in the cartridge case and is packed in the same individual container.

(41) *Semifixed ammunition (Navy).* Semifixed ammunition is ammunition in which the primer and the propellant charge are firmly secured in the cartridge case with the projectile separate from the cartridge case. The propellant charge is loaded loosely in the cartridge case, differing in this respect from that of the Army which is loaded in a bag. The end of the cartridge case is sealed with a prepared plug or disc which is fired with the powder and is usually shipped stowed in a metal tank. The projectile is shipped separate. The U.S. Army may refer to this ammunition as separate loading ammunition.

(42) *Separate loading ammunition.* Complete rounds in which the separate components—projectile, propellant charge and primer—are loaded into the cannon or gun separately are known as "separate loading ammunition." Although the propellant charge may be in one section, it is usually divided into parts with each part assembled in a bag packed in outside shipping containers which may be of wood, fiber, or metal.

(43) *Separated ammunition.* In this type of ammunition, the propellant is sealed in a metal cartridge case into which a primer is fitted and this assembly is called a propelling charge. It is separate from the projectile with which it is used but the projectile and the propelling charge are loaded into the weapon in one operation. Separated ammunition is generally used in medium caliber antiaircraft and antitank guns.

(44) *Shelter deck space.* A shelter deck space is a space available for cargo situated above the uppermost complete continuous deck (main deck) and the deck next above. Normally this space contains no permanent watertight transverse bulkheads except at its forward and aft extremities.

(45) *Shoring.* Shoring is a method of securing cargo against movement sidewise or downward. In this subpart it describes the use of timbers fitted vertically or at an angle to the side of the stowage. It may also describe the use of timber to support a stowage from moving downward.

(46) *Skipboard.* A skipboard is the term generally applied to a rectangular or square tray without sideboards.

(47) *Small-arms ammunition.* Small-arms ammunition is fixed ammunition consisting of a metallic, plastic composition or paper cartridge case, a primer, and a propelling charge, with or without bullet, shot, tear gas material, tracer components, or incendiary compositions or mixtures, but not including bullets loaded with high explosives, and is further limited to the following:

(i) Ammunition designed to be fired from a pistol, revolver, rifle, or shotgun held by the hand or to the shoulder.

(ii) Ammunition of caliber less than .75 (inch) or 19.05 mm, designed to be fired from machine guns.

(iii) Blank cartridges including canopy remover cartridges, starter cartridges, and seat ejector cartridges, containing not more than 500 grains of propellant powder.

(48) *Special fireworks.* Special fireworks are manufactured articles designed primarily for the purpose of pro-

ducing visible or audible pyrotechnic effects by combustion or explosion. Examples are toy torpedoes, railway torpedoes, some firecrackers and salutes, exhibition display pieces, aeroplane flares, illuminating projectiles, incendiary projectiles or incendiary bombs and smoke projectiles or smoke bombs fuzed or unfuzed and containing expelling charges but without bursting charges, hand or rifle grenades with ignition elements but not containing bursting charges, flash powders in inner units not exceeding 2 ounces each, flash sheets in interior packages, flash powder or spreader cartridges containing not over 72 grains of flash powder each and flash cartridges consisting of a paper cartridge shell, small-arms primer, and flash composition, not exceeding 180 grains all assembled in one piece. Fireworks must be in a finished state, exclusive of mere ornamentation, as supplied to the retail trade and must be so constructed and packed that loose pyrotechnic composition will not be present in packages in transportation.

(49) *The hold above.* "The hold above" shall be a hold immediately above another hold having its deck, either partially or in its entirety, common to the overhead of the hold below.

(50) *The hold below.* "The hold below" shall be a hold immediately below another hold having its overhead, either partially or in its entirety, common to the deck of the hold above.

(51) *Tomming.* Tomming is a method of securing cargo against displacement of movement upwardly.

(52) *Tray.* A tray is any flat group of boards securely fastened to bearers in order to provide a level surface for the loading of cargo. Trays are given various names, those applied in some ports differing from those in other ports, according to (i) shape, (ii) method of securing to cargo handling gear, or (iii) use or lack of sideboards in conjunction with the tray.

(53) *Tracer fuzes and tracers.* Tracer fuzes and tracers are devices which are attached to projectiles and contain a slow-burning composition to show the flight of projectiles at night.

(54) *Tween deck height.* (i) For the purpose of load calculations the height of a tween deck is ascertained by measuring the distance from the heel of the overhead deck beam to the heel of the underdeck beam. (The thickness of the plating forming the deck is not deducted from the height.)

(ii) For height of a tween-deck affected by the sheer of a deck measure as above at both the forward and after ends of the hold and divide the sum of these heights by two.

(55) *Tween deck hold.* A tween deck hold is a space located between the weather deck and the lower hold.

(56) *Type "A" dunnage floor.* A type "A" dunnage floor shall be constructed of two layers of commercial 1-inch dunnage of widths not less than 4 inches fitted as close as possible, edge to edge, and butt to butt, the top course being laid crosswise to the lower course, or of a single layer of 2-inch lumber of widths not less than 6 inches fitted as close as possible edge to edge, and butt to butt.

(57) *Type "B" dunnage floor.* A type "B" dunnage floor shall be constructed of one layer of commercial 1-inch thick dunnage of widths not less than 4 inches fitted as close as possible, edge to edge, and butt to butt.

(58) *Van.* A van is a cargo carrying body other than a tank container which may be designed and constructed to be removed from a chassis or wheels for water transportation. Containers such as "conex" or "dravo" boxes are considered as being a part of this category. They are loaded and discharged by either a "lift-on lift-off" or "roll-on roll-off" method. Military explosives, permitted to be transported in vans, are limited to permitted explosives of Coast Guard Classes I and II, with the exception of Class II–J.

(d) *Abbreviations.*

AA	Antiaircraft.
AAC	Antiaircraft common.
AA Com	Antiaircraft common.
AC	Aircraft cannon.
AC	Hydrocyanic acid.
A.C.E.I.S	Aircraft emergency identification signals.
A.D.F	Auxiliary detonating fuze.
AIC	Ammunition identification code (Army).
ALN	Ammunition lot number.
Amm	Ammunition.
Ammo	Ammunition.
AP	Armor-piercing.
APC	Armor-piercing capped.
APT	Armor-piercing tracer.
ASSEM	Assembled.
AT	Anti-tank.
Aux	Auxiliary.
Aux Det	Auxiliary detonating fuze.
BBC	Bromobenzylcyanide (tear gas).
BC	Bursting charge.

BD	Base detonating.
BDF	Base detonating fuze.
BL and P	Blind loaded and plugged.
BL and T	Blind loaded and tracer.
BP	Black powder.
BUWEPS	Bureau of Weapons.
BUR CHG	Bursting charge.
CAL	Caliber.
CCIP	Case combination ignition primer.
CHG	Charge.
CG	Phosgene.
CK	Cyanogen chloride.
CL	Chlorine.
Cml–C	Chemical Corps.
CNS	Chloracetophenone solution (tear gas).
COM	Common.
Comp A	RDX-War explosive.
Comp B	RDX–TNT explosive.
Comp C	Plastic type RDX explosive.
Cor. L	Corrosive Liquid.
CPI	Case percussion igniter.
CPP	Case percussion primer.
CT–TNT	Case TNT.
D	Explosive "D" (ammonium picrate).
DA	Diphenylchlor arsine.
DC	Depth charge.
DDR	Dummy drill.
DEMO	Demolition.
DM	Adamsite (sneeze gas).
DP	Diphosgene.
EX	Experimental.
EXP	Expellant or explosive.
EXP "D"	Explosive "D".
F	Fuze.
FC	Full charge.
FFAR	Folding fin aircraft rocket.
FFFG	Fine fine fine grain (black powder).
FFG	Fine fine grain (black powder).
FG	Fine grain (black powder).
F.G	Flammable compressed gas.
F.L	Flammable liquid.
FM	FM smoke mix (titanium tetrachloride).
FNH	Flashless, nonhygroscopic.
FP	Flashless pellets.
FRAG	Fragmentation.
FS	FS smoke mix (sulfur trioxide).
F.S	Flammable solid.
GB	Isopropyl methylphosphonofluoridate (nerve gas).
GP	General purpose.
H	Mustard gas.
HBX, H6	RDX–TNT–AL type explosive.
HC	Hexachlorethane mixture (smoke).
HC	High capacity.
HD	Distilled mustard.
HE	High explosive.
HEAT	High explosive antitank.
HEI	High explosive incendiary.
HEIT	High explosive incendiary tracer.
HET	High explosive tracer.
HMX	Cyclotetramethylenetrinitramine.
HN	Nitrogen mustard gas.
HPAG	High performance air to ground (rocket).
HVAR	High velocity aircraft rocket.
ICC	Interstate Commerce Commission.
ILLUM	Illuminating.
IM	Thickened gasoline.
IN	Inert.
INCEND	Incendiary.
L	Lewisite.
LC	Light case.
LE	Low explosive.
L and F	Loaded and fuzed.
L and P	Loaded and plugged.
M	Model (Army).
Maj Cal	Major caliber.
MCBD	Major caliber base detonating.
MG	Magnesium.
MIN CAL	Minor caliber.
MK	Mark.
MM	Millimeter.
Mod	Modification.
MTF	Mechanical time fuze.
NC	Nitrocellulose.
NF	Nose fuze.
NH	Non-hygroscopic.
Nonf. G	Nonflammable compressed gas.
NP	Thickened gasoline.
O/H	Overhauled.
ORD	Ordnance.
Oxy M	Oxidizing material.
PD	Point detonating.
PDF	Point detonating fuze.
PENT	Pentolite.
PERC	Percussion.
Pois. A	Poison gas or liquid, Class A.
Pois. B	Poison liquid or solid, Class B.
Pois. C	Tear gas, Class C.
Pois. D	Radioactive material, Class D.
PRAC	Practice.
PRI	Primer.
PROJ	Projectile.
PS	Chlorpicrin.
PT	Thickened fuel.
PWP	Plasticized white phosphorus.
RD	Round.
RDX	Cyclotrimethylenetrinitramine (cyclonite).
SA	Small arms.
SAP	Semi-armor piercing.
SCAR	Sub-caliber aircraft rocket.
SEIS	Ship's emergency identification signals.
SF	Semi-fixed.
SQ	Super quick.
T	Tentative model designation.
TET	Tetryl (trinitrophenylmethylnitramine).
TF	Time fuze.
TH	Thermate or Thermite.
TNT	Trinitrotoluene.
TPX	Torpex.

VT ---------- Variable time (Proximity) (VT).
w ---------- with.
w/o ---------- without.
WP ---------- White phosphorous.

§ 146.29–13 Permit for handling military explosives.

(a) Shipments of military explosives and military lethal chemicals except material covered in § 146.29–100 as Coast Guard Class I shall not be laden on nor discharged from any vessel at any port or place in the United States, its territories or possessions (not including the Panama Canal Zone) until authorization has been obtained by the owner, agent, charterer, master, or person in charge of the vessel from the District Commander of the U.S. Coast Guard, Captain of the Port, or other officer designated by the District Commander.

(b) Before a permit is issued authorizing the loading or discharging of military explosives or military lethal chemicals in accordance with paragraph (a) of this section, the permittee shall file a written application for a permit authorizing the loading or discharging. When filed, the application for loading shall be accompanied by a preliminary manifest of all explosives or other dangerous articles comprising the cargo of the vessel together with a preliminary cargo stowage plan showing the proposed stowage of all such cargo. Changes in final stowage from that shown in the preliminary cargo stowage plan may be made upon approval of the issuing officer.

§ 146.29–15 Authority to load, handle or discharge; facilities and use.

(a) Military explosives, except material covered in § 146.29–100 as Coast Guard Class I, shall not be handled, stowed, stored, loaded on, or discharged from a vessel except at one of the following:

(1) Explosives anchorages; areas upon the navigable waters that are designated explosives anchorages under the applicable provisions of 33 CFR Part 202 (Anchorage Regulations) within which a vessel may anchor or moor to handle, stow, store, load, or discharge explosives as cargo.

(2) Waterfront facilities approved by the Captain of the Port or District Commander as explosives loading piers, which should be located in isolated areas, to which a vessel may moor to handle, stow, store, load, or discharge military explosives as cargo.

(3) Waterfront facilities approved by the Captain of the Port or District Commander as ammunition loading piers to which a vessel may moor to handle, stow, store, load, or discharge ammunition as cargo except the following classes: II–A, IX–A, IX–B, IX–C, X–A, X–B, X–C, X–D, XI–A, XI–B, XI–C, and XI–D.

(4) The Captain of the Port or District Commander may designate a temporary location for a specific loading of Classes XI–A, XI–B, XI–C and XI–D ammunition.

(b) A vessel, subject to the regulations in this part, may load or discharge military explosives at any Army or Navy depot, arsenal, navy yard, port of embarkation or other facility under the direct control and operation of the Navy, or Army, provided a permit authorizing such loading has been granted to the vessel owner, agent, charterer, master, or person in charge of the vessel by the Captain of the Port. (See §§ 146.29–19 and 146.29–21.)

(c) In an emergency arising by reason of military necessity or casualty, a vessel may upon authorization by a Captain of the Port, load or discharge military explosives in any location authorized by said Captain of the Port.

§ 146.29–17 Prohibited explosives.

(a) Explosives prohibited by subsection 3 of R.S. 4472, as amended (46 U.S.C. 170) (fulminates or other detonating compounds in bulk in dry condition, or explosive compositions that ignite spontaneously or undergo marked decomposition when subjected for 48 consecutive hours to a temperature of 167 degrees Fahrenheit, or compositions containing an ammonium salt and a chlorate, or other like explosives) shall not be accepted by any vessel.

(b) A passenger vessel shall not accept any Class A or Class B military explosives for transportation as cargo.

§ 146.29–19 Explosives loading supervisory detail.

(a) There may be assigned to every vessel, subject to the regulations in this part, loading, handling, or discharging military explosives at an explosives anchorage or waterfront facility as may be approved by the Captain of the Port or the District Commander for the loading or unloading of military explosives, a Coast Guard detail to supervise such loading, handling or discharging. The owners, agents, charterers, masters or

persons in charge of the vessel and all persons engaged in the handling, loading and stowage of the military explosives shall obey all orders, oral or written, that are given by the person in charge of such assigned detail.

(b) A vessel, subject to the regulations in this part, loading, handling, or discharging military explosives except material covered in § 146.29–100 as Coast Guard Class I at a Navy or Army depot, arsenal, navy yard, port of embarkation or other facility under the direct control and operation of the Navy or Army shall apply to the Captain of the Port for a permit for such loading, handling or discharging. A Coast Guard detail may be assigned to such a vessel unless the Commanding Officer of such Navy or Army facility declines the detail.

§ 146.29–21 Personnel identification.

The provisions of this section shall apply to vessels loading, handling or discharging military explosives in accordance with the provisions of § 146.29–19 (a).

(a) No person shall enter upon a vessel loading, handling, or discharging military explosives unless such person first identifies himself to the satisfaction of the Coast Guard detail.

(b) Every person who is permitted to enter into a magazine or a hold or compartment of a vessel wherein military explosives are being handled or stowed shall provide the Coast Guard representative with his name and address and the name and address of the firm employing him, furnishing satisfactory identification to substantiate such information.

(c) A person who, for any reason, is requested to leave a vessel loading, handling or discharging military explosives by the person in charge of the Coast Guard detail shall immediately obey the request and not return until permission is granted.

§ 146.29–23 Ship's officer present.

(a) During the entire operation involving the building of a magazine, the preparation of holds, and the actual handling and stowage of military explosives, it shall be the responsibility of the master of the vessel to assign a deck officer of the vessel who shall be in constant attendance. It shall be these officers' responsibility to see that the provisions of the regulations in this part insofar as such provisions apply to the vessel, are complied with.

(b) It shall be these officers' further responsibility at the end of the work shift to see that all means of access to the partially loaded holds are closed off in such a manner as to provide the maximum safety and protection for the explosives stowed within the hold.

§ 146.29–25 Fires and fire protection.

(a) No unnecessary fire shall be permitted on a dock, lighter, or vessel while loading, handling, or discharging military explosives.

(b) Every fire deemed necessary must be properly safeguarded and for the entire period of cargo transfer shall be in constant charge of a competent person assigned for that purpose by the master or by the person in charge of the vessel or by the person in charge of the dock.

(c)(1) Every vessel engaged in the handling and transfer of military explosives and equipped with means for power, heating, cooking, or lighting involving use of smoke pipes or stacks shall have such smoke pipes and/or stacks protected by spark screens. For the purpose of screening smoke pipes, vessels shall be divided into two categories. Large or ocean vessels shall have their main smoke pipes protected by corrosion resistant screens of not larger than ½-inch mesh and small or inland vessels and small or auxiliary smoke pipes on large vessels by screens not larger than ¼-inch mesh.

(2) Insofar as practicable, unless the barge, lighter, etc. is loading or discharging military explosives to or from the vessel, barges, lighters, towboats, and other types of vessels shall not come alongside a vessel handling, stowing, storing, loading, discharging or transporting milltary explosives opposite the area where hatches serving a hold containing explosives are open. (See § 146.–29–73(f).)

(3) This paragraph is not applicable to vessels transiting main channels contiguous to explosives loading facilities or anchorages.

(4) Vessels loading or unloading Class I ammunition at waterfront facilities not designated by the Captain of the Port as explosives loading piers do not require screening of smoke pipes and/or stacks.

(d) Welding or cutting operations involving the use of open flames or arc

shall not be undertaken on a vessel having military explosives on board as cargo, except in case of an emergency affecting the security of a vessel, or for the purpose of welding pad eyes, angle bars or other devices to the deck for securing deck cargo. Such welding or cutting shall be done only on special permission of the Captain of the Port, and then only in the presence of an officer of the Coast Guard detail and in conformity with said officer's instructions.

(e) The cleaning of fireside of boilers shall not be undertaken on a vessel while at an explosives or ammunition loading facility or anchorage except upon express permission of the Captain of the Port.

(f) All tubes and uptakes of the vessel must be thoroughly swept or blown and reasonably free of soot prior to the arrival of the vessel at an explosives or ammunition loading facility or anchorage. A vessel at an explosives ammunition loading facility or anchorage shall not blow tubes or uptakes except upon permission of the Captain of the Port and then the operation shall be under the supervision of the master or person in charge of the vessel with a licensed engineer in attendance.

(g) Bunkering of a vessel shall not be done while the vessel is at an explosives loading or ammunition loading waterfront facility. When at an anchorage, an explosives laden vessel may engage in bunkering operations provided explosives are not being loaded, handled, or discharged, and all holds in which explosives are stowed are secured.

(h) A vessel at an explosives or ammunition loading facility or anchorage shall not transfer fuel oil between its own fuel oil storage tanks or from its storage tanks to the settling tank, except under the close supervision of a licensed engineer who shall be in constant attendance until the operation is completed.

(j) The transfer of lubricating oils and cleaning oils, either from containers on board the vessel or by pipeline or hose shall be prohibited at an explosives or ammunition loading facility. However, the transfer on board the vessel of galley fuel oil may be authorized by the Captain of the Port when the galley stove is cold, or when the vessel is equipped with an overflow system which returns surplus fuel oil from the galley tanks back into the main storage tanks provided such transfer is under the supervision of the master or person in charge of the vessel with a licensed engineer in attendance.

(k) The fueling of powered lifeboats or units of the vessel's machinery shall not be done while the vessel is at an explosives or ammunition loading facility.

(l) Boiler room and engine room bilges must be clean and free of oil or unnecessary residue before the vessel proceeds to an explosives or ammunition loading facility or anchorage, and it is further required that the bilges be maintained in this condition during the entire time the vessel is moored at the explosives or ammunition loading facility or anchorage. Attention is invited to the provisions of the Oil Pollution Acts of 1924 and 1961, and the Refuse Act, 1899, which prohibit the discharge of oil into the navigable waters of the United States. The term "oil" means oil of any kind or in any form, including fuel oil, oil sludge, and oil refuse.

(m) On every vessel located at explosives loading facility or anchorage or ammunition loading facility no work shall be undertaken on the main propulsion machinery, auxiliaries or boilers that will render inoperative fire pumps, electric power or propulsion of the vessel without express authority of the Captain of the Port. When the repairs authorized make inoperative the main propulsion unit an auxiliary tug shall stand by.

(n)(1) Every self-propelled vessel having on board military explosives shall at all times maintain means of propulsion. When not under way, such a vessel shall have available on deck, fore and aft, hawsers capable of being used for emergency towing. The eye of such hawser shall be clear of the chock with messenger attached and ready to run and the ship's end shall be stopped off on the bitts to permit reasonable scope of hawser for towing. A heaving line made up and secured to the rail by rope yarn shall be bent to the messenger. Fire axes shall be kept conveniently at hand, fore and aft, to be used on the ship or passed to the dock for cutting mooring lines in case of an emergency.

(2) Nonself-propelled vessels having on board military explosives when moored or anchored shall have at least one tug for each facility or area at which they are moored or anchored.

(o) Every vessel loading or unloading military explosives shall display at its masthead by day a red flag at least 16 square feet in area or at least 10 feet above the upper deck if the vessel has no mast, and at night, while fast to a dock, a red light in the position specified for the flag.

(p) Any device, such as a radio, radar, etc. capable of radiating electromagnetic energy shall be de-energized by opening the main switches thereto, and these switches shall be tagged to warn personnel against reenergizing the circuits whenever the vessel is at an explosives or ammunition handling facility, at an explosive anchorage with a barge or other type of vessel containing explosives alongside, or when a hatch containing explosives is uncovered.

§ 146.29-27 Fire hose.

(a) During the handling, loading, or unloading of military explosives the vessel shall "run out" or otherwise make ready for quick use a minimum of two lines of hose on the weather deck, one fore and one aft. These hoses shall be of sufficient length so that one or the other can reach all areas of the weather deck. The fire hose valves controlling these lines shall remain "cracked open" (except in freezing weather) so casual observation may indicate that water is available.

(b) Additional fire lines shall be "run out" or otherwise made ready at each hold or compartment working or containing military explosives when the hatch serving the hold is open. These lines shall be of sufficient length to reach all portions of the hold or compartment.

§ 146.29-29 Smoking.

(a) Smoking is prohibited on or near any vessel handling, loading or unloading military explosives at an explosives or ammunition loading pier. Smoking areas may be designated upon approval by the Captain of the Port provided such areas are located at a safe distance from the vessel. "No Smoking" warning signs shall be posted during operations of handling, loading or unloading such cargo. At least one such "No Smoking" sign shall be located on the pier at a reasonable distance from the vessel when such handling, loading, or unloading is taking place at a pier.

(b) Smoking is prohibited on or near any vessel handling, loading, or unloading explosives at an explosives anchorage, except the Captain of the Port may, with the concurrence of the master or person in charge of the vessel, designate a compartment as a smoking area. This compartment will be provided with electric lighting devices without open flame. "No Smoking" warning signs shall be posted conspicuously in other parts of the vessel during operations of handling, loading, or unloading.

(c) The Captain of the Port may approve a room aboard ship to be a designated "Smoking room for the ship's personnel only," while at a pier or anchorage; provided the necessary approved firefighting equipment is at hand and portholes, vents, and doors are effectively screened with approved copper or brass screening and electric cigarette lighting devices without open flame are provided.

§ 146.29-31 Liquor or drugs.

No person who, in the judgment of the master, person in charge of the vessel, or the officer in charge of the Coast Guard detail, is considered as being under the influence of intoxicating liquor or of drugs shall be permitted on board a vessel while operations involving the handling, loading, unloading, or transportation of explosives are being carried on, except if the person under the influence of intoxicating liquor or drugs is a bona fide member of the crew of the vessel involved, he may at the discretion of the Officer-in-Charge of the Coast Guard detail board the vessel: *Provided*, That the master or person in charge of the vessel will accept custody and full responsibility for said person: *And provided further*, That this person shall not be permitted to perform any work on the vessel while under the influence of intoxicating liquor or drugs.

§ 146.29-33 Cargo working gear and equipment.

(a) Before military explosives are loaded or unloaded on or from a vessel the master or other person in charge of the vessel is required to ascertain by examination the adequacy, the condition and working order of all working equipment including slings, crates, baskets, boxes, chutes, mattresses, and tackle.

(b) Any and all equipment, which in the judgment of the master or other person in charge of the vessel is not adequate or in safe working condition shall be rejected by him and he shall prohibit its use and shall take such precautions as he may deem necessary to be certain such rejected equipment is not used for the purpose of loading or unloading explosives. The master or other

person in charge of the vessel shall keep watch of all equipment used during the transfer of explosives and if any part of the equipment shows any defect or is damaged in use, work shall be stopped and the damaged or defective equipment repaired or replaced before permitting the loading or unloading to continue.

(c) This inspection of cargo working equipment shall apply to the vessel's equipment and to stevedore's or other contractor's equipment.

(d) The Captain of the Port or his representative may prohibit the use of any cargo working gear or equipment, including stevedore equipment, which he deems unsafe.

§ 146.29-35 Lights, tools, and portable equipment.

(a) No artificial lights except electric lights, electric lamps, or electric floodlights shall be used while loading or unloading military explosives. Such light fixtures shall not be used unless protected against accidental breakage by metal guards. Portable electric lights shall be fitted with stout guards protecting the bulb. Wires of such lights shall be sound and show no evidence of liability to short circuit. When deemed necessary by the military service concerned with the shipment of the explosives due to the possible presence of explosive dust or vapors in the hold of the ship being worked, all electrical equipment and light fixtures used therein shall be of a type approved for the hazardous location as defined in the National Electric Code. This equipment shall be grounded and continuity of the grounding system assured by the applicable methods prescribed in the National Electric Code.

(b) Portable lights shall be so installed as to prevent any part of the light or its cable from coming in contact with the deck or the cargo. A hanging portable light shall not be suspended from its cord but shall be fitted with a gantline so installed that no strain is carried by the light cable. No portable light shall be taken into a hold or compartment in which the stowage of ammunition or explosives has been completed without prior approval by the Captain of the Port or his representative. A portable light that is permitted in a hold under these circumstances shall be so guarded and protected that neither the light nor the light cord shall be in bearing with any metal part of the vessel or with any of the ammunition or explosives, or the containers thereof.

(c) Flashlights of a non-spark type shall be provided by the vessel owner, agent or its master or other person in charge of the vessel, for personnel required to enter holds in which explosives are stowed.

(d) Members of the crew of the vessel and other persons permitted on board the vessel to aid and assist in loading, unloading or handling military explosives shall not be permitted to carry on their persons firearms, matches, flame producing devices, knives, bale hooks, metallic tools except as provided in paragraph (e) of this section or personal packages of any description, except the prohibition against knives shall not apply to the seaman's knife in possession of a member of the crew of the vessel, provided such crew member is not actually working the explosives or ammunition. Lunch boxes, pails, thermos bottles, other food containers or personal packages of any description shall not be brought on board a vessel unless such items have been examined and passed by the Coast Guard detail. Food containers that are passed on board the vessel shall not be stored in the hold in which explosives are being worked nor shall their contents be eaten in such hold. Persons engaged in handling and stowage of military explosives shall not wear shoes or boots shod or strengthened with iron nail or other spark producing metal unless such footwear is covered with rubber, leather, or other nonsparking material.

(e) The Captain of the Port may authorize the use of pinch bars of ferrous metal in "breaking out" or stowing unfuzed bombs, large caliber separate loading projectiles, and packages of ammunition shipped in heavy unit weight containers. He may also permit the use of saws and hammers that are actually powered by the hand or hand and arm, in the hold of a vessel when necessary in fitting dunnage or constructing a partition or a division bulkhead or installing protection required for the stowage of military explosives. The Captain of the Port may authorize spark proof electrically powered or pneumatic saws or hammers, but they shall not be used in any compartment containing military explosives.

(f) All electric wiring in holds in which explosives are to be stowed shall

be inspected prior to the loading of explosives into the hold. The electrical circuits which terminate in holds in which explosives are to be stowed shall be deenergized by removing their fuses or inactivating their circuit breakers at the main panel prior to loading and these circuits shall remain deenergized while explosives are within the hold. The main panel shall be tagged to warn personnel against reenergizing these circuits.

[CGFR 62-11, 27 F.R. 5287, June 5, 1962, as amended by CGFR 64-20, 29 F.R. 6797, May 23, 1964]

§ 146.29-37 Handling drafts of lumber.

All lumber in excess of 3 feet in length shall be handled into or out of the holds of vessels loading, unloading or containing military explosives or ammunition by use of a double sling. Small pieces of lumber used in chocking and dunnaging shall be handled in trays with sideboards. Cargo nets may also be used provided they are lined with canvas or similar fabric. Dunnage shall not be lowered directly onto stowages of ammunition or explosives. Landing mats or timbers shall be laid to receive such drafts.

§ 146.29-39 Handling and slinging of explosives.

(a) All military explosives or chemical warfare agents in bulk shall be handled carefully. Packages and other containers shall not be dropped, dragged, tumbled, walked, slid over each other or over the deck or otherwise subjected to shock except that heavy containers of military explosives equipped with pulling bar assemblies and skids may be positioned in the holds of vessels by using the pulling bar assemblies to maneuver the containers for short distances at slow speed. Packages and other containers shall not be rolled unless rolling is specifically permitted by the provisions governing handling as set forth in § 146.29-100.

(b) In transferring military explosives between pier facilities and vessels or from vessel to vessel, or within the hold of a vessel the items may be handled by hand, power operated mechanical hoist or power operated conveyor approved by the Captain of the Port, power operated cargo lift truck, hand truck or nonpowered (gravity) roller conveyor (hand controlled); or unless specifically prohibited by the regulations in this subpart, a specification chute and mattress may be used. (Refer to §§ 146.09-11 and 146.09-12 for specifications of chute and mattress.)

(c) Military explosives shall be hoisted and lowered carefully onto a mattress or other shock absorbing material. The Captain of the Port may authorize omission of a mattress when its use is unnecessary due to use of pallets or other special gear except when Classes III, VI, VIII and IX-C are being handled, loaded or unloaded.

(d) The Captain of the Port may permit the use of cargo-handling vehicles or equipment powered by internal combustion engines on docks, wharves or piers for the handling of military explosives under such conditions as he may prescribe. Such type vehicles or equipment shall not be used within a hatch of a vessel having military explosives in any hold within said hatch. Electric or battery powered vehicles or equipment of explosion-proof or spark-proof type, such as approved power-operated industrial trucks with recognized testing laboratory designations of "EE" and "EX" may be used to handle military explosives on docks, wharves, piers or in the holds of vessels under such conditions as the Captain of the Port may prescribe. All power-operated cargo-handling vehicles or equipment shall at all times be maintained in safe mechanical, electrical and operating condition. The use of cargo-handling vehicles or equipment may be suspended or prohibited by the Captain of the Port or his representative when he considers such use inimical to safety.

(e) When handling, loading or unloading by mechanical means, all military explosives shall be handled in the type equipment specified for the various classes of explosives in § 146.29-100. Military explosives shall be arranged on trays so that no portion of the military explosives or containers overhangs the tray. For trays provided with sideboards, military explosives or containers shall not extend above the sideboards to a height exceeding one-third of the vertical dimension of the item as stowed on the tray. Rope net slings with pieplates, pallet, skipboard or similar base shall be so loaded that when lifted a minimum displacement of items shall occur and the cargo net shall completely encompass the entire load except on its topside.

(f) The mesh of a cargo net shall be of such size as will prevent any item or container of military explosives in the draft from passing through the mesh under any possible circumstances.

(g) Drafts shall not be raised or stopped in lowering by sudden application of power or brake. Drafts shall not be unloaded by tripping or freeing one side of the net, tray, or pallet and tumbling the ammunition or explosives out of the gear. All drafts, beams, shackles, bridles, slings, hooks, etc., shall be hand freed before the winch takes control. Slings shall not be disengaged by hand unhooking and then dragged from under draft by means of winch. Handles or beckets on ammunition packages shall not be used for slinging purposes.

(h) Blasting caps, detonators, primer-detonators, fulminate of mercury and initating or priming explosives as defined in the regulations in this part shall be considered as constituting a distinct class of dangerous explosives, and because of the hazard involved they shall be handled with extreme care.

(j) "Cant" or barrel hooks shall not be used for raising or lowering a barrel, drum, depth bomb, depth charge or other container of military explosives. Metal bale hooks shall not be used in handling packages of explosives.

(k) Combination woven rope and wire slings are not permitted for use in handling explosives. A sling that is formed by use of an open hook shall not be used in hoisting or lowering a draft of military explosives.

(l) Wire rope or wire rope assemblies including splices or fittings thereof, used in handling military explosives shall be kept bare to permit ready inspection of its safe working condition. Mechanical type endings may be used in lieu of hand splices provided such endings have a minimum breaking strength equal to the catalog strength of wire rope from which it is made.

(m) Bombs shall not be handled by attaching ship's cargo gear to the lifting lug or suspension lugs.

[CGFR 62-11, 27 F.R. 5287, June 5, 1962, as amended, CGFR 63-19, 28 F.R. 5385, May 30, 1963]

§ 146.29-41 Weight per draft.

To eliminate excessive drift, slings will be as short as practicable when handling military ammunition or explosives. The maximum permitted weight per draft of all classes of military explosives shall be as follows for a 5-ton boom. The weights per draft may be increased proportionately for booms of greater capacity. In all instances the allowance shall remain as 10 percent. For example, in paragraph (d)(2) of this section, the maximum weight of drafts consisting of one or more palletized units of Class V or VII military explosives shall not exceed 4,400 pounds when using a five ton boom; however, if a ten ton boom is used the weight of the draft may be increased to 8,800 pounds (8,000 pounds plus 10 percent of same).

(a) *Class I.* (1) When handled by pallet, skipboard, or tray fitted with cargo net or sideboards shall not exceed 3,000 pounds plus 10 percent.

(2) Drafts consisting of one or more palletized units shall not exceed 4,000 pounds plus 10 percent.

(b) *Classes II–A, II–B, II–C, II–D, II–E, II–F, II–G, II–H, II–J, IV, IX–A, IX–B.* (1) When handled by pallet, skipboard, tray, or pieplate fitted with cargo net or sideboards shall not exceed 2,400 pounds plus 10 percent.

(2) Drafts consisting of one or more palletized units shall not exceed 4,000 pounds plus 10 percent.

(c) *Classes III, VI.* (1) When handled by tray fitted with sideboards shall not exceed 2,400 pounds plus 10 percent.

(2) Drafts consisting of one or more palletized units shall not exceed 4,000 pounds plus 10 percent.

(d) *Classes V, VII.* (1) When handled by pallet, skipboard, tray or pieplate fitted with cargo net or sideboards shall not exceed 2,400 pounds plus 10 percent.

(2) Drafts consisting of one or more palletized units shall not exceed 4,000 pounds plus 10 percent.

(3) Single shells weighing in excess of 2,200 pounds must be loaded or unloaded one at a time.

(e) *Class VIII.* (1) When handled by tray fitted with sideboards shall not exceed 1,000 pounds plus 10 percent.

(2) Drafts consisting of one or more palletized units shall not exceed 2,400 pounds plus 10 percent.

(3) The maximum permitted weight for lift of a portable magazine containing Class VIII ammunition shall not exceed 2,400 pounds plus 10 percent.

(f) *Class IX–C.* (1) When handled by tray fitted with sideboards shall not exceed 1,000 pounds plus 10 percent.

(2) The maximum permitted weight for purpose of lift of a portable magazine containing IX–C explosives shall not exceed 2,400 pounds plus 10 percent.

(g) *Classes X–A, X–B, X–C, X–D.* (1) When handled by pallet, skipboard, tray or pieplate fitted with cargo net or sideboards shall not exceed 2,400 pounds plus 10 percent.

(2) When handling bombs, more than one to a draft, by sling method or in palletized units, the draft shall not exceed 4,000 pounds plus 10 percent.

(3) Table of limiting loads applicable when handling bombs by sling method:

Weight of individual bomb or cluster:	*Maximum limits in units per 1 draft*
1 pound to 250 pounds plus 10 percent per unit	8
276 to 500 pounds plus 10 percent per unit	6
551 to 1,000 pounds plus 10 percent per unit	4
1,101 to 2,000 pounds plus 10 percent per unit	2
Over 2,200 pounds	1

(4) Single items or assembled units (other than palletized), designed to be handled as a unit, may be loaded regardless of weight provided the cargo handling gear is of a design capable of handling a working load at least 50 percent additional to the actual weight of the item or unit comprising the draft, and provided further the integrity of the cargo handling gear is unimpaired.

(h) Classes *XI–A, XI–B, XI–C, XI–D.* (1) When handled by trays, skipboards, pallets or pieplates fitted with cargo nets or sideboards shall not exceed 2,400 pounds plus 10 percent.

(2) Drafts consisting of one or more palletized units shall not exceed 4,000 pounds plus 10 percent.

(3) Single bombs or other unit containers weighing in excess of 2,200 pounds must be loaded or unloaded one at a time.

(j) A tray with a top and so constructed that it may be considered equivalent to a palletized unit may, subject to the approval of the Captain of the Port, be permitted a maximum weight per draft of 4,000 pounds plus 10 percent. This top may be constructed of other material than the tray, provided it serves to make the tray an integral unit.

(k) Vans and portable magazines containing permitted explosives of Coast Guard Classes I and II, designed to be loaded and discharged in a loaded condition by "lift-on lift-off" method may be handled regardless of weight provided the rated working capacity of the cargo handling gear is not exceeded and provided further that the integrity of the handling gear is unimpaired. The volume of explosives that may be stowed in a van is not limited unless the van is being used as a portable magazine as described in § 146.29-89. Where the regulations require magazines, vans may not be used for stowage purposes unless they comply with the magazine requirements.

[CGFR 62-11, 27 F.R. 5287, June 5, 1962, as amended by CGFR 65-17, 30 F.R. 7444, June 5, 1965]

§ 146.29-43 Requirement for the opening of hatches.

(a) *Vessels at explosives loading piers or at ammunition loading piers.* (1) A weather deck hatch through which ammunition or explosives are being worked shall have sufficient hatch covers and hatch beams removed across the entire width of the hatch so that the resulting opening, measured parallel to the side of the vessel, is at least equal to twice the longest axis of the largest draft being loaded.

(2) Strongbacks or hatch beams left in place shall be firmly secured by hatch batten or other approved means.

(b) *Vessels at explosives anchorages.* A weather deck hatch through which ammunition or explosives are being worked shall have all hatch covers and all hatch beams removed unless otherwise authorized by the Captain of the Port.

(c) *Vessels at explosives anchorages having a magazine constructed in the square of a weather deck hatch.* Sufficient hatch covers and hatch beams shall be removed from the weather deck hatch to expose the entire magazine.

(d) *General requirements.* (1) During the working of ammunition and explosives to or from the deep holds, the 'tween-deck hatch openings shall at all times be equal to, if not greater than, the weather deck hatch openings.

(2) The use of open hooks in removing or replacing hatch beams or hatch strongbacks is prohibited. Closed hooks, shackles or T bars shall be used in this operation.

§ 146.29-45 Loading or unloading military explosives and other cargo.

(a) Military explosives shall not be loaded or unloaded in a hatch at the same time that other cargo is being worked in any of the holds serviced through said hatch.

(b) Military explosives shall not be loaded or unloaded from the same hatch from both sides of the ship simultaneously, unless the hatch is fitted with cargo handling gear located at both the forward and after ends of the hatch. A vessel so equipped may also use both sets of cargo handling gear simultaneously from the same side of the vessel.

(c) When military explosives are stowed in a hold below one in which any cargo is being worked the 'tween-deck hatch dividing the two holds will have all of its covers securely in place.

(d) Military explosives may be loaded in a hold before or after other cargo, provided that all precautions are taken to assure full protection to the explosives against the hazard of articles being dropped from the cargo sling. When possible hatches should be partially covered to assure such protection.

(e) Cargo drafts being loaded or unloaded shall not be handled over explosives or other dangerous articles that are stowed "On deck".

(f) Any deck loads over which military explosives must be passed shall be limited in height to that of the hatch coaming, bulwark, or three feet, whichever is greater.

§ 146.29–47 Packing and marking.

Military explosives shall not be offered to vessels or accepted by vessels subject to the regulations in this part unless they are in proper condition for transportation and are packed, marked, labeled, described, certified and otherwise acceptable in accordance with the applicable provisions of the regulations in this part.

§ 146.29–49 Stowage on board barges.

(a) Barges subject to the regulations in this part, engaged in the transfer of explosives between receiving points and delivery points within the harbors, bays, sounds, lakes, and rivers, including the explosives anchorages on the navigable waters, shall conform to the applicable provisions of §§ 146.10–1 to 146.10–50, inclusive. Ammunition or explosives in bulk, in combustible outside packages, stowed "On deck in open" shall after loading and during transportation be covered by fire resistant and/or flame proof tarpaulins securely lashed in place.

(b) Notwithstanding the requirements of this subpart relative to the stowage of detonators, blasting caps and fuzes, Class VIII, such articles may be stowed "On deck" on Class AA and Class AB barges with other ammunition or explosives in bulk stowed thereon, provided a sandbag barrier of at least 2 feet in thickness intervenes between the ammunition or explosives in bulk and the detonators, blasting caps or fuzes. When both are stowed "On deck" the height of this barrier shall be at least equal to the height of the stowage of the detonators, blasting caps or fuzes, or the ammunition or explosives in bulk, whichever is highest. The barrier shall either completely surround the detonators, blasting caps or fuzes or extend across the width of the barge. With this type of barrier no additional separation is required. For Class AC barges, the stowage of detonators, blasting caps or fuzes, Class VIII, shall, when no permanent steel bulkhead intervenes, be separated from the stowage of ammunition or explosives in bulk by a distance of 40 feet; with a permanent steel bulkhead intervening, detonators, blasting caps or fuzes shall be separated from the stowage of explosives in bulk by a distance of 25 feet and from the stowage of ammunition by a distance of 10 feet. If, under deck, a 2-foot sandbag barrier is utilized to intervene between the stowage of ammunition or explosives in bulk, it shall be considered as though a permanent steel bulkhead or deck intervenes. Notwithstanding the provisions of § 146.10–50, Class CA and Class CB barges may transport ammunition on deck.

§ 146.29–51 Stowage on board vessels.

(a) All articles of cargo classified as military explosives by the regulations in this subpart shall be stowed on board a vessel in conformity with the provisions of the regulations in this subpart.

(b) Mixed stowage of ammunition or explosives in bulk with other ammunition or explosives, or other dangerous articles or substances, or combustible liquids or hazardous articles shall be in conformity with the provisions of the explosives and hazardous munitions admixture charts, § 146.29–99, the classification, handling and stowage chart § 146.29–100 and other applicable specific provisions of this subpart.

(c) Specifications governing construction and location of magazines and lockers and the preparation of cargo compartments to be used in the stowage of military ammunition are detailed in §§ 146.29–71 to 146.29–95, inclusive.

§ 146.29–53 Stowage of military explosives in holds containing coal.

Unless expressly authorized by the Commandant of the Coast Guard military explosives shall not be stowed in a hold containing coal as cargo nor in any hold above, below or adjacent to one containing coal.

§ 146.29–55 Stowage of military explosives in holds containing household or personal effects and/or mail as cargo.

(a) Unless expressly authorized by the Commandant of the Coast Guard, military explosives shall not be stowed in a hold containing household or personal effects and/or mail as cargo, nor in the hold above or below the hold containing any of these items.

(b) Military explosives may be stowed in a compartment or hold adjacent to one containing household or personal effects. However, if the explosives are stowed up to or against the intervening permanent bulkhead, a buffer consisting of at least three feet of non-dangerous cargo shall be placed between the household or personal effects or mail and the permanent bulkhead intervening between this stowage and the explosives. If non-dangerous cargo is not available for this purpose, a division bulkhead shall be erected to provide an air space of at least one foot wide between the household or personal effects, or mail, and the intervening permanent bulkhead.

(c) **This section shall not apply to vessels having on board military explosives** of Coast Guard Class I category only.

[CGFR 64–20, 29 F.R. 6797, May 23, 1964]

§ 146.29–57 "On deck" stowage.

(a) Articles classified as military explosives, the stowage of which is permitted "On deck" by the regulations in this subpart shall be properly secured. Such security may be obtained by using existing vessel's structures such as bulwarks, hatch coamings, shelter deck and poop bulkheads, as part boundaries and effectively closing in the cargo by fitting angle bar closing means, secured by bolting to clips or other parts of the ship's structure. Lashing of deck stowage permitted provided eye pads are fitted to carry such lashings. Guard ralls shall not be used to secure such lashings.

(b) Bulky articles may be secured by lashing with individual wire rope lashing or other equally efficient means.

(c) Shoring of such bulky articles of cargo shall be in addition to the foregoing means of securing.

(d) Military explosives stowed "On deck" shall not be stowed within a distance of 20 feet of an incinerator, the topside terminus of an ash hoist or a coal or oil fire galley or bake shop. For vessels fitted with electrically operated galleys and bake shops, the military explosives stowed on deck may be stowed not closer than 10 feet of such galleys and bake shop provided no incinerator or topside terminus ash hoist is within a distance of 20 feet of such stowage.

(e) Deck boxes, portable magazines or vans containing military explosives shall meet the requirements of this section when stowed "On deck." Compatibility of the explosives within the deck box, portable magazine or van shall be in accordance with § 146.29–99 and § 146.29–100. A deck box, portable magazine or van containing permitted military explosives shall be separated from other deck boxes, portable magazines or vans containing permitted explosives of incompatible classes by the bridge structure or if the height of the container does not exceed that of the hatch coaming, by the weather deck hatch. Fire plugs and sounding pipes and access ways shall be maintained free and clear.

§ 146.29–59 Stowage adjacent to other dangerous articles.

As noted in § 146.29–11, missile and rocket fuels or oxidizers listed in Classes XI–C and XI–D of § 146.29–100 are excluded from the provisions of this section when shipped with military explosives, and compatibility will be in accordance with the chart in § 146.29–99.

(a) *Flammable liquids.* (1) Military explosives shall not be stowed in the same hold, nor in any hold below, any hold above or a hold adjacent to one in which flammable liquids are stowed. Military vehicles including ducks, buffaloes, alligators and similar amphibious types of craft, referred to in this subpart as "vehicles" or "military vehicles", using a flammable liquid as fuel may be stowed in holds adjacent to a hold in which military explosives are stowed provided the fuel is confined to the vehicle's tank and is not in excess of approximately 75 percent of the capacity of the fuel tank.

(2) Military vehicles, landing craft and small boats using flammable liquid as fuel and having the fuel confined to the vehicle's or boat's tank and not in

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excess of approximately 75 percent of the capacity of said tank may be stowed "On deck" over a hold in which military explosives are stowed: *Provided,* That the weather deck is tight and the cargo hatch is fitted with a tight raised coaming and that such stowage is not made over the square of the hatch, except that amphibious type vehicles, landing craft or boats having fuel tanks installed within a tight hull may be stowed over the square of a hatch.

(3) Flammable liquids as cargo shall not be stowed "On deck" immediately above a hold in which military explosives are stowed. The applicable provisions of §§ 146.21–1 to 146.21–100, inclusive, shall be observed in the stowage of flammable liquids "On deck".

(b) *Flammable solids or oxidizing materials.* (1) Military explosives shall not be stowed in the same hold nor in any hold above or below or a hold adjacent to one in which flammable solids or oxidizing materials are stowed except as specifically authorized by the provisions of § 146.29–100.

(2) Flammable solids or oxidizing materials may be stowed "On deck" over a hold in which military explosives are stowed: *Provided,* That the weather deck is tight and the cargo hatch is fitted with a tight raised coaming and such stowage is accomplished by means of a crib and platform so constructed as to provide a free space of at least 6 inches in height between the deck and the floor of the crib in such a manner as to allow flushing of any leakage that may occur: *And provided further,* That such stowage is not made over the square of the hatch.

(c) *Corrosive liquids.* (1) Military explosives shall not be stowed in the same hold nor in the hold below one in which corrosive liquids are stowed except as specifically authorized by the provisions of § 146.29–100. Corrosive liquids may be stowed "On deck" over a hold in which military explosives are stowed: *Provided,* That the weather deck is tight and the cargo hatch is fitted with a tight raised coaming and such stowage is accomplished by means of a crib and a platform so constructed as to provide a free space of at least 6 inches in height between the deck and the floor of the crib in such a manner as to allow flushing of any leakage that may occur: *And further provided,* That such stowage is not made over the square of the hatch.

(2) The substances listed below shall not be transported on board a vessel which is carrying in excess of 100 tons of ammunition or explosives:

Acid sludge.
Bromine.
Chloracetyl chloride.
Dimethyl sulfate.
Hydrofluoric acid, anhydrous.
Nitrating (mixed) acid.
Nitric acid.
Phosphorus oxychloride.
Phosphorus tribromide.
Phosphorus trichloride.
Spent acid (sulfuric or mixed).
Sulfur chloride.

(d) *Military vehicles with electrolyte.* Notwithstanding the provisions of §§ 146.23–1 to 146.23–100, electrolyte of not over 47 percent strength (39° Baumé) may be accepted for transportation and be stowed on board vessels carrying military explosives under the following conditions of packing:

(1) In glass or earthenware containers, not exceeding 160 ounces capacity (one imperial gallon) in fiberboard cartons of a size to permit cushioning with an incombustible, absorbent material of a sufficient amount to absorb the contents of the container in event of breakage. The outside container shall consist of a wooden box (ICC 15A, 16B or Army Specification) in which 1, 2, 3, or 4 fiberboard cartons may be packed. The outside containers shall carry the white (acid) label. No military ammunition shall be included within this package.

(2) Electrolyte packed in accordance with provisions set forth in subparagraph (1) of this paragraph may be stowed:

(i) "On deck in open" including deck areas over holds containing military explosives.

(ii) "Tween-deck" or "Under deck" in holds adjacent to or in any hold below a hold containing military explosives.

(3) Electrolyte, when packed in accordance with the provisions of subparagraph (1) of this paragraph, may be accepted for transportation when securely fastened within or on a military vehicle or other military equipment whether such vehicle or equipment is shipped crated, boxed, or without crating or boxing. Such military vehicles or military equipment, when shipped crated or boxed, may be accepted for transportation when the container of electrolyte is securely fastened on the inside of the shipping crate or box containing the vehicle or military equipment. When so shipped, the overall crate or box shall carry the white (acid) label and shall be marked "This side up" and "Inside packages comply with prescribed specifications."

(4) Electrolyte packed in accordance with the provisions of subparagraph (1) of this paragraph when offered for transportation under the conditions set forth in subparagraph (3) of this paragraph, may be stowed as follows:

(i) "On deck in open", including deck areas over holds containing military explosives;

(ii) "Tween-deck" or "Under deck" in holds adjacent, any hold below or any hold above holds containing military explosives; or,

(iii) In the same hold containing Class I, IV, V, VII, X–A, X–B, X–C, or X–D, provided the stowage of military vehicles and the stowage of ammunition are separated by a division bulkhead or a 2-inch dunnage floor.

(5) Military vehicles (crated or uncrated) containing an electrolyte storage battery shall not be stowed in the same hold over military explosives stowed therein. Such vehicles may be stowed in the same hold under or alongside of military explosives stowed therein: *Provided,* That all the applicable provisions of this section are observed: *And provided further,* That the vehicles are processed, the fuel tank drained dry, the battery terminal leads disconnected, taped and protected against short circuit.

(6) Military vehicles or military equipment as used in this section includes naval vehicles or naval equipment.

(e) *Flammable compressed gases.* (1) Military explosives shall not be stowed in the same hold nor in any hold below, any hold above or a hold adjacent to one in which flammable compressed gases are stowed.

(2) Flammable compressed gases shall not be stowed "On deck" over a hold in which any Class II–A, II–C, II–D, II–F, II–G, V, VI, VII, VIII, IX–A, IX–B, IX–C, X–A, X–B, X–C, X–D, XI–A, XI–B, or XI–C is stowed.

(3) Flammable compressed gases may be stowed "On deck" over a hold in which Class I, II–B, II–F, II–J, III, or V is stowed: *Provided,* That, the weather deck is tight and the cargo hatch is fitted with a tight raised coaming, and such stowage is accomplished by means of skids at least 6 inches in height off the deck or a crib and platform so constructed as to provide a free space of at least 6 inches in height between the deck and the floor of the crib. Other applicable provisions of §§ 146.24–1 to 146.24–100, inclusive, shall be observed. Stowage may be over the square of the hatch.

(f) *Non-flammable compressed gases.* Ammunition of the following Classes I, II–B, II–G, IV, V, and VII may be stowed in the same hold or compartment with non-flammable compressed gases provided the two stowages are separated by a type "A" dunnage floor or a division bulkhead. This mixed stowage is not permitted for the following non-flammable gases: Boron trifluoride, chlorine, oxygen and sulphur dioxide.

(g) *Poisons*—(1) *Class "A".* Classes I and II–F ammunition may be stowed in the same hold or compartment with Class "A" poisons provided the two stowages are separated by a type "A" dunnage floor or a division bulkhead.

(2) *Class "B".* Ammunition of the following classes, I, II–B, II–F, IV, V, VII, XI–A, and XI–B may be stowed in the same hold or compartment with class "B" poisons: *Provided,* That the two stowages are separated by a type "A" dunnage floor or a division bulkhead.

(3) *Class "C" (tear gas).* Ammunition of the following classes I, II–B, II–F, II–G, IV, V, VII, XI–A, and XI–B may be stowed in the same hold or compartment with Class "C" poisons: *Provided,* That the two stowages are separated by a type "A" dunnage floor or a division bulkhead. Class II–A, propellant charges, may also be stowed in the same hold with Class "C" poisons: *Provided,* That the two stowages are separated by a type "A" dunnage floor or a division bulkhead: *And provided further,* That the Class II–A, propellant charges, ammunition is given top stowage.

(4) *Radioactive materials.* Military explosives shall not be stowed in the same hold in which radioactive materials are stowed.

(h) *Hazardous articles.* Military explosives shall not be stowed in the same hold or in the hold below, the hold above or a hold adjacent to one in which hazardous articles are stowed.

(j) *Combustible liquids.* (1) Military explosives shall not be stowed in the same hold nor in the hold below one in which combustible liquids are stowed.

(2) Combustible liquids may be stowed "On deck" over a hold in which military

explosives are stowed: *Provided,* That the weather deck is tight and the cargo hatch is fitted with a tight raised coaming and such stowage is accomplished by means of a crib and a platform so constructed as to provide a free space of at least 6 inches in height between the deck and the floor of the crib in such a manner as to allow flushing of any leakage that may occur. *And provided further,* That such stowage is not made over the square of a hatch.

(k) *"On deck" stowage.* When containers of flammable liquids, flammable solids or oxidizing materials, corrosive liquids, compressed gases, poisons, combustible liquids or hazardous articles are stowed "On deck", such containers shall not be stowed within 12 inches of any steam pipe fitted on deck.

§ 146.29–61 Stowage with nondangerous cargo in the same hold.

(a) Military explosives that are stowed in the same hold with nondangerous cargo shall be protected from damage likely to be caused by heavy nondangerous cargo. Shafting, steel bar, steel shapes, pipe, heavy machinery, military vehicles (uncrated), and similar types of cargo shall, when stowed in the same hold with military explosives be so isolated or dunnaged or secured as to prevent damage to military explosives or magazines containing said substances, or temporary bulkheads protecting explosive stowages, under any conditions likely to be encountered during the voyage.

(b) When nondangerous cargo is to be stowed adjacent to the exterior of a magazine, wooden cargo battens of not less than commercial 2'' x 4'' size spaced not more than 12 inches, center to center, shall be fitted horizontally to the uprights forming the frame of the magazine.

§ 146.29–63 Stowage and dunnaging of ammunition and containers of explosives in bulk.

(a) Military explosives shall be so stowed and dunnaged as to prevent damage to the cargo or the vessel from shifting cargo caused by forces incident to the voyage of the vessel. Nothing within this paragraph shall be construed as requiring the entire interior of the cargo compartment to be covered with dunnage.

(b) Containers of military explosives marked, "This side up" or otherwise marked directing their stowage shall be so stowed.

(c) Kegs of black powder shall be stowed in an upright position, the bungs or other filling openings "up". Each tier shall be floored off.

(d) Metal containers or metal tanks or other containers of propellant charges having closure means which protrude beyond the chime or the surface of the container shall be so dunnaged as to prevent damage occurring to such closures.

(e) The uppermost tier of military explosives shall be so secured to the mutual satisfaction of the Captain of the Port and the Master of the vessel by tomming, bracing, strapping, top stowing with permissible cargo of sufficient unit weight and quantity or other effective means that no displacement can occur either upwardly or laterally.

(f) Military explosives shall be so stowed that they or the containers are not liable to be pierced by the dunnaging or crushed by superimposed weight.

(g) Containers of military explosives shall not be "cant" stowed. They shall be stowed in full bearing on dunnage or both end and center bearing on dunnage. Broken stowage may at the turn of the bilge, be dunnaged out with cordwood or otherwise so cribbed as to provide maximum bearing attainable for the container to be stowed in the tier above. Broken stowage in other locations in the hold may be compensated for by cribbing out or by the insertion of sufficient dunnage to provide proper bearing for packages in the tier above.

(h) Fixed or semifixed ammunition in fiber containers, crated or uncrated, may be stowed on its base or on its side. Dunnaging shall be accomplished in such manner as to bear only upon the metal part of the container. No dunnage or weight shall bear directly upon the fiber portion of the container.

(j) Separate-loading projectiles boxed, crated, unboxed, or uncrated may be stowed on their bases or on their sides except as otherwise provided for Army WP filled ammunition in the stowage requirements for Class II–D ammunition, § 146.29–100.

(k) When tween-deck holds of cargo vessels are utilized for the stowage of military explosives, the maximum permissible deck load for such tween decks shall not be in excess of 45 pounds per square foot of tween-deck space for each foot of tween-deck height, except where the deck and hatch structure of ships have been specially designed or reinforced for the carriage of heavy loads the Captain of the Port may permit loading in accordance with these schedules of increased intensity of loading when they are furnished by the master or operator.

§ 146.29–65 Damaged or leaking containers of explosives.

(a) Any container of explosives or chemical warfare agents showing evidence of failure, leaking of a liquid ingredient or inability to retain its contents shall not be accepted for transportation, storage, or stowage on board any vessel.

(b) Any container of an explosive when offered for transportation, storage, or stowage, showing excessive dampness or which is moldy or shows outward signs of any oil stain or other indications that absorption of the liquid part of the explosive is not perfect, or that the amount of the liquid part of the explosive is greater than the absorbent can carry, shall not be accepted for transportation. The shipper must substantiate any claim that a stain is due to accidental contact with grease, oil, or similar substances. In case of doubt the container shall be refused.

§ 146.29–67 Defective ammunition.

Ammunition found to be defective while being unloaded from a barge, freight car, or other vehicle, shall not be placed on board a vessel. If found to be defective while on board the vessel, it shall, if at all possible, be removed from the vessel to an isolated location as quickly as possible.

§ 146.29–69 Recoopering damaged packages.

Defective packages shall not be recoopered in the hold of a vessel. Such packages shall not be recoopered elsewhere on board the vessel except upon conditions authorized by the Captain of the Port. Replacing bomb shipping bands, loose covers, nose plugs or strapping containers is not classed as recoopering.

§ 146.29–71 Constructing magazines.

(a) All work in connection with the construction of a magazine, or other conditioning of holds, decks, or hatches shall be completed before the actual loading of military explosives is undertaken except as provided in §§ 146.29–35 (e) and 146.29–81(b). Magazine construction or other conditioning of a hold in which military explosives are not actually being loaded or which do not contain any military explosives is permitted.

(b) Sizes of material used for the construction of a magazine or other conditioning of holds, decks, or hatches, as set forth in the regulations in this subpart, are minimum. Increased sizes may be used, if desired. Nails shall not protrude beyond the surface of the lumber or other material authorized.

§ 146.29–73 Preparation of magazines, decks, hatches and holds for handling military explosives.

(a) All magazines and holds shall be cleared of all rubbish and discarded dunnage and be swept, hosed down or cleaned by such other efficient method that will insure the compartment to be broom clean and free of any residue from cargo before commencing to load any military explosives. Bilges, overhead deckbeams and strongbacks shall be examined and any residue of previous cargo removed therefrom.

(b) All decks, gangways, and hatches over or through which military explosives must be passed or handled in loading or unloading shall be freed of all loose material and shall be swept broom clean both before and after loading or unloading.

(c) The hatches or cargo ports opening into a compartment in which military explosives are stowed shall be kept closed at all times except during the operation of loading or unloading of the compartments or during periods of short stoppages such as lunch breaks or while shifting of barges or railway vehicles. During the period of such stoppages the hold shall be protected as prescribed by the Captain of the Port. When a hatch is closed wooden hatch covers shall be covered with tarpaulins.

(d) No debris of any description which creates a fire hazard or a hazardous condition for persons engaged in the explosives handling operation shall be permitted to stand on the weather deck of a vessel while military explosives are being worked.

(e)(1) Hatch beams and hatch covers shall, where possible, be stowed on the opposite side of the hatch from that over which the military explosives are being worked. If this is impossible, they may be stowed on the working side of the hatch.

(2) Hatch beams shall be stowed or secured in a manner that will prevent them from rolling, rocking, turning or sliding.

(3) Hatch covers shall be so stowed as to form as level a platform as possible.

(f) During the time a hatch is open and military explosives are being worked or stowed, the vessel's officer on duty supervising the handling of explosives shall warn the masters of other vessels coming alongside and the operator of any dock equipment (capable of producing sparks) to stay clear of the area adjacent to open hatches as far as practicable.

§ 146.29–75 Location of magazines and ammunition stowage.

(a) A cool location being an important factor, magazines shall be built and military explosives stowed in an authorized location in accordance with the following factors in the order listed. The Captain of the Port may authorize in his discretion a modification of the below established location priorities when circumstances so justify:

(1) A tween-deck hold, preferably a lower tween-deck.

(2) A lower hold.

(3) In the square of a hatch.

(4) A shelter deck in a location as far removed from uptakes or engine casing as possible.

(5) A forecastle, poop or permanent deck house provided the space is ventilated and does not contain any "In use" crew accommodations, nor vessel stores, and can be closed off from traffic while at sea.

(6) "On deck" stowage.

(7) Insulated spaces normally comprising refrigerator spaces may be used for the stowage of all classes of military explosives, except Class II–J chemical ammunition: *Provided,* That all regulations relative to stowage of explosives with other dangerous articles of cargo are observed and the spaces may be ventilated sufficiently to provide a temperature consistent with the temperature of other holds of the vessel. When such spaces are fully ceiled, the entire compartment will be considered as a magazine, however, any pipes within the compartment shall be protected by horizontal cargo battens of a size not less than commercial 2" x 4", spaced not more than 12 inches apart, center to center and secured to 4" x 6" uprights spaced not more than 36 inches apart. Refrigerator spaces, the floors of which are lined with lead, shall not be used as a stowage for picric acid in bulk or ammonium picrate.

(b) When it is necessary to construct a magazine or to stow ammunition adjacent to the engine room, boiler room or coal bunker bulkheads, or the engine or boiler room uptakes or casings, the following provisions shall be complied with:

(1) A tight wooden temporary bulkhead shall be constructed at least one foot off the permanent bulkheads, uptakes or casings with the smooth side facing the stowage of the explosives or ammunition.

(2) When the permanent bulkhead is smooth on the cargo side, construction shall be of commercial 2-inch boarding secured to uprights of 4" x 6" size spaced not more than 30 inches apart in the 'tween or shelter deck, or 6" x 6" size spaced not more than 24 inches apart in the lower hold. Uprights shall not be stepped directly onto a metal deck or overhead. A 2" x 6" bearer to carry the upright shall be laid on the metal deck, and a 2" x 6" header shall be fitted against the underside of the overhead deck to receive the top of uprights. Top of uprights fitted against overhead deck beams may be wedged direct to the beam with 2" x 4" spacers fitted between. Suitable horizontal stringers shall be fitted between temporary and permanent bulkhead at the top and bottom, as well as intermediate stringers spaced a maximum of 5 feet. Uprights shall be securely fastened to horizontal stringers or horizontally braced at the top, bottom and center.

(3) When the permanent bulkhead stiffeners are on the cargo side, suitable uprights of not less than 2" x 4" may be installed against the permanent vertical stiffeners to give the required 12 inches off the bulkhead. If the permanent stiffeners are over 30 inches apart, center to center, 2½-inch boarding shall be used. Uprights shall be stepped and braced as required by the provisions of subparagraph (2) of this paragraph. Bulkhead stiffeners that do not extend the full depth of the cargo space shall not be used for this purpose.

(4) Other methods of construction using steel or wooden uprights, bolted to plates or lugs welded to deck beams, decks, or tank tops may be used provided the strength is equivalent to that obtained by the foregoing methods of construction.

(c) Stowage provided for military explosives shall be dry and except for deep tanks well ventilated.

(d) Ammunition as cargo shall not be stowed within a distance of 10 feet of a vessel's radio shack, receiving or transmitting apparatus, radio antenna or antenna lead-in. The same restriction applies to radar equipment.

§ 146.29–77 Allocation of stowage.

Military explosives that are tendered to a vessel for transportation as cargo shall be stowed on board the vessel utilizing the type of stowage authorized for the particular ammunition or explosives in bulk by the provisions of § 146.29–100.

§ 146.29–79 Types of stowage.

The types of stowage prescribed for military explosives are described as follows:

(a) Magazine stowage A.

(b) Ammunition stowage.

(c) Chemical ammunition stowage.

(d) Special stowage.

(e) Portable magazine stowage.

(f) Pyrotechnic stowage.

(g) Stowage of blasting caps, detonators, primer detonators, etc.

(h) Deck box and van.

§ 146.29–81 Magazine Stowage A.

The following shall be observed in the construction of a magazine required by the table in § 146.29–100 for "Magazine A" type of stowage:

(a) Magazines may be constructed of steel or wood.

(b) Magazines constructed of steel shall have the whole of the interior thoroughly protected by wood dunnage of a minimum thickness of ¾ inch. This lining may be installed during the progress of the stowage. Metal stanchions within the magazine shall be boxed with wood of a thickness of not less than ¾ inch. Bulkhead stiffeners or other structural members extending into the stowage spaces shall not be protected by dunnaging but shall be completely boarded over. When bare steel decks or tank tops are utilized to form the floor of a magazine, a wooden floor consisting of at least two layers of commercial 1-inch thick dunnaging shall be laid, the top course being laid crosswise to the lower course. When steel decks or tank tops are originally fitted with a wood flooring or are ceiled, it shall be necessary to fit one course of dunnage. All flooring formed by these methods shall be laid with commercial 1-inch lumber of widths not less than 4 inches, fitted as close as possible, edge to edge and butt to butt.

(c) Magazines constructed of wood shall have the bulkheads forming the sides and ends constructed of commercial 1-inch lumber, of ¾-inch tongue and groove sheathing, or of ¾-inch plywood, secured to uprights of at least a 3" x 4" size, spaced not more than 18 inches apart and secured at top, bottom and center with horizontal bracing. When ¾-inch plywood is used, the uprights may be spaced on 24-inch centers. Uprights shall not be stepped directly onto a metal deck. A 2" x 4" bearer to carry the uprights shall be laid upon the metal deck. A 2" x 4" header shall be fitted against the underside of an overhead deck to receive the top of uprights. Top of uprights fitted against channel beams may be wedged directly to the beam with 2" by 4" spacers fitted between. Care shall be taken in securing upright framing that no nails penetrate to the interior of the magazine. When a magazine is constructed as a permanent compartment in the vessel, increased size and finish of lumber and other methods of fastening may be used provided such fastenings are recessed below the surface of the boarding to avoid projections within the interior of the magazine. All boardings shall be fitted and finished so as to form a smooth surface within the interior of the magazine. Construction shall be such as to separate all containers of explosives from contact with metal surfaces of the structure of the vessel. When a metal stanchion, post or other obstruction is located within the interior area of the magazine, such obstruction must be completely covered with wood of a thickness of at least ¾ inch secured in place with nails or screws. When screws are used for fastening, the screwheads shall be countersunk below the surface of the wood. The floor of the magazine shall conform to the provisions of paragraph (b) of this section. The door of the magazine shall be of substantial construction, fitted reasonably tight into its jamb. The door may be secured in place by the use of extension battens and wedges.

(d) A magazine constructed in accordance with the provisions of paragraphs (b) and (c) of this section, in which it is proposed to stow containers of explosives within 12 inches of the overdeck

beams, or hatch coaming, shall have such deck beams and coaming sheathed with wood similar to that required for metal stanchions, posts or other obstructions by the provisions of paragraph (c) of this section.

(e) When a Class A magazine measures more than 40 feet in any direction, a partition bulkhead shall be fitted within the magazine as near half length as practicable, extending from the deck to at least the top of the stowage. Such partition bulkhead shall be constructed to the same scantlings as the sides of the magazine, except the boardings may be spaced not more than 6 inches apart alternately on both sides of the uprights. This bulkhead shall be constructed before loading commences and care shall be exercised that nail points do not protrude beyond the surface of the boarding.

(f) A magazine constructed in accordance with the provisions of paragraphs (b) and (c) of this section shall comply with the provisions of § 146.29–75(c).

§ 146.29–83 Ammunition stowage.

Military explosives that are authorized to be given ammunition stowage by the provisions of § 146.29–100 shall be stowed in a location selected in accordance with the provisions of § 146.29–75. Dunnage shall be laid over metal decks or tank tops, except that dunnage is not required when decks or tank tops are coated with mastic, magnesite, or other equivalent material, and when palletized units are used and the pallets are constructed of wood. Dunnaging shall be fitted to protect packages or articles or military explosives from damage. Nothing within this paragraph shall be construed as requiring the entire interior of the cargo compartment to be covered with dunnage.

§ 146.29–85 Chemical ammunition stowage.

Chemical ammunition or chemical agents in bulk that are authorized to be given chemical ammunition stowage by the provisions of § 146.29–100 shall be stowed under the following conditions:

(a) Shall be afforded the same protection as required for ammunition stowage.

(b) Stowage shall preferably be in a deep tank or a lower hold.

(c) When stowed in a deep tank, pump suctions shall be effectively sealed off to prevent the escape of any leakage which may take place. Sealing off shall be accomplished by inserting a blank flange in way of the suction side of the bilge pump manifold.

(d) When stowed in a lower hold or other compartment, the hatch covers, ventilators and pump's suction shall be effectively sealed off to prevent the escape of any leakage which may take place. Sealing off the pump's suction shall be accomplished by inserting a blank fiange in way of the suction side of the bilge pump manifold.

(e) When the quantity of chemical ammunition or chemical agents in bulk exceeds the capacity of deep tanks and lower holds, other holds may be used, preference being given to other lower holds or to a tween-deck hold directly over a lower hold in which such substances are stowed.

(f) Chemical ammunition or containers of chemical agents in bulk stowed in a tween-deck shall not be stowed within 8 feet of the side of the vessel.

(g) When the quantity of chemical ammunition to be stowed on board the vessel does not justify the use of a deep tank or lower hold, a suitable tween-deck space may be selected and the ammunition stowed in a portable magazine especially constructed to prevent any leakage from the ammunition escaping outside of the magazine. Such portable magazine shall be located at least 8 feet from the ship's side.

(h) Before entering a deep tank, lower hold or other compartment containing chemical ammunition the air inside the compartment must be tested by competent personnel to ascertain if leakage has taken place. If leakage has occurred, the operation of removing the ammunition or chemical agent shall be conducted by skilled personnel, preferably representatives of the appropriate Army Technical Service (Chemical Corps or Ordnance Corps) or Navy Department.

§ 146.29–87 Special stowage.

Special stowage may be on deck protected from the elements, in a deck house, mast house, mast locker or in a vacant stateroom: *Provided,* That such a location conforms to the distance separation rule applicable to the item so stowed and adjacent military ammunition: *And provided further,* That the space is ventilated and does not contain any vessel stores or machinery or equipment used during the navigation of the vessel and can be closed off from traffic while at sea. Dunnage shall be fitted to protect packages from damage by contacting any metal parts of the ship.

§ 146.29–89 Portable magazine stowage.

Military explosives authorized to be given portable magazine stowage by the provisions of § 146.29–100 shall be stowed under the following conditions:

(a) Shall be located in a hold or on deck in accordance with the provisions of § 146.29–99 and § 146.29–100 for the particular class of military explosive stowed therein. "On deck" stowage shall also meet the requirements of § 146.29–57.

(b) Portable magazines shall be constructed of wood, or of metal lined with wood ¾-inch minimum thickness, and not more than 100 cubic feet plus 10 percent of explosives (gross) shall be stowed therein.

(c) All inner surfaces of the magazine shall be smooth and free of nails, screws, or other projections.

(d) When constructed of wood the scantlings shall not be less than those required for a type "A" magazine in § 146.29–79, and a strong, close fitting hinged cover or door with an effective means of securing shall be provided.

(e) When constructed of metal, the minimum thickness of the metal shall be not less than ⅛-inch sheet, or formed material.

(f) Ammunition or containers of ammunition or explosives in bulk when stowed in a portable magazine shall be so stowed and secured that no displacement can occur either upwardly or laterally.

(g) When stowed on deck the magazine shall be protected from the direct rays of the sun and elements. Runners, bearers, skids, or other suitable means shall be provided to elevate it a minimum of 4 inches from the deck. Pad eyes, ring bolts, or other suitable means shall be provided for lashing the magazines and they shall be so lashed, chocked or braced as to prevent movement in any direction.

(h) Portable magazines shall carry the legend "Inflammable—Keep Lights and Fire Away," or "Flammable—Keep Lights and Fire Away." When used in lieu of ammunition stowage, the legend shall indicate the Coast Guard class or classes of military explosives stowed therein.

[CGFR 62–11, 27 F.R. 5287, June 5, 1962, as amended, CGFR 63–19, 28 F.R. 5385, May 30, 1963]

§ 146.29–91 Pyrotechnic stowage.

(a) Pyrotechnic ammunition shall be afforded ammunition stowage or special stowage in a location away from heat and so protected as to insure no moisture contacting the packages. This class of ammunition shall not be stowed in a hold or compartment with any other military explosives, except as permitted by the admixture charts (§ 146.29–99). Pyrotechnics shall not be overstowed with other cargo.

(b) For limited quantities of pyrotechnic ammunition an alternate stowage may be utilized consisting of stowing in metal lockers or portable magazines so located as to conform with the provisions of paragraph (a) of this section as regards other explosives, over-stowage, heat, and moisture.

§ 146.29–93 Stowage of blasting caps, detonators, primer detonators, etc.

Stowage of Classes III, VI and VIII type ammunition shall conform to the provisions of §§ 146.29–99 and 146.29–100, and to the following requirements:

(a) Class VIII ammunition, when stowed on board the same vessel with Classes II, IV, V, or VII military explosives, shall be separated as follows:

(1) With a permanent steel deck or bulkhead intervening, the separation shall not be less than 10 feet in any direction.

(2) Without a permanent steel deck or bulkhead intervening, the separation shall not be less than 25 feet in any direction.

(b) Class VIII ammunition, when stowed on board the same vessel with Classes IX, X, or XI military explosives, shall be separated as follows:

(1) With a permanent steel deck or bulkhead intervening, the separation shall not be less than 25 feet in any direction.

(2) Without a permanent steel deck or bulkhead intervening, the separation shall be not less than 40 feet in any direction.

(c) Class VIII ammunition shall not be stowed within 8 feet of the vessel's side, except blasting caps stowed in a portable magazine "On deck" need not meet this requirement.

(d) When Class VIII ammunition is stowed over tween-deck hatch covers, and military explosives are stowed in a

hold below, a single layer of commercial 2-inch lumber is required over the tween-deck hatch cover to form the floor of the magazine. Under these conditions, wooden hatch covers may be considered an integral part of the permanent steel deck and the separation requirements of paragraphs (a)(1) and (b)(1) of this section shall apply.

(e) When Class III or VI ammunition is stowed with Class VIII ammunition the provisions governing the stowage and separations of Class VIII shall apply.

(f) When a portable magazine is used for detonator stowage, such magazine may be stowed in the square of a weather deck hatch.

(g) Upon approval by the Captain of the Port, a portable magazine containing Class VIII ammunition may be stowed in an isolated cabin or steel deck house secure from aircraft machine-gun fire and not subject to casual contact by persons on board the vessel.

§ 146.29-95 Ventilation of magazine.

A magazine that is not fitted with ventilating ducts to the atmosphere shall be ventilated by omitting the top course of boarding on the sides of the magazine to provide a clear space at least 1 inch and not more than 6 inches below the lower flange or toe of the deck beam within the compartment or hold in which the magazine is constructed. Ventilators of systems feeding directly into a magazine or a hold in which military explosives are stowed shall be covered with a double layer of wire screen of not less than ⅛-inch mesh at the weather end of the cowl. This screen shall be attached securely in place in such a manner as to insure a positive closure.

§ 146.29-97 Statements of characteristic properties and hazards.

(a) In § 146.29-100 there are statements in italics setting forth certain characteristics and hazards of the substances or articles listed therein. It is not intended, nor shall it be assumed, that these statements set forth all of the characteristic properties or hazards of the particular substance or article and such statements as are shown are informative only.

(b) For the purpose of the regulations in this subpart Army Class XII explosives are treated as follows:

(1) Ammonium nitrate is classified as an oxidizing material.

(2) Wet nitrocellulose wet with 20 percent of water is classified as a flammable solid.

(3) Wet nitrocellulose wet with 30 percent of alcohol or flammable solvent is classified as a flammable liquid.

[CGFR 64-20, 29 F.R. 6797, May 23, 1964]

§ 146.29-99 Explosives admixture charts.

(a) Chart A of this section indicates the compatibility of the various classes of ammunition described in § 146.29-100. Chart B of this section indicates the compatibility within the class of items of Classes XI-C and XI-D.

(b) A shaded block at an intersection of horizontal and vertical columns in Chart A indicates that the particular class of military explosives shown by the heading of the horizontal column to the left must NOT be stowed in the same hold or compartment with the particular class of military explosives indicated by the heading of the vertical column at the top of the chart. A shaded block at the intersection of horizontal and vertical columns in Chart B indicates that that particular item shown by the heading of the horizontal column to the left must NOT be stowed "On deck" together unless separated by the superstructure, or in the same hold or compartment with the item indicated by the heading of the vertical column at the top of the chart. For specific provisions of stowage, and items included in each class, refer to § 146.29-100.

(c) In the charts the letters refer to the following notes:

NOTE A: Class II-F may be stowed in the same lower hold or tween-deck hold with Classes II-C, II-E, II-G, and III provided the Class II-F ammunition is bottom stowed and provided further that no other class of explosive or ammunition is stowed in the hold or tank below.

NOTE B: Class II-F may be stowed in the same deep tank, lower hold or tween-deck hold with Classes II-B, IV, V, VII: *Provided,* That the Class II-F ammunition is bottom stowed: *And provided further,* That no other class of explosives or ammunition is stowed in the hold or tank below.

NOTE C: Propellant charges Class II-A for separate loading artillery projectile filled with Class XI-A or XI-B chemical may be stowed together in the same hold or compartment: *Provided,* That the propellant charges are "top stowed," the two items being separated by a type "A" dunnage floor. When so stowed the propellant charges shall not be overstowed with any other cargo.

NOTE D: Class II-J TH incendiary filled ammunition shall be stowed only in a deep tank or lower hold, and in all cases, bottom stowed, except that a limited quantity shipment not in excess of 500 lbs. net TH content may be stowed on deck in a special magazine constructed of material as set forth in § 146.29-81(c) and provided such magazine has an insulation of sand at least 1 foot thick on the bottom. This magazine shall be so mounted that there is at least 1 foot void between its bottom and the deck on which it is mounted, and its preferred location is aft. There shall be one charged fire hose in the immediate vicinity of this magazine when this class ammunition is stowed therein. There shall be only one such stowage per vessel and that stowage shall not be over living quarters or hatches in which military explosives, other dangerous articles, or ship's stores are stowed below.

NOTE E: Class V (unfuzed and no fuzes packed in container) and Class VII (unfuzed and no fuzes packed in container) may be stowed with Class X-A.

NOTE F: See Chart B for compatibility of items within this class.

NOTE G: May be stowed together if separate stowage is not available.

CHART A—COMPATIBILITY CHART FOR VARIOUS CLASSES OF MILITARY EXPLOSIVES AND HAZARDOUS MUNITIONS

Legend: *Refers to different ICC classes: F.L., F.G., Cor. L., Oxy. M., etc. ● Shall NOT be stowed together. □ May be stowed together. A, B, C, D, E, F, and G—Check notes in § 146.29-99 for proper stowage.

I.C.C. class		Class	I	II-A	II-B	II-C	II-D	II-E	II-F	II-G	II-H	II-J	III	IV	V	VI	VII	VIII	IX-A	IX-B	IX-C	X-A	X-B	X-C	X-D	XI-A	XI-B	XI-C	XI-D	Class
C	Small-arms ammunition w/o explosive bullets, mechanical time fuze and like items	I	□	●	□	●	●	□	□	□	●	D	□	□	□	□	□	□	□	□	□	□	●	●	●	□	C	●	●	I
B	Bulk propellants, such as ballistite, cordite, FNH, NH, and NC powder, "Made-up bag charges" in outside shipping containers	II-A	□	□	□	●	●	●	●	●	●	●	D	□	□	□	□	□	□	□	□	□	●	●	●	□	C	●	●	II-A
B	Fixed ammunition w/o explosive projectiles and like items	II-B	□	□	□	●	●	●	B	●	●	●	D	□	□	□	□	□	□	□	□	□	●	●	●	□	□	●	●	II-B
B or C	Pyrotechnics (fireworks)	II-C	□	●	□	●	●	□	A	●	●	●	D	□	□	□	□	□	□	□	□	□	●	●	●	□	□	●	●	II-C
*Var.	Chemical ammunition—WP or PWP filled (solid)	II-D	□	●	□	●	●	□	A	●	●	●	□	□	□	□	□	□	□	□	□	□	●	●	●	□	□	●	●	II-D
*Var.	Chemical ammunition—HC filled (solid)	II-E	□	●	□	●	□	●	A	●	●	●	□	□	□	□	□	□	□	□	□	□	●	●	●	□	□	●	●	II-E
*Var.	Chemical ammunition—FS or FM filled smoke (liquid)	II-F	□	●	B	A	●	A	□	A	●	●	A	B	B	B	B	□	□	□	□	□	●	●	●	□	□	●	●	II-F
*Var.	Chemical ammunition—IM, NP, or PT filled, incendiary composition (oil gel)	II-G	□	●	●	●	●	□	A	□	●	D	●	●	●	●	●	□	□	□	□	□	●	●	●	□	□	●	●	II-G
None	Chemical ammunition—water activated	II-H	●	●	●	●	●	●	●	●	□	●	□	●	●	●	●	□	□	□	□	□	●	●	●	□	□	●	●	II-H
*Var.	Chemical ammunition—TH filled incendiary composition (solid)	II-J	D	●	D	D	●	●	D	●	●	□	●	D	●	●	●	□	□	□	□	□	●	●	●	□	□	●	●	II-J
B or C	Fuzes, PD w/o booster; fuzes AT mine (nonchemical) w/o booster; fuzes, bomb tail w/o booster; fuzes, tracer; primers; primer detonators, etc	III	□	●	□	●	●	●	A	●	●	●	□	□	□	□	□	□	□	□	□	□	●	●	●	□	□	●	●	III
A	Fixed and semifixed ammunition with explosive loaded projectile	IV	□	□	□	●	●	●	B	●	●	●	D	□	□	□	□	□	□	□	□	□	●	●	●	□	□	●	●	IV
A	Separate loading projectiles filled with explosive "D"	V	□	□	□	●	●	●	B	●	●	●	□	□	□	□	□	□	□	□	□	E	●	●	●	□	□	●	●	V
A	BD fuzes; PD fuzes with booster; bomb fuzes with booster; rocket fuzes with booster; and like items	VI	□	●	□	●	●	●	●	●	●	●	□	□	□	□	□	□	□	□	□	●	●	●	●	□	□	●	●	VI
A	Separate loading proj. filled with HE other than explosive "D"	VII	□	●	□	●	●	●	B	●	●	●	□	□	□	□	□	□	□	□	□	E	●	●	●	□	□	●	●	VII
A or C	Blasting caps; detonators; AT mine fuzes (chemical); etc	VIII	□	●	□	●	●	●	□	●	●	●	□	□	□	□	□	□	□	□	□	□	●	●	●	□	□	●	●	VIII
A or B	Explosives in bulk, such as black powder, propellant explosives for small arms, etc	IX-A	□	□	●	●	●	●	●	●	●	●	●	●	●	●	●	●	□	●	●	●	●	●	●	●	●	●	●	IX-A
A	High explosives, such as dynamite, TNT, demolition blocks, etc	IX-B	□	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	□	●	●	●	●	●	●	●	●	●	IX-B
A	Initiating and priming explosives in bulk	IX-C	□	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	□	●	●	●	●	●	●	●	●	IX-C
A	Explosive bombs, mines, torpedoes, etc	X-A	□	●	●	●	●	●	●	●	●	●	E	E	E	E	E	●	●	●	●	□	●	●	●	●	●	●	●	X-A
A	Explosive bombs, mines, etc. packed with fuze in integral package	X-B	●	●	●	●	●	●	●	●	●	●	●	●	●	●	□	●	●	●	●	●	□	●	●	●	●	●	●	X-B
A	Guided missiles with solid propellant motors, w, w/o HE warhead	X-C	●	●	□	●	●	●	●	●	●	●	□	□	□	□	□	●	●	●	●	●	●	□	●	●	●	●	●	X-C
A	Guided missiles with liquid petroleum fueled propellant motors, HE warhead	X-D	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	□	●	●	●	●	X-D
A or Pois. A	Chemical ammunition—lethal	XI-A	□	C	●	●	●	●	□	●	□	●	●	●	●	●	●	●	●	●	●	●	●	●	●	□	□	●	●	XI-A
A or Pois. C	Chemical ammunition—nonlethal	XI-B	□	C	□	●	●	●	□	□	□	●	●	●	□	●	●	●	●	●	●	●	●	●	●	□	□	●	●	XI-B
*Var.	Fuels in containers for missile and rocket engines	XI-C	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	F	●	XI-C
*Var.	Oxidizers in containers for missile and rocket engines	XI-D	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	F	XI-D

[CGFR 62-11, 27 F.R. 5287, June 5, 1962, as amended, CGFR 63-80, 28 F.R. 12820, Dec. 8, 1963]

CHART B—COMPATIBILITY CHART FOR VARIOUS ITEMS WITHIN CLASS XI-C AND CLASS XI-D

Legend: ●● Shall NOT be stowed together □□ May be stowed together G Check note for proper stowage

	Nomenclature	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	aa	
a	Acids; i. e., nitric sulfuric; fuming red nitric; fuming white nitric, etc	□□	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	a
b	Liquid hydrogen	●●	□□	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	b
c	Liquid fluorine	●●	●●	□□	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	c
d	Liquid oxygen	●●	●●	●●	□□	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	d
e	Liquid nitrogen tetroxide	●●	●●	●●	●●	□□	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	e
f	Anhydrous ammonia	●●	●●	●●	●●	●●	□□	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	f
g	Diborane; pentaborane	●●	●●	●●	●●	●●	●●	□□	□□	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	g
h	Aluminum borohydrides	●●	●●	●●	●●	●●	●●	□□	□□	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	h
i	Diethylene glycol dinitrate, liquid	●●	●●	●●	●●	●●	●●	●●	●●	□□	□□	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	i
j	Nitroglycerine, liquid	●●	●●	●●	●●	●●	●●	●●	●●	□□	□□	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	j
k	Hydrogen peroxide	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	□□	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	k
l	Hydrazine; hydrazine hydrate	●●	●●	●●	●●	●●	□□	●●	●●	●●	●●	●●	□□	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	l
m	Dimethyl hydrazine, unsymmetrical	●●	●●	●●	●●	●●	□□	●●	●●	●●	●●	●●	□□	□□	●●	●●	G	G	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	m
n	Alcohol-ethyl, methyl, furfuryl	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	□□	G	□□	G	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	n
o	Gasoline (AVGAS)	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	G	G	□□	□□	G	G	G	●●	G	G	●●	G	●●	●●	●●	o
p	Heptane; kerosene; octane	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	G	G	□□	□□	G	G	G	●●	G	G	●●	G	●●	●●	●●	p
q	Pentane	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	G	G	□□	□□	□□	□□	□□	●●	□□	□□	●●	□□	●●	●●	●●	q
r	Aniline	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	G	G	G	□□	□□	□□	●●	□□	□□	●●	□□	●●	●●	●●	r
s	Monoethylaniline	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	G	G	G	□□	□□	□□	●●	□□	□□	●●	□□	●●	●●	●●	s
t	Nitromethane, tetranitromethane	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	t
u	Diethylene triamine	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	G	G	G	□□	□□	□□	●●	□□	□□	●●	□□	●●	●●	●●	u
v	Acetonitrile (methyl cyanide)	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	G	G	G	□□	□□	□□	●●	□□	□□	●●	□□	●●	●●	●●	v
w	Potassium cuprocyanide	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	□□	●●	●●	●●	●●	w
x	Sodium permanganate, solid	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	□□	●●	●●	●●	x
y	Calcium permanganate, solid	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	□□	●●	●●	y
z	Lithium, metallic	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	□□	●●	z
aa	Metals, powdered	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	□□	aa

§ 146.29–100 Classification,

Class	Description	I. C. C. marking	I. C. C. class
I			
Small-arms ammunition w/o explosive bullets, detonating fuzes, ICC Class C, mechanical time fuze and like items.	Small-arms ammunition is a variety of fixed ammunition and includes blank ammunition and shotgun shells designed to be fired from a pistol, revolver, rifle, shotgun, or similar weapon held by the hand, or by the hand and shoulder, or machine guns of caliber less than 0.75 in. (19.05mm), or blank remover cartridges for pilot seat ejectors and canopy removing catapults, and consists of a metallic, plastic composition or paper cartridge case, a primer and a propelling charge, with or without bullet, shot, tear-gas material, tracer components or incendiary compositions or mixtures, but not including bullets loaded with high explosives. (For small arms ammunition with explosive bullets or projectiles see Class IV.) Other items of ammunition or component parts of ammunition having similar hazard characteristics to small-arms ammunition are also included in this class. Includes but is not limited to: Cartridges (small-arms type, less than 0.75 inch or 19.05mm): Aircraft engine starter. Armor piercing. Armor piercing incendiary. Armor piercing incendiary tracer. Ball. Blank. Carbine. Catapult, aircraft ejection seat Exactor. High pressure test. Ignition. Impulse charges, ICC Class C. Incendiary. Initiator. Powder actuated tool, shipped separately. Remover, aircraft canopy Rifle grenade. Slick marker (MK1). Tear gas. Thruster. Tracer. Catapult w/cartridge: Aircraft ejection seat. Chemical delay pencil. Detonating cord. Detonating fuzes, ICC Class C. Empty cartridge case, primed. Firing device w/o detonator. Fuse, blasting cap. Grenade projection adapter and similar inert devices when packed with blank small-arms cartridge. Grenades, empty primed. Igniter, torpedo. Mechanical time fuze. Miniature practice bomb signal. Powder actuated tool w/cartridge packed in the same outside box. Primer, lock combination. Primer, lock electric. Primer, small-arms. Primers, percussion cap (such as used in small-arms ammunition). Remover w/cartridge, aircraft canopy, M1. Shell, shotgun. Small-arms ammunition w/o explosive bullets. T cutter (MK2). NOTE: The U. S. Army and Navy definitions of small-arms is based on tactical considerations. The Coast Guard definition shall take precedence in all cases involving transportation, handling, and stowage as cargo on board merchant vessels which are subject to the regulations in this part. This Coast Guard class does not require a permit. See § 146.29–13 and § 146.29–15.	"Cannon primers" "Combination primers." "Cordeau detonant." "Empty cartridge case, primed." "Explosive cable cutters." "Explosive rivets" "Fuse lighters" "Grenades, empty, primed." "Igniter." "Percussion caps." "Percussion fuze." "Safety fuse." "Small-arms ammunition." "Small-arms ammunition, tear gas cartridge." "Small-arms primers." "Time fuze (mechanical w/o booster)."	C C C C C C C C C C C C C C C C

handling and stowage chart.

Hazard	Stowage	Handling
The principal hazard in connection with the stowage of this class of ammunition is its involvement in fire from outside source. Under such conditions the presence of this type of ammunition will not contribute excessively to the fire. Fire may be controlled and extinguished by flooding or spraying with large amounts of water. Missiles from burning ammunition will not be projected with any considerable velocity Fire fighting personnel should take normal precautions and not expose themselves unnecessarily.	Any compartment or hold. May be stowed in any hold above, any hold below, or a hold adjacent to one in which flammable liquids, flammable solids or oxidizing materials, flammable compressed gases, hazardous articles or combustible liquids are stowed. Provisions of § 146.29–59 (Stowage adjacent to other dangerous articles) shall be complied with unless specifically exempted by the above paragraph. May be overstowed. May be transported in vans stowed on deck.	1. Observe marking on package to be certain that no small-arms ammunition with explosive bullets is included. 2. Do not subject packages to rough handling 3. Maximum weight per draft shall not exceed 3,000 lbs. plus 10%. 4. Drafts consisting of one or more palletized units shall not exceed 4,000 lbs. plus 10%. 5. Lifts of palletized units shall not be tiered except when using a sling so designed as to prevent the upper tier or tiers from shifting or falling from the draft. 6. The limiting weights noted above are for a 5-ton boom. See § 146.29–41.

Classification, handling and stowage chart—Continued

Class	Description	I. C. C. marking	I. C. C. class	Hazard	Stowage	Handling
II-A						
Bulk propellants such as: Ballistite, Cordite, FNH, NH, and NC powders; propellant charges, "Madeup bag charges" in outside shipping containers.	Propellant explosives for cannon in bulk. Rocket propellants in bulk. Propellant charges (made-up charges) in cloth powder bags with igniter attached and with or without its primer and packed in outside metal or fiberpack containers. Includes but is not limited to: Ballistite (bulk) for any purpose in large grains, sheets, or masses. Cartridge starter, jet engine. Charge, propelling for rod, earth blast driven. Cordite. FNH powder. NC powder (SPD). NH powder (SPDN). Propellant charges for separate loading ammunition such as: 6", 8", 12", 14", 16", 155mm, 240mm, 280mm. SPCA powder. SPCG powder.	"Propellant explosives, solid, Class A." "Propellant explosives, solid, Class B." "Starter cartridge, jet engine."	A B B	Loose powder may be ignited by spark, friction, or intense heat. Powder dust is especially hazardous. Burns rapidly with excessive heat. Burning powder in ships hold may explode, producing structural damage and missiles. If involved in a fire, immediately apply water freely and in quantity.	*AMMUNITION STOWAGE OR PORTABLE MAGAZINE* Shall not be overstowed with any other kind of cargo except bomb fin assemblies, empty water fillable practice bombs and empty auxiliary gas tanks. When Class I ammunition is stowed in the same hold or magazine with this class, the two stowages must be separated by a partition bulkhead or type "A" dunnage floor. Propellant charges of this class, for separate loading artillery projectile, filled with Class XI-A or XI-B chemical may be stowed together in the same hold or compartment provided the propellant charges are "top-stowed," the two items being separated by a type "A" dunnage floor. When so stowed, the propellant charges shall not be overstowed with any other cargo. For stowage adjacent to other dangerous articles see § 146.29-59. Bulk propellants shall not be loaded at an ammunition loading pier. May be transported in vans stowed on deck.	1. Handle by hand or mechanical means. 2. Do not drop, drag, tumble, walk or otherwise subject packages to shock. 3. Packages shall be handled in such a manner as to insure that no spark or friction will occur. 4. Observe packages or containers for evidence of sifting or inability to retain contents and reject any showing such signs. 5. In event a package is damaged and powder is spilled, immediately stop operations and sweep up any loose powder. 6. Remove damaged container and residue of powder to a safe location. 7. Gravity roller conveyor shall not be used unless authorized by the Captain of the Port in ports or facilities under his jurisdiction. At other ports or facilities authority for such use may be granted by the Officer in Charge. 8. Cargo handling stevedore gear may be trays, skipboards, pallets, or pieplates provided they are fitted with cargo nets or sideboards. Boxes or trays with fixed or removable sides are authorized. 9. Cargo nets w/o trays, skiphoards, pallets, or pieplates are not permitted. 10. The maximum permitted weight per draft when handled by pallet, skipboard, tray, or pieplate fitted with cargo net or sideboards shall not exceed 2,400 lbs. plus 10%. 11. Drafts consisting of one or more palletized units shall not exceed 4,000 lbs. plus 10%. 12. Lifts of palletized units shall not be tiered except when using a sling so designed as to prevent the upper tier or tiers from shifting or falling from the draft. 13. The limiting weights noted above are for a 5-ton hoom. See § 146.29-41.
II-B						
Fixed ammunition without explosive projectile and like items.	Fixed ammunition with solid projectile, blind loaded projectile, empty projectile or without projectile—(the explosive components consisting of the primer and powder charges in a cartridge case); cartridge cases primed and containing powder charges; practice grenades; practice and target rockets. Includes but is not limited to: Ammunition for cannon: Blank. Blind loaded and plugged (BL & P). Blind loaded with tracer (BL & T). Empty projectile. Solid projectile. Without projectile. Ammunition, armor piercing, shot (w/o HE). Cartridges, blank, saluting. Cartridges, fixed and semifixed, with smoke projectiles (other than HC). Cartridges, impulse. Cartridges, semi-fixed for Navy type guns: 5"/38, 5"/51, 5"/54, 6"/47. Cartridges, semi-fixed 120mm (Army w/o projectile). Charges: Catapult (other than aircraft personnel). Grenade, hand, practice. Jato (ICC Class B). Rocket—target. Rocket motors (w/o rocket heads). Rocket, packed with but not assembled to inert rocket heads. Rocket, practice, assembled with inert head.	"Ammunition for cannon with empty projectile." "Ammunition for cannon with inert-loaded projectile." "Ammunition for cannon with solid projectile." "Ammunition for cannon w/o projectile." "Jet thrust units (JATO) Class B." "Special fireworks".	B B B B B B	The principal hazard associated with this class of ammunition is its involvement in a fire. Pressures which would cause serious structural damage are not usually generated. If involved in a fire, it is possible the fire may be controlled or extinguished by flooding or spraying with large amounts of water. Fire-fighting personnel should take appropriate precautions and not expose themselves.	*AMMUNITION STOWAGE OR PORTABLE MAGAZINE* Boxed and crated ammunition may be overstowed with nondangerous cargo and permitted explosives. Tanked ammunition may be overstowed with bomb fin assemblies, empty water fillable practice bombs and empty auxiliary gas tanks. May be stowed in the same deep tank, lower hold or tweendeck hold with Class II-F ammunition provided the Class II-F is bottom stowed and provided further that no other class of military explosives is stowed in the hold or the tank below. May be stowed in the same deep tank or lower hold with Class II-J ammunition provided the Class II-J is bottom stowed. For stowage adjacent to other dangerous articles see § 146.29-59. May be transported in vans stowed on deck.	1. Handle by hand or mechanical means. 2. Do not drop, drag, tumble, walk or otherwise subject packages to shock. 3. Cargo handling stevedore gear may be trays, skipboards, pallets, or pieplates provided they are fitted with cargo nets or sideboards. Boxes or trays with fixed or removable sides are authorized. 4. Cargo nets without trays, skipboards, pallets or pieplates are not authorized. 5. The maximum permitted weight per draft when handled by pallet, skipboard, tray or pieplate fitted with cargo net or sideboards shall not exceed 2,400 lbs. plus 10%. 6. Drafts consisting of one or more palletized units shall not exceed 4,000 lbs. plus 10%. 7. Lifts of palletized units shall not be tiered except when using a sling so designed as to prevent the upper tier or tiers from shifting or falling from the draft. 8. The limiting weights noted above are for a 5-ton boom. See § 146.29-41.

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Classification, handling and stowage chart—Continued

Class	Description	I. C. C. marking	I. C. C. class	Hazard	Stowage	Handling
II-C						
Pyrotechnics (fireworks).	Fireworks are all manufactured articles designed primarily for the purpose of producing visible or audible pyrotechnic effects by combustion or explosion. Includes but is not limited to: Blue sump. Bomb, target identification. Cartridge igniter, turbo jet engine. Delay electric igniters. Depth charge markers, day. Destroyer, document, No. 3. Firecrackers, except M80. Fire starter. Fireworks—bombs. Fireworks—projectile. Flares of all types, such as: Aircraft. Airport. Bombardment. Float. High altitude parachute. Parachute. Parachute trip. Tow target. Trip. Flash cartridge 72 grains or under. Flash reducer (non black powder). Flash sheets (ltd. packing, ICC). Float lights. Fuse igniters. Fuse lighters. Fusee, warning, railroad. Grenade, hand or rifle, colored smoke (other than HC, WP, or WPW filled). Igniters, M1 and M2. Illuminating grenades and projectiles. Metal powders (ltd. packing ICC). Photoflash bomb M122. Photographic flash powder (ltd. packing ICC) Pull wire fuse lighter. Pyrotechnic mixture 72 grains or under. Quick match. Roman candles. Salutes. Separate loading smoke projectiles (other than HC, WP, WPW filled) when assembled with or without ejection charges and/or fuze. Signals: Aircraft float light. Day distress aircraft. Distress hand smoke Double star. Drift day (bronze powder, inert) Drift night (red phosphorous). Emergency identification: smoke, star submarine. Ground cluster. Ground high burst ranging. Ground parachute smoke. Ground parachute star. Highway. Pistol rocket: Comet shower. smoke star Single star. Submarine float. Simulator: Boobytrap, flash, illuminating, whistling, 72 grains or under. Hand grenade, M116. Smoke pots w/o oil. Squibs of all kinds. Tear gas pot fuse. Torpedo signalling, railway. Tracers. Very signal lights.	"Common fireworks." "Electric squibs" "Fuse igniters" "Fuse lighters" "Igniter" "Railway fusee" "Railway torpedoes" "Safety squibs" "Special fireworks"	C C C C C B C B	The principal hazard is involvement in a fire. Some pyrotechnics may ignite spontaneously if exposed to moisture or high temperatures, but under these conditions most types tend to become less sensitive and more difficult to ignite. Aircraft flares and high burst ranging ground signals involved in a fire may explode. Most other types burn with intense heat and without serious explosion. If involved in a fire immediately apply water freely and in quantity. Steam or fog is also effective but less so than water. Fire fighting personnel should work from behind barriers and not expose themselves unnecessarily.	*AMMUNITION STOWAGE, DEEP TANK STOWAGE, PORTABLE MAGAZINE OR PYROTECHNIC LOCKER* Shall be stowed away from heat and in a dry location, protected against moisture contacting the stowage. Shall not be overstowed with any other kind of cargo May be stowed in the same deep tank, lower hold or tween-deck hold with II-F provided the Class II-F ammunition is bottom stowed and provided that no other class of explosives or ammunition is stowed in the hold below such stowage. May be stowed in the same deep tank or lower hold as Class II-J provided the II-J ammunition is bottom stowed. For stowage adjacent to other dangerous articles see § 146.29-59. May be transported in vans stowed on deck.	1. Handle by hand or mechanical means. 2. Do not drag, drop, tumble, walk or otherwise subject packages to shock. 3. Do not load during excessive rainy weather, unless complete protection against moisture coming in contact with the package is provided. 4. Do not use chute in loading or unloading. 5. Cargo handling stevedore gear may be trays, skipboards, pallets, or pieplates provided they are fitted with cargo nets or sideboards. Boxes or trays with fixed or removable sides are authorized. 6. Cargo nets without trays, skipboards, pallets, or pieplates are not permitted. 7. Packages or containers shall be stowed in the position indicated by their marking. 8. The maximum permitted weight per draft when handled by pallet, skipboard, tray or pieplate fitted with cargo net or sideboards shall not exceed 2,400 lbs. plus 10%. 9. Drafts consisting of one or more palletized units shall not exceed 4,000 lbs. plus 10%. 10. Lifts of palletized units shall not be tiered except when using a sling so designed as to prevent the upper tier or tiers from shifting or falling from the draft. 11. The limiting weights noted above are for a 5-ton boom. See § 146.29-41.

Classification, handling and stowage chart—Continued

Class	Description	I. C. C. marking	I. C. C. class
II–D			
Chemical ammunition, WP or PWP filled (solid).	All chemical ammunition, including fixed, semi-fixed and separate loading, filled with WP or PWP (white phosphorus) when assembled or packed with or w/o their ignition elements, bursting charges, fuzes or propellants. WP or PWP shipped in bulk in drums, barrels, or other authorized shipping containers shall be classified as a flammable solid. WP or PWP when shipped in authorized ICC specification containers or Chemical Corps specification containers of integrity equal to ICC containers (including projectiles, bombs, and rocket heads, w/o ignition elements, bursting charges or fuzes), may be handled and stowed either as a flammable solid or as chemical ammunition Class II–D. Includes but is not limited to: Bombs, aircraft, WP or PWP filled. British Calling Cards. Fire leaves. Grenades, hand, WP or PWP filled. Grenades, rifle, WP or PWP filled. Igniters, phosphorus filled. Projectiles, WP or PWP filled packed w/ or w/o propellants. Rockets Heads, WP or PWP filled. Rockets, assembled w/motors, WP or PWP filled. NOTE: The U. S. Army and Navy, when shipping ammunition filled with white phosphorus, mark such ammunition and the containers thereof with the word "smoke" and the symbol WP or PWP. The ammunition is also marked with one yellow band.	"Ammunition for cannon with explosive projectile." "Ammunition for cannon with smoke projectile." "Explosive bomb" "Explosive projectile." "Igniter" "Special fireworks" Shipping name of item when shipped as flammable solid.	A A A A C B F. S.

Hazard	Stowage	Handling
The principal characteristic of white phosphorus is that of spontaneously igniting upon exposure to air, burning with an intensely hot flame, and giving off large volumes of white smoke. The fumes are highly discomforting. Burning phosphorus gives off phosphorus oxide which is toxic upon sustained exposure thereto. Phosphorus is intensely poisonous when taken internally. It becomes liquid at 111° F. Leakage which sometimes occurs, usually gives warning by smoke. Ammunition fitted with fuzes and boosters, if involved in a fire will usually explode with moderate violence thus tending to spread the fire rapidly. Apply water freely and in quantity to control spread of fire. Steam or fog is also effective but less so than water. It is necessary to keep the loose WP or PWP completely covered with water to prevent reignition. Organic material contaminated with WP or PWP such as dunnage in the holds of vessels, must be removed and disposed of by burning. Otherwise after drying out, these substances are likely to reignite. Rockets, WP filled, assembled with motor and involved in a fire will present an additional hazard due to the propulsive nature of the rocket. Loose phosphorus in contact with skin tissue will adhere causing painful burns and continue to consume skin tissue until removed. A solution of copper sulphate is effective in counteracting this action. Use rubber protective gloves, boots, aprons, and gas masks to provide effective protection.	*AMMUNITION STOWAGE, CHEMICAL AMMUNITION STOWAGE, PORTABLE MAGAZINE, OR DEEP TANK STOWAGE* It is important to stow in locations not subject to temperatures above 100° F. When shipments of Army ammunition cannot be so stowed the following shall be complied with: WP or PWP filled items of ammunition shall be stowed in a nose up position unless other requirements are specified by the Army. The position of the nose end of the item of ammunition is marked on the outside package or container. Drums or other authorized ICC or Chemical Corps specification containers filled with WP or PWP may be stowed in the same hold or compartment with chemical ammunition Class II–D. For stowage adjacent to other dangerous articles see § 146.29–59. When given chemical ammunition stowage, see § 146.29–85 for additional requirements. May be transported in vans stowed on deck.	1. Handle by hand or mechanical means. 2. Do not drop, drag, tumble, walk or otherwise subject packages to shock. 3. Do not use chute in loading or unloading. 4. Observe packages or projectiles for leakage and reject any showing such signs. 5. Packages or containers shall be stowed in the position indicated by their marking. 6. Cargo handling stevedore gear may be trays, skipboards, pallets, or pieplates provided they are fitted with cargo nets or sideboards. Boxes or trays with fixed or removable sides are authorized. 7. Cargo nets w/o trays, skipboards, pallets, or pieplates are not permitted. 8. The maximum permitted weight per draft when handled by pallet, skipboard, tray, or pieplate fitted with cargo net or sideboards shall not exceed 2,400 lbs. plus 10%. 9. Drafts consisting of one or more palletized units shall not exceed 4,000 lbs. plus 10%. 10. Lifts of palletized units shall not be tiered except when using a sling so designed as to prevent the upper tier or tiers from shifting or falling from the draft. 11. Wire rope slings are permitted when handling unboxed bombs or containers filled with WP or PWP. (See table Limiting Loads, Class X–A.) 12. Drums of WP or PWP shall not be handled by attaching hooks to the chime of the drums. 13. The limiting weights noted above are for a 5-ton boom. See § 146.29–41.

Classification, handling

Class	Description	I. C. C. marking	I. C. C. class
II-E			
Chemical ammunition. HC filled (solid).	All chemical ammunition including fixed, semi-fixed and separate loading, filled with HC (Hexachlorethane, a smoke mixture) when assembled or packed w/ or w/o their ignition elements, bursting charges, ejection charges, fuzes or propellants. HC mixture shipped in bulk in drums, barrels or other authorized shipping containers shall be classified as an oxidizing material. HC mixture when shipped in authorized ICC specification containers or Chemical Corps specification containers of integrity equal to ICC containers (including projectiles and bombs w/o ignition elements, bursting charges or fuzes) may be handled and stowed either as an oxidizing material or as chemical ammunition Class II-E. Includes but is not limited to: Bombs, aircraft, smoke, HC filled. Bombs, floating, smoke, HC filled. Bombs, smoke identification, HC filled. Float, smoke, HC filled. Grenades, hand, HC filled. Grenades, signal, HC filled. Grenades, colored smoke, HC filled. Pots, smoke, HC filled. Projectiles, artillery, smoke, HC filled. Projectiles, mortar, smoke, HC filled. NOTE: The U. S. Army and Navy, when shipping ammunition filled with HC smoke or colored smoke, mark such ammunition HC smoke or colored smoke and mark the ammunition with one yellow band.	"Ammunition for cannon with smoke projectile." "Explosive bomb" "Explosive projectile." "Special fireworks" Shipping name of item when shipped as oxidizing material.	A A A B Oxy. M.

and stowage chart—Continued

Hazard	Stowage	Handling
HC (hexachlorethane mixture) is subject to spontaneous ignition through the action of moisture on the HC mixture. Once started, the temperature rises quickly and may be sufficient to cause adjacent containers of HC to ignite. The reaction once started is self-supporting and requires no oxygen. Water can be applied freely to prevent spread of fire. The use of Foamite, CO_2 or fog is less effective. Personnel fighting fire involving HC articles of ammunition especially when stowed in the hold of a vessel, should avoid working in dense smoke if not wearing rescue breathing apparatus or gas masks. As there will probably be an oxygen deficiency in dense smoke, self-contained breathing apparatus should always be used in preference to gas masks.	*AMMUNITION STOWAGE, CHEMICAL AMMUNITION STOWAGE, PORTABLE MAGAZINE, OR DEEP TANK STOWAGE* It is important to stow in locations not subject to temperatures above 100° F. and protected from moisture. Stowage shall be accessible from cargo hatch or other access means to the hold or compartment. Drums or other authorized ICC or Chemical Corps specification containers filled with HC may be stowed in the same hold or compartment with chemical ammunition Class II-E. May be stowed in the same deep tank, lower hold or tween-deck hold with Class II-F provided the Class II-F ammunition is bottom stowed and provided further that no other class of military explosives is stowed in the hold or tank below. For stowage adjacent to other dangerous articles see § 146.29-59. When given chemical ammunition stowage, see § 146.29-85 for additional requirements. May be transported in vans stowed on deck.	1. Handle by hand or mechanical means. 2. Do not drop, drag, tumble, walk or otherwise subject packages to shock. 3. Do not use chute in loading or unloading. 4. Observe packages or projectiles for leakage and reject any showing such signs. 5. Packages or containers shall be stowed in the position indicated by their markings. 6. Cargo handling stevedore gear may be trays, skipboards, pallets or pieplates provided they are fitted with cargo nets or sideboards. Boxes or trays with fixed or removable sides are authorized. 7. Cargo nets w/o trays, skipboards, pallets, or pieplates are not permitted. 8. The maximum permitted weight per draft when handled by pallet, skipboard, tray or pieplate fitted with cargo net or sideboards shall not exceed 2,400 lbs. plus 10%. 9. Drafts consisting of one or more palletized units shall not exceed 4,000 lbs. plus 10%. 10. Lifts of palletized units shall not be tiered except when using a sling so designed as to prevent the upper tier or tiers from shifting or falling from the draft. 11. Wire rope slings are permitted when handling unboxed bombs or containers filled with HC mixture. (See table of Limiting Loads, Class X-A.) 12. Drums of HC mixture shall not be handled by attaching hooks to the chime of the drums. 13. The limiting weights noted above are for a 5-ton boom. See § 146.29-41.

Classification, handling

Class	Description	I. C. C. marking	I. C. C. class
II-F			
Chemical ammunition FS or FM smoke filled (liquid).	All chemical ammunition including fixed, semi-fixed and separate loading filled with smoke, FS (sulfur trioxide in chlorsulfonic acid) or FM (titanium tetrachloride) when assembled or packed with or w/o their bursting charges, fuzes, or propellants. FS or FM shipped in drums, barrels, cylinders or other authorized containers shall be classified as a corrosive liquid. FS or FM when shipped in authorized ICC specification containers or Chemical Corps specification containers of integrity equal to ICC containers (including rocket heads, w/o bursting charges or fuzes) may be handled and stowed either as corrosive liquid or as a chemical ammunition Class II-F. Includes but is not limited to: Grenades, frangible, smoke FS or FM filled. Grenades, smoke, FS or FM filled. Rockets, FS or FM filled. Projectile, artillery, FS or FM filled. Projectile, mortar, FS or FM filled. Spotting charges, FS filled. NOTE: The U. S. Army and Navy, when shipping ammunition filled with FS or FM smoke, mark such ammunition and the containers thereof with the word "Smoke" and the symbol FS or FM. The ammunition is also marked with one yellow band.	"Ammunition for cannon with smoke projectile." "Explosive projectile." "Rocket ammunition with smoke projectile." Shipping name of item when shipped as corrosive liquid.	A A A Cor. L.

and stowage chart—Continued

Hazard	Stowage	Handling
FS (sulfur trioxide in chlorsulfonic acid) and FM (titanium tetrachloride) are liquids which fume badly when hot. They react violently with small amounts of water and form a dense white smoke upon release to the atmosphere. FS is highly corrosive both as a liquid and as a smoke. FM is corrosive in liquid only, but its smoke is very irritating. Leakage of FS or FM should be washed off immediately with large volumes of water. Personnel working in a confined space where high concentrations of FS or FM smoke exists should use rubber protective gloves, boots, aprons and gas masks for effective protection.	*AMMUNITION STOWAGE, CHEMICAL AMMUNITION STOWAGE, PORTABLE MAGAZINE, OR DEEP TANK STOWAGE* It is important to stow away from heat and to protect from moisture. May be stowed in the same deep tank, lower hold or tween-deck hold with Classes II-C, II-E, II-G, and III provided the Class II-F ammunition is bottom stowed and provided further that no other class of explosives or ammunition is stowed in the hold or tank below. May be stowed in the same deep tank, lower hold or tween-deck hold with Classes II-B, IV, V, and VII provided the Class II-F ammunition is bottom stowed and provided further that no other class of explosives or ammunition is stowed in the hold or tank below. Drums or other authorized ICC or Chemical Corps specification containers filled with FS or FM may be stowed in the same hold or compartment with chemical ammunition Class II-F. Shall not be stowed over other types of ammunition. For stowage adjacent to other dangerous articles see § 146.29-59. When given chemical ammunition stowage, see § 146.29-85 for additional requirements. May be transported in vans stowed on deck.	1. Handle by hand or mechanical means. 2. Do not drop, drag, tumble, walk or otherwise subject packages to shock. 3. Observe packages or projectiles for leakage and reject any showing such signs. 4. Containers or projectiles shall be stowed in the position indicated by their marking. 5. Cargo handling stevedore gear may be trays, skipboards, pallets, or pieplates provided they are fitted with cargo nets or sideboards. Boxes or trays with fixed or removable sides are authorized. 6. Cargo nets w/o trays, skipboards, pallets, or pieplates are not permitted. 7. The maximum permitted weight per draft when handled by pallet, skipboard, tray or pieplate fitted with cargo net or sideboards shall not exceed 2,400 lbs. plus 10%. 8. Drafts consisting of one or more palletized units shall not exceed 4,000 lbs. plus 10%. 9. Lifts of palletized units shall not be tiered except when using a sling so designed as to prevent the upper tier or tiers from shifting or falling from the draft. 10. Drums of FS or FM shall not be handled by hooks attached to the chime of the drums. 11. The limiting weights noted above are for a 5-ton boom. See § 146.29-41.

Classification, handling and stowage chart—Continued

Class	Description	I. C. C. marking	I. C. C. class	Hazard	Stowage	Handling
II-G						
Chemical ammunition. Incendiary composition, IM, PT or NP filled (oil gel)	Chemical ammunition filled with IM, PT or NP (thickened fuels) when assembled or packed with or w/o ignition elements, bursting charges or fuzes. IM, PT or NP shipped in drums, barrels or other authorized shipping containers shall be classified as a flammable solid. IM, PT or NP when shipped in authorized ICC specification containers or Chemical Corps specification containers of integrity equal to ICC containers (including bombs w/o ignition elements, bursting charges or fuzes) may be handled and stowed either as a flammable solid or as chemical ammunition Class II-G. Includes but is not limited to: Bombs. Bombs, cluster incendiary. Frangible grenades. NOTE: The U. S. Army and Navy, when shipping ammunition filled with these incendiary compositions, mark such ammunition or containers thereof with the Chemical Corps symbol of the filler and one purple band.	"Explosive bomb".. "Grenade, hand".... "Special fireworks".. Shipping name of item when shipped as flammable solid.	A A B F. S.	The principal hazard of IM, PT or NP filled items is involvement in a fire. They burn rapidly with intense heat. Extinguishment of fires is best accomplished by means of water fog. Fog foam or a foam steam (mechanical or chemical) is likewise effective. CO_2 should not be used unless the fire is small and in its incipient stage. In holds of a vessel large volumes of water are recommended as a cooling agent provided such may be employed without "floating off" burning gel. The vapors from heated napalm are toxic and rescue breathing apparatus should be worn while working in noticeable concentrations. Clusters of incendiary bombs in this category may contain a certain percentage of bombs having a high explosive charge capable of causing fragments which could be dangerous to fire-fighting personnel. Incendiaries of this type may contain ignition components of WP adding an additional hazard.	*AMMUNITION STOWAGE, CHEMICAL AMMUNITION STOWAGE, PORTABLE MAGAZINE, OR DEEP TANK STOWAGE* Shall not be stowed within 10 feet of a heat bulkhead. May be stowed in the same deep tank, lower hold or tween deck hold with Class II-F provided the Class II-F ammunition is bottom stowed and provided further that no other class of explosives or ammunition is stowed in the hold or tank below. May be stowed in a deep tank or lower hold with Class II-J incendiary ammunition provided the Class II-J is bottom stowed. For stowage adjacent to other dangerous articles, see § 146.29-59. When given chemical ammunition stowage, see § 146.29-85 for additional requirements. May be transported in vans stowed on deck.	1. Handle by hand or mechanical means. 2. Do not drop, drag, tumble, walk or otherwise subject packages, containers or bombs to shock. 3. Do not use chute in loading or unloading. 4. Observe packages, containers or bombs for failure or inability to retain contents and reject any showing such signs. 5. Packages, or containers shall be stowed in the position indicated by their marking. 6. Cargo handling stevedore gear may be trays, skipboards, pallets, or pieplates provided they are fitted with nets or sideboards. Boxes or trays with fixed or removable sides are authorized. 7. Cargo nets w/o trays, skipboards, pallets or pieplates are not permitted. 8. The maximum permitted weight per draft when handled by pallet, skipboard, tray or pieplate fitted with cargo net or sideboards shall not exceed 2,400 lbs. plus 10%. 9. Drafts consisting of one or more palletized units shall not exceed 4,000 lbs. plus 10%. 10. Lifts of palletized units shall not be tiered except when using a sling so designed as to prevent the upper tier or tiers from shifting or falling from the draft. 11. Wire rope slings are permitted when handling unboxed bombs or containers filled with IM, PT or NP. (See table of Limiting Loads, Class X-A.) 12. Drums of IM, PT, or NP shall not be handled by attaching hooks to the chime of the drums. 13. The limiting weights noted above are for a 5-ton boom. See § 146.29-41.
II-H						
Chemical ammunition. Water activated.	Chemical ammunition filled with sodium, calcium carbide, calcium phosphide, lithium hydride, with or w/o explosive components. Includes but is not limited to: Beacons, NEA. Can, false target. Depth charge markers, night. Grenades, sodium filled. Igniters, sodium filled. Pots, torpedo torch. Projectile, false target.	There are no provisions in the current ICC regulations for the marking of this class of ammunition.	----------	On contact with moisture, metallic sodium or lithium hydride will liberate large quantities of hydrogen gas thus producing an explosive hazard. The reaction of metallic sodium with water is sufficiently violent to cause ignition of the liberated hydrogen. Fumes from burning sodium are caustic. On contact with moisture, calcium carbide or calcium phosphide will liberate phosphine and acetylene gases. The phosphine is toxic but extremely unstable, ignites spontaneously and at the same time ignites the acetylene gas. Fires involving these items cannot be extinguished by water, carbon dioxide or foam. Smothering with an inert substance such as dry sand or dry soda ash offers effective control. Jettisoning should not be accomplished in a port or roadstead as the floats will continue to burn until filler is consumed jeopardizing other vessels and piers.	*SPECIAL STOWAGE* On deck in a portable magazine, in a deck house or other location readily accessible for jettisoning. Stowage shall be waterproof. Shall not be stowed with any other class of military explosives or any other dangerous articles. May be transported in vans stowed on deck.	1. Handle by hand or mechanical means. 2. Do not drop, drag, tumble, walk or otherwise subject packages to shock. 3. Do not use chute in loading or unloading. 4. Do not load during excessive rainy weather unless complete protection against moisture coming in contact with the package is provided. 5. Observe packages or containers for evidence of sifting or inability to retain contents and reject any showing such signs. 6. In event a package is damaged and powder is spilled, immediately stop operations and sweep up any loose powder. 7. Remove damaged container and residue of powder to a safe location. 8. Cargo handling stevedore gear may be trays, skipboards, pallets, or pieplates provided they are fitted with cargo nets or sideboards. Boxes or trays with fixed or removable sides are authorized. 9. Cargo nets w/o trays, skipboards, pallets or pieplates are not permitted. 10. The maximum permitted weight per draft when handled by pallet, skipboard, tray or pieplate fitted with cargo net or sideboards shall not exceed 2,400 lbs. plus 10%. 11. Drafts consisting of one or more palletized units shall not exceed 4,000 lbs. plus 10%. 12. Lifts of palletized units shall not be tiered except when using a sling so designed as to prevent the upper tier or tiers from shifting or falling from the draft. 13. The limiting weights noted above are for a 5-ton boom. See § 146.29-41.

Classification, handling

Class	Description	I. C. C. marking	I. C. C. class
II–J			
Chemical ammunition. TH incendiary composition filled (solid).	All chemical ammunition filled with incendiary composition TH (thermite, thermate or thermate magnesium) with or w/o fuze or explosive element. Includes but is not limited to: Bombs, incendiary cluster. Grenades, thermate. Incendiary safe destroyers. Thermite burning charges. Thermite charges under water. Thermite igniters. Thermite units 10 lbs. NOTE: The U. S. Army and Navy, when shipping ammunition filled with these incendiary compositions, mark such ammunition or containers thereof with the Chemical Corps symbol of the filler and with one purple band.	"Explosive bomb" "Grenade, hand" "Igniter" "Special fireworks"	A A C B
III			
Fuzes, PD w/o boosters; fuzes, AT mine, non-chemical, w/o boosters; fuzes, bomb tail, w/o boosters; fuzes, tracer; primer detonators; primers, etc.	Point fuzes w/o boosters for projectiles and rockets; anti-tank mine fuzes (non-chemical) w/o booster; bomb tail fuzes w/o boosters; primer detonators, cannon primers, other than lock primers, when packed in separate shipping containers. Many ICC Class C fuzes, with or w/o boosters, are also of this class. If these fuzes are shipped with boosters, they must be so made and packed that they will not cause functioning of other fuzes, explosives or explosives devices if one of the fuzes detonates in a shipping container. Includes but is not limited to: Case combination primer. Case electric primer. Case percussion ignition primer. Case percussion primer. Combination electric and percussion primer. Fuze, anti-tank, mine (non-chemical) w/o booster. Fuze, base percussion. Fuze, bomb tail, w/o booster. Fuze, PD w/o booster. Fuze, percussion. Fuze, MTSQ w/o booster. Fuze, tracer. Fuze, TSQ w/o booster. Igniter, Jato, such as M151. Igniter for rockets, i. e. M12, M18, M20. Magazine, extension primers. Mines practice with spotting charge and/or fuze. Percussion primers other than lock. Primer, detonators, fuze, bomb, various delays.	"Cannon primers" "Combination fuzes." "Combination primers." "Igniter, jet thrust" "Percussion caps" "Percussion fuzes" "Time fuzes" "Tracer fuzes"	C C C B C C C C

and stowage chart—Continued

Hazard	Stowage	Handling
The principal hazard of TH filled items is involvement in a fire. They burn rapidly with intense heat and usually form large quantities of molten iron. The presence of a small explosive charge in some TH items forms an additional hazard in case of a fire. Carbon dioxide and carbon tetrachloride extinguishers should not be used to combat fires involving TH because the reaction of carbon tetrachloride with molten metal produces toxic gases and that of carbon dioxide on magnesium may produce an explosion. In the hold of a vessel large volumes of water are recommended as an extinguishing agent. Fire fighters should work from behind barriers when possible.	*DEEP TANK STOWAGE, AMMUNITION STOWAGE OR PORTABLE MAGAZINE* Shall be stowed only in a deep tank or lower hold, and in all cases bottom stowed. For stowage adjacent to other dangerous articles see section 146.29–59. For limited quantity shipments not in excess of 500 lbs. net TH content, see § 146.29–99 (b), NOTE D.	1. Handle by hand or mechanical means. 2. Do not drop, drag, tumble, walk or otherwise subject packages to shock. 3. Do not use chute in loading or unloading. 4. Observe packages or containers for evidence of failure or inability to retain contents and reject any showing such signs. 5. Cargo handling stevedore gear may be trays, skipboards, pallets or pieplates provided they are fitted with cargo nets or sideboards. Boxes or trays with fixed or removable sides are authorized. 6. Cargo nets w/o trays, skipboards, pallets or pieplates are not permitted. 7. The maximum permitted weight per draft when handled by pallet, skipboard, tray or pieplate, fitted with cargo net or sideboards shall not exceed 4,000 lbs. plus 10%. 8. Drafts consisting of one or more palletized units shall not exceed 4,000 lbs. plus 10%. 9. Lifts of palletized units shall not be tiered except when using a sling so designed as to prevent the upper tier or tiers from shifting or falling from the draft. 10. Wire rope slings are permitted when handling unboxed bombs or containers filled with TH. (See table of Limiting Loads, Class X–A.) 11. The limiting weights noted above are for a 5-ton boom. See § 146.29–41.
The amount of explosives in single items of this class varies from 30 to 500 grains. It is likely they will explode progressively. Structural damage caused by the pressures generated would probably be limited to the immediate vicinity. Missiles are light and usually fall within 300 feet. These types of ammunition are loaded with explosives that are sensitive to shock and friction. Shock and fire are the principal hazards to this type of ammunition. If involved in a fire, fire fighting personnel should take normal precautions and not expose themselves unnecessarily. Fire may be controlled and extinguished by flooding or spraying with large amounts of water.	*AMMUNITION STOWAGE, SPECIAL STOWAGE, OR PORTABLE MAGAZINE.* This class of ammunition shall not be overstowed with any other cargo or ammunition except Classes VI and VIII. May be stowed in the same lower hold or tween-deck hold with Class II–F provided the Class II–F is bottom stowed and provided further that no other class of military explosives is stowed in the hold below or the deep tank directly below. For stowage adjacent to other dangerous articles see § 146.29–59.	1. Handle by hand or mechanical means. 2. Do not drop, drag, tumble, walk or otherwise subject packages to shock. 3. Gravity roller conveyors not authorized. 4. Do not use chute in loading or unloading. 5. Trays with sideboards shall be used when loading by mechanical means. 6. Packages shall not be stacked on a tray to a height above its sideboards. 7. Trays shall not be swung unnecessarily over open hatches or holds containing military explosives or other dangerous cargo. 8. Trays shall be hoisted and lowered carefully and deposited without undue shock on a mattress or other shock absorbing material. 9. Packages shall be stowed in the position indicated by their markings. 10. The maximum permitted weight per draft when handled by tray with sideboards shall not exceed 2,400 lbs. plus 10%. 11. Drafts consisting of one or more palletized units shall not exceed 4,000 lbs. plus 10%. 12. Lifts of palletized units shall not be tiered except when using a sling so designed as to prevent the upper tiers from shifting or falling from the draft. 13. A portable magazine in which this class of ammunition is stowed and hoisted on board a vessel as a unit load shall not exceed 4,000 lbs. plus 10%. 14. The limiting weights noted above are for a 5-ton boom. See § 146.29–41.

Classification, handling

Class	Description	I. C. C. marking	I. C. C. class
IV			
Fixed and semifixed ammunition with explosive loaded projectile.	Fixed and semifixed ammunition, packed as complete rounds (including artillery, mortar and gun ammunition) grenades and rockets, when assembled with explosive projectiles or bursting charge. Small-arms ammunition with explosive bullets or projectiles. Includes but is not limited to: Anti-personnel mine, M2 and M3. Artillery ammunition of calibers 0.75" to 5" inclusive, with explosive, illuminating or incendiary projectiles. Grenades, hand, defensive. Grenades, hand, defensive, TNT filled, fuzed or unfuzed. Grenades, hand, fragmentation. Grenades, rifle, AT. Grenades, rifle, HE filled. Gun ammunition of calibers 0.75" to 5" inclusive, with explosive, illuminating or incendiary projectiles. Mortar ammunition (explosive or illuminating). Rockets, with explosive heads packed in the same container with, but not assembled to motors. Rockets, 2.75" FFAR, assembled or unassembled. Rockets, 3.5" HEAT. Small-arms ammunition with explosive bullets.	"Ammunition for cannon with explosive projectile." "Ammunition for cannon with incendiary projectile." "Ammunition for small arms with explosive bullets." "Ammunition for small arms with explosive projectile." "Hand grenades" "Rifle grenades" "Rocket ammunition with explosive projectile." "Rocket ammunition with illuminating projectile."	A A A A A A A A
V			
Separate loading projectiles filled with explosive "D".	Separate loading projectiles of all calibers filled with explosive "D", fuzed or unfuzed; and projectiles filled with explosives "D", fuzed or unfuzed, not assembled to or packed with cartridge cases. Explosive "D" is used as a bursting charge for all projectiles which must withstand severe stresses and shocks before detonating; such as armor-piercing projectiles. Includes but is not limited to: Armor piercing projectiles. Deck piercing projectiles. NOTE: In general, Classes V and VII types of projectiles will be shipped in accordance with the following basic rules: Point fuzed projectiles with false ogives will be crated. Point fuzed projectiles without false ogives will have grommets and eyebolt lifting plugs. Base fuzed projectiles with relatively fragile parts such as false ogives, steel caps and windshields will be crated. Base fuzed projectiles without false ogives will not be crated but will have grommets. All Navy 6" through 16" separate loading projectiles are explosive "D" loaded.	"Explosive projectile".	A

and stowage chart—Continued

Hazard	Stowage	Handling
Articles in this class present a severe fire hazard and usually explode progressively, only a few boxes at a time, many explosions of individual rounds being of a very low order. Pressure which would cause serious structural damage is not usually generated. Most missiles would fall within 600 feet. If involved in a fire it is possible the fire may be controlled or extinguished by flooding or spraying with large amounts of water. Fire fighting personnel should take appropriate precautions and not expose themselves unnecessarily.	*AMMUNITION STOWAGE OR PORTABLE MAGAZINE* Boxed and crated ammunition may be overstowed with nondangerous cargo and permitted explosives. Tanked ammunition may be overstowed with bomb fin assemblies, empty water fillable practice bombs and empty auxiliary gas tanks. May be stowed in the same deep tank, lower hold or tween-deck hold with Class II-F ammunition provided the Class II-F is bottom stowed and provided further that no other class of military explosives is stowed in the hold or tank below. May be stowed in the same deep tank or lower hold with Class II-J ammunition provided the Class II-J is bottom stowed. For stowage adjacent to other dangerous articles see § 146.29-59.	1. Handle by hand or mechanical means. 2. Do not drop, drag, tumble, walk or otherwise subject packages to shock. 3. Cargo handling stevedore gear may be trays, skipboards, pallets or pieplates, provided they are fitted with cargo nets or sideboards. Boxes or trays with fixed or removable sides are authorized. 4. Cargo nets without trays, skipboards, pallets or pieplates are not authorized. 5. The maximum permitted weight per draft when handled by pallet, skipboard, tray or pieplate fitted with cargo net or sideboards shall not exceed 2,400 lbs. plus 10%. 6. Drafts consisting of one or more palletized units shall not exceed 4,000 lbs. plus 10%. 7. Lifts of palletized units shall not be tiered except when using a sling so designed as to prevent the upper tier or tiers from shifting or falling from the draft. 8. The limiting weights noted above are for a 5-ton boom. See § 146.29-41.
If involved in a fire will very likely detonate as a result of exposure to heat. These projectiles usually explode one at a time and in practically all cases with low order explosion. There is no certainty that en masse explosion will not occur. Most missiles will fall within 1,200 feet.	*AMMUNITION STOWAGE OR PORTABLE MAGAZINE* This ammunition, boxed, unboxed, or palletized units thereof, may be overstowed. Care must be taken not to damage rotating bands of projectiles that are not in coutainers. May be stowed in the same deep tank, lower hold or tween deck hold with Class II-F ammunition provided the Class II-F is bottom stowed and provided further that no other class of military explosives is stowed in the same hold below or in the tank below. Class V when unfuzed and no fuzes packed in container may be stowed with Class X-A. For stowage adjacent to other dangerous articles see section 146.29-59.	1. Handle by hand or mechanical means. 2. Do not drop, drag, tumble, walk or otherwise subject packages to shock. 3. Do not use chute in loading or unloading. 4. Bare projectiles shall not be rolled except under hand control and on a level surface without appreciable incline. 5. Protect rotating bands from damage. Avoid injury to or removal of paint or grease from bourrelet. 6. When handling items packed in outside containers, cargo handling stevedore gear may be trays, skipboards, pallets, or pieplates, provided they are fitted with cargo nets or sideboards. Boxes or trays with removable sides are authorized. 7. Projectile tongs or lifting stud and eye are authorized. Wire slings of a design approved by the Captain of the Port may be used. 8. Cargo nets without trays, skipboards, pallets or pieplates are not permitted. 9. The maximum permitted weight per draft when handled by tray, skipboard, pallet, or pieplate fitted with cargo net or sideboards shall not exceed 2,400 lbs. plus 10%. 10. Single projectiles weighing in excess of 2,201 lbs. must be loaded or unloaded one at a time. 11. Drafts consisting of one or more palletized units shall not exceed 4,000 lbs. plus 10%. 12. Lifts of palletized units shall not be tiered except when using a sling so designed so as to prevent the upper tier or tiers from shifting or falling from the draft. 13. The limiting weights noted above are for a 5-ton boom. See § 146.29-41.

Classification, handling and stowage chart—Continued

Class	Description	I. C. C. marking	I. C. C. class
VI			
BD fuzes. Bomb fuzes with boosters. PD fuzes with boosters. Rocket fuzes with boosters.	Base detonating fuzes (for all calibers) and PD fuzes with boosters; bomb and rocket fuzes with boosters; auxiliary booster assembled to or packed with the fuze; depth charge pistol with detonator and with or without booster assembled to or packed with pistol. (For boosters, auxiliary boosters, bursters, etc., having no initiating or priming elements and packed independently, see Class X–A.) Includes but is not limited to: Adapter booster, with detonator. Auxiliary booster, with detonator. Boosters. Burster, with detonator. Depth charge pistol, with detonator and with or without booster. Detonating fuzes, Class A. Fuze: Auxiliary detonating. Base detonating (for all calibers). Bomb nose. Bomb tail with booster. Hydrostatic bomb. Hydrostatic bomb tail. Point detonating with booster. Rocket. Fuzes with boosters assembled thereto. Mine, anti-personnel, non-metallic, M14 Mine firing mechanism, C–1.	"Detonating fuzes, Class A".	A
VII			
Separate loading HE projectiles, mass, detonating, with other than explosive "D".	Separate loading projectiles of all calibers, fuzed or unfuzed, except those loaded with explosive "D"; and loaded projectiles except those loaded with explosive "D", fuzed or unfuzed, not assembled to or packed with cartridge cases; fuzed cluster fragmentation bombs, rocket heads fuzed or unfuzed and less than 200 lbs gross weight, anti-tank mines, packed with fuzes in same container or box. Includes but is not limited to: Anti-tank mines, packed with fuzes in same container or box. Cluster, fragmentation bomb (with individual bombs fuzed but without cluster fuzed). High explosive anti-tank projectile. High explosive projectile. Rocket heads fuzed or unfuzed and under 200 lbs. not assembled to or shipped with rocket motors. Wafers of fragmentation bombs (with individual bombs fuzed). NOTE: In general, Classes V and VII types of projectiles will be shipped in accordance with the following basic rules: Point fuzed projectile with false ogives will be crated. Point fuzed projectile without false ogives will have grommets and eyebolt lifting plugs. Base fuzed projectile with relatively fragile parts such as false ogives, steel caps, and windshields will be crated. Base fuzed projectiles without false ogives will not be crated but will have grommets to protect rotating bands.	"Explosive bomb" "Explosive mine" "Explosive projectile".	A A A

Hazard	Stowage	Handling
The amount of explosives in single items does not usually exceed one-half pound. It is likely they would explode progressively. Structural damage caused by the pressure generated would probably be limited to the immediate vicinity. Missiles are light and usually fall within 600 feet. These types of ammunition are loaded with explosives that are sensitive to shock and heat. If involved in a fire, it is possible the fire may be controlled or extinguished by flooding or spraying with large amounts of water. Fire-fighting personnel shall take appropriate precautions and not expose themselves unnecessarily.	*AMMUNITION STOWAGE, SPECIAL STOWAGE, OR PORTABLE MAGAZINE.* This class of ammunition shall not be overstowed with any other cargo or military explosives except Classes III and VIII. For stowage adjacent to other dangerous articles see § 146.29–59.	1. Handle by hand or mechanical means. 2. Do not drop, drag, tumble, walk or otherwise subject packages to shock. 3. Gravity roller conveyors not authorized. 4. Do not use chute in loading or unloading. 5. Trays with sideboards shall be used when loading by mechanical means. 6. Packages shall not be stacked on a tray to a height above its sideboards. 7. Trays shall not be swung unnecessarily over open hatches or holds containing military explosives or other dangerous cargo. 8. Trays shall be hoisted and lowered carefully and deposited without undue shock on a mattress or other shock-absorbing material. 9. Packages shall be stowed in the position indicated by their markings. 10. The maximum permitted weight per draft when handled by tray with sideboards shall not exceed 2,400 lbs. plus 10%. 11. Drafts consisting of one or more palletized units shall not exceed 4,000 lbs. plus 10%. 12. Lifts of palletized units shall not be tiered except when using a sling so designed as to prevent the upper tier or tiers from shifting or falling from the draft. 13. A portable magazine in which this class of ammunition is stowed and hoisted on board a vessel as a unit load shall not exceed 4,000 lbs. plus 10%. 14. The limiting weights noted above are for a 5-ton boom. See § 146.29–41.
The principal hazard in transportation will be involvement in fire from sources other than the ammunition itself. Projectiles or bombs in this class may explode progressively but very likely en masse. Most missiles will fall within 1,800 feet and detonation will result in severe structural damage increasing in severity and range in relation to the amount of high explosives involved.	*AMMUNITION STOWAGE OR PORTABLE MAGAZINE* This ammunition boxed, unboxed, or palletized units thereof, may be overstowed. Care must be taken not to damage rotating bands of unboxed projectiles. This class of ammunition when unfuzed and no fuzes packed in container may be stowed with Class X–A. For stowage adjacent to other dangerous articles see § 146.29–59.	1. Handle by hand or mechanical means. 2. Do not drop, drag, tumble, walk or otherwise subject packages to shock. 3. Do not use chute in loading or unloading. 4. Bare projectiles shall not be rolled except under hand control and on a level surface without appreciable incline. 5. Protect rotating bands from damage. Avoid injury to or removal of paint or grease from bourrelet. 6. When handling items packed in outside containers, cargo handling stevedore gear may be trays, skipboards, pallets or pieplates provided they are fitted with cargo nets or sideboards. Boxes or trays with removable sides are authorized. 7. Projectile tongsor lifting stud and eye are authorized. Wire slings of a design approved by the Captain of the Port may be used. 8. Cargo nets without trays, skipboards, pallets, or pieplates are not permitted. 9. The maximum permitted weight per draft when handled by tray, skipboard, pallet, or pieplate fitted with cargo net or sideboards shall not exceed 2,400 lbs. plus 10%. 10. Single projectiles weighing in excess of 2,201 lbs. must be loaded or unloaded one at a time. 11. Drafts consisting of one or more palletized units shall not exceed 4,000 lbs. plus 10%. 12. Lifts of palletized units shall not be tiered except when using a sling so designed as to prevent the upper tier or tiers from shifting or falling from the draft. 13. The limiting weights noted above are for a 5-ton boom. See § 146.29–41.

51–090—66——55

Classification, handling

Class	Description	I. C. C. marking	I. C. C. class
VIII			
AT mine fuzes (chemical), etc. Blasting caps. Detonators.	Blasting caps of all types; detonators; grenade fuzes, detonating type; fuzes, anti-tank mine (chemical). Includes but is not limited to:	"Blasting caps"	(*)
	Blasting caps.	"Blasting caps with safety fuze."	(*)
	Blasting caps with safety fuze.	"Boosters (explosive)".	A
	Destructor, explosive, M10 and MK2 Mod 0.	"Detonating fuzes, Class A".	A
	Detonating grenade fuzes.	"Electric blasting caps".	(*)
	Detonators, all types.	"Precussion caps"	C
	Detonators, torpedo.	"Percussion fuzes"	C
	Electric blasting caps.	"Time fuzes"	C
	Fuzes, AT mine (chemical).		
	Percussion elements (Army).		
	Primers, electric.		
	Priming assembly for demolition outfit MK104.		*Class A (more than 1000). Class C (1000 or less).

and stowage chart—Continued

Hazard	Stowage	Handling
The two primary hazards in the transportation of these devices are shock and involvement in fire. A collateral hazard is the effect of the detonating of these articles upon other explosives or ammunition stowed in proximity to such articles. All of this class ammunition in a unit stowage may explode at one time, but as the total amount of explosives involved is limited structural damage would not tend to be great. Light missiles having limited range would be formed.	*MAGAZINE STOWAGE "A", SPECIAL STOWAGE, OR PORTABLE MAGAZINE.* The location of magazines is restricted to a hold or compartment in which no other explosives or ammunition (except Classes I, III, and VI) are stowed. Shall not be stowed within 8 feet of the vessel's side except blasting caps stowed in a portable magazine "On deck" need not meet this requirement. This class of ammunition shall not be overstowed with any other cargo. For detail of stowage see § 146.29-93. For stowage with other dangerous articles see § 146.29-59.	Ammunition of Class VIII constitutes a distinct class of ammunition when not assembled in projectiles, bombs, or other ammunition. These types of ammunition are loaded with explosives that are sensitive to shock. The handling and stowage provisions of these regulations give consideration to the probable effect accidental detonation of these devices may have upon other ammunition or explosives stowed within the vessel. 1. Handle by hand or mechanical means. 2. Do not drop, drag, tumble, walk or otherwise subject packages to shock. 3. Gravity roller conveyors are not authorized. 4. Do not use chute in loading or unloading. 5. Trays with sideboards shall be used when loading by mechanical means. 6. Packages shall not be stacked on a tray to a height above its sideboards. 7. Trays shall not be swung unnecessarily over open hatches or holds containing military explosives or other dangerous articles. 8. Trays shall be hoisted and lowered carefully and deposited without undue shock on a mattress or other shock absorbing material. 9. Packages shall be stowed in the position indicated by their markings. 10. The maximum permitted weight per draft when handled by tray with sideboards shall not exceed 1,000 lbs. plus 10%. 11. Drafts consisting of one or more palletized units shall not exceed 2,400 lbs. plus 10%. 12. Lifts of palletized units shall not be tiered except when using a sling so designed as to prevent the upper tier or tiers from shifting or falling from the draft. 13. A portable magazine in which this class of ammunition is stowed and hoisted on board a vessel as a unit load shall not exceed 2,400 lbs. plus 10%. 14. The limiting weights noted above are for a 5-ton boom. See § 146.29-41.

Classification, handling

Class	Description	I. C. C. marking	I. C. C. class
IX-A			
Explosives in bulk such as: Black powder. Propellant explosives for small-arms, etc.	Black powder in bulk, ballistite for small-arms, propellant explosives for small-arms, black blasting powder, flash powder and powder having similar hazard characteristics to those named.	"Black powder" "High explosives" "Low explosives" "Propellant explosives, solid, Class A."	A A A A
	Includes but is not limited to:		
	Ballistite for small-arms.	"Propellant explosives, solid, Class B."	B
	Black blasting powder.		
	Black fuze powder.		
	Black pellet powder.		
	Black powder.		
	Black powder and magnesium mixtures.		
	Black powder, unglazed.		
	Black rifle pwoder.		
	Black shell powder.		
	Bull's eye powder #2.		
	Cannon powder.		
	Charges. Lyle gun.		
	Charges, spotting, black powder, M1A1, M3, M4.		
	E. C. blank fire powder.		
	FF black powder.		
	Firecracker, M80.		
	FFFG black powder.		
	Flash cartridges over 72 grains.		
	Flash powder sheets inner unit over 2 ounces.		
	Flash reducer (black powder with potassium sulfate).		
	Flash sheets in bulk.		
	Flashlight powder in bulk.		
	High vel #65.		
	Igniter pads.		
	Igniter, rocket motor, Class A.		
	IMR #1185.		
	IMR #4166.		
	IMR #4676.		
	Low blasting explosives.		
	Pistol powder #5.		
	Propellant explosives (for small arms).		
	Pyrotechnic mixture, in excess of 72 grains.		
	Rifle powder.		
	Simulator:		
	Boobytrap, flash, illuminating, whistling, in excess of 72 grains.		
	Boobytrap, whistling, M114.		
	Gunflash, M110.		
	Projectile, air burst.		
	Projectile, ground burst M115.		
	Smoke puff charge.		
	Sodium nitrate black powder.		
	Spherehexagonal black powder.		
	Sporting powder.		
	Sulfurless black powder.		

and stowage chart—Continued

Hazard	Stowage	Handling
Group IX-A explosives constitute a group having relatively similar hazard characteristics which principally consists of being very susceptible to ignition by spark or friction. They burn with explosive violence and under even slight confinement are likely to explode en masse. They are adversely affected by high temperature. Powder dust is especially hazardous.	*MAGAZINE STOWAGE "A" OR PORTABLE MAGAZINE STOWAGE.* When Class I ammunition is stowed in the same hold or magazine with this Class the two stowages must be separated by a partition bulkhead or type "A" dunnage floor. Shall not be overstowed with any other kind of cargo. For stowage with other dangerous articles see § 146.20–59. Shall not be loaded at an ammunition loading pier.	1. Handle by hand or mechanical means. 2. Do not drop, drag, tumble, walk or otherwise subject packages to shock. 3. Packages shall be handled in such a manner as to insure that no spark or friction will occur. 4. Observe packages or containers for evidence of sifting or inability to retain contents and reject any showing such signs. 5. In event a package is damaged and powder is spilled, immediately stop operations and sweep up any loose powder. 6. Remove damaged container and residue of powder to a safe location. 7. Gravity roller conveyor not authorized. 8. Drums and kegs shall be stowed on end with bungs up. Metal cans shall be stowed with filling openings up. Packages or containers shall be stowed in the position indicated by their markings. 9. Cargo handling stevedore gear may be trays, skipboards, pallets, or pieplates provided they are fitted with cargo nets or sideboards. Boxes or trays with fixed or removable sides are authorized. 10. Cargo nets without trays, skipboards, pallets, or pieplates are not permitted. 11. The maximum permitted weight per draft when handled by tray, skipboard, pallet, or pieplate fitted with cargo net or sideboards shall not exceed 2,400 lbs. plus 10%. 12. Drafts consisting of one or more palletized units shall not exceed 4,000 lbs. plus 10%. 13. Lifts of palletized units shall not be tiered except when using a sling so designed as to prevent the upper tier or tiers from shifting or falling from the draft. 14. The limiting weights noted above are for a 5-ton boom. See § 146.29–41.

Classification, handling

Class	Description	I. C. C. marking	I. C. C. class
IX-B			
High explosives such as: Demolition blocks, etc Dynamite. TNT.	High explosives in bulk, items of high explosive such as shaped charges for demolition or other purposes, and powder in bulk, possessing the characteristics of being likely to detonate en masse. Includes but is not limited to: Amatex. Amatol. Ammonite. Ammonium picrate. Ammonol. Anchor charges. Aqueous snakes. A. S. A. pellets. Atlas amodyn. Balls of cellulose nitrate. Baranol. Beehive charges. Blasting gelatin. British beehive. C. E. pellet. Charge, demolition, block. Charge, demolition, chain. Chlorate explosives, dry. Chlorate propellants. Clams, M3. Composition "A," etc. Composition "B," "B2," etc. Composition "C," "C2," etc. Cratering charges. Cyclonite, RDX. Cyclotol. Demolition blocks. Depth bomb explosives. Dynamite. Ednatol. Explosive "D." (Ammonium picrate.) Explosive gelatin. 808 plastic. Gelatin dynamite. Gelignite. General wade. Grenite. Guncotton. HBX. H6. Haleite. Hayrick charges. Hercomite. Heogen. HMX. Limpet. Minol. Negative cotton. Nitrocellulose, dry. Nitroguanidine, dry. Nitrostarch, dry. Nitrourea. Nobel's ammonal (704B). Nobel's explosives (808). PEP 1, 2, and 3. Pentolite. Picrates, dry. Picric acid, dry or wet. Plastic explosives. PTX, 1 and 2. RDX. Reddy Fox. Seachest demolition blocks. Shaped charges. Shellite. Snake demolition explosive charges. Supplementary charges. Tetryl. Tetrytol. TNT. TNX. Torpex.	"High explosives"...	A

and stowage chart—Continued

Hazard	Stowage	Handling
High explosives in bulk, and demolition blocks have relatively similar hazard characteristics. They may be considered stable in stowage. Can be ignited by spark or friction and detonated by shock. When ignited will burn vigorously. Bulk shipments in amounts likely to be found on board vessels would, if ignited be very likely to detonate.	*AMMUNITION STOWAGE OR PORTABLE MAGAZINE* Shall not be stowed in the same hold or compartment with other permitted ammunition, or explosives, unless the two are separated by a partition bulkhead or a Type "A" dunnage floor. Shall not be overstowed with any other kind of cargo. For stowage adjacent to other dangerous articles see § 146.29-59. Shall not be loaded at an ammunition loading pier. Military dynamite when transported on a commercial vessel simultaneously with commercial dynamite, and no other military explosives are on board, shall be shipped under those requirements set forth for the shipment of commercial dynamite.	1. Handle by hand or mechanical means. 2. Do not drop, drag, tumble or walk or otherwise subject packages to shock. 3. Do not use chute in loading or unloading. 4. Packages shall be handled in such a manner as to insure that no spark or friction will occur. 5. Observe packages or containers for evidence of sifting or inability to retain contents and reject any showing such signs. 6. In event a package is damaged and powder is spilled, immediately stop operations and sweep up loose powder. 7. Remove damaged containers and residue of powder to a safe location. 8. Gravity roller conveyors not authorized. 9. Packages or containers shall be stowed in the position indicated by their markings. 10. Cargo handling stevedore gear may be trays, skipboards, pallets, or pieplates provided they are fitted with cargo nets or sideboards. Boxes or trays with fixed or removable sides are authorized. 11. Cargo nets without trays, skipboards, pallets, or pieplates are not permitted. 12. The maximum permitted weight per draft when handled by pallet, skipboard, tray, or pieplate fitted with cargo net or sideboards shall not exceed 2,400 lbs. plus 10%. 13. Drafts consisting of one or more palletized units shall not exceed 4,000 lbs. plus 10%. 14. Lifts of palletized units shall not be tiered except when using a sling so designed as to prevent the upper tier or tiers from shifting or falling from the draft. 15. The limiting weights noted above are for a 5-ton boom. See § 146.29-41.

Classification, handling

Class	Description	I. C. C. marking	I. C. C. class
IX-B—Con.			
High explosives such as: Demolition blocks, etc. Dynamite. TNT. Continued.	High explosives in bulk, etc.—Continued Includes but is not limited to: Tridite. Trilite. Trimonite. Trinitroaniline. Trinitrobenzene. Trinitrocresol. Trinitrophenylmethylnitramine. Trinitroresorcinol. Trinitronal. Trinitrotoluene. Trinitroxylene. Trinitroxylol. Triton blocks. Trojan powder. Urea nitrate, dry or wet.		
IX-C			
Initiating and priming explosives in bulk.	Initiating and priming explosives when shipped in bulk. Includes but is not limited to: Diazodinitrophenol (DDNP, DINOL). Guanyl-nitrosamino-guanilidene-hydrazine. Guanyl-nitrosamino-guanyl-tetrazene Lead azide. Lead styphnate. Lead trinitroresorcinate. Mercury fulminate. Nitro mannite. Nitrosoguanidine. Pentaerythrite tetranitrate. PETN. Tetrazene. NOTE: Bulk priming or initiating explosives in dry condition are not permitted to be transported on board vessels.	"Initiating explosive"	A

and stowage chart—Continued

Hazard	Stowage	Handling
Bulk initiating and priming explosives constitute a distinct class of explosives. They are extremely sensitive to shock. The only permitted packing for transportation in bulk consists of a sift proof cotton duck, rubber or rubberized cloth bag in a metal barrel or drum or wooden barrel or keg and wet with 20 to 40% of water or water alcohol mixture. Mercury fulminate and lead azide also have 3" of sawdust saturated with water between the bag and the outer container.	*MAGAZINE STOWAGE "A", SPECIAL STOWAGE OR PORTABLE MAGAZINE STOWAGE* Shall not be stowed in the same magazine with other ammunition or explosives. When tiering containers of explosives of this class in a magazine, have each tier floored off with a type "A" dunnage floor. The location of a magazine is restricted to a hold or compartment in which no other military ammunition (except Class I) is stowed. Shall not be stowed within 8 feet of vessel's side. This class of ammunition shall not be overstowed with any other cargo. For stowage adjacent to other dangerous articles see §146.29-59. Shall not be loaded at an ammunition loading pier.	1. Handle by hand or mechanical means. 2. Do not drop, drag, tumble, walk or otherwise subject packages to shock. 3. Do not use chute in loading or unloading. 4. Do not roll barrels on their bilges. 5. Gravity roller conveyer not authorized. 6. Barrels or drums contain 20 to 40% water or water alcohol mixture. 7. Observe barrels, drums or containers for evidence of leakage or inability to retain contents and reject any showing such signs. 8. In event a container is damaged immediately stop operations and carefully remove damaged container to a safe location. 9. Drums and kegs shall be stowed on end with bungs up. Containers shall be stowed in the position indicated by their markings. 10. Trays with sideboards shall be used when handling by mechanical means. 11. Containers shall not be stacked on a tray to a height above its sideboards. 12. The maximum permitted weight per draft when handled by tray fitted with sideboards shall not exceed 1,000 lbs. plus 10%. 13. Trays shall be hoisted and lowered carefully and deposited without undue shock on a mattress or other shock absorbing material. 14. The limiting weights noted above are for a 5-ton boom. See § 146.29-41.

Classification, handling

Class	Description	I. C. C. marking	I. C. C. class
X-A			
Explosive bombs, mines, torpedoes, etc.	Bombs, bomb clusters, mines, depth charges, warheads (all unfuzed), rocket heads (fuzed or unfuzed and without motors 200 lbs. or more gross weight); torpedo bangalore (unfuzed); and other unfuzed ammunition filled with relatively large amounts of HE; all possessing a similar hazard characteristic of en masse detonation.	"Booster (explosive)."	A
	Includes but is not limited to:	"Burster (explosive)."	A
	Activator—without detonator.	"Explosive bombs"	A
	Bombs:	"Explosive mines"	A
	Armor-piercing.	"Explosive projectiles."	A
	Demolition.	"Explosive torpedoes."	A
	Depth.		
	Depth charge.		
	Fragmentation.		
	G. P.		
	Photoflash.		
	S. A. P.		
	Shallow water depth.		
	Boosters—without detonators.		
	Boosters, adapter—without detonators.		
	Burster—without detonator.		
	Mines:		
	Aerial.		
	Aircraft.		
	Anti-personnel (unfuzed).		
	Anti-personnel fragmentation (unfuzed).		
	Anti-tank (unfuzed).		
	Anti-tank non-metallic (unfuzed).		
	Grenade.		
	High explosive.		
	Land.		
	Rocket heads (fuzed or unfuzed and without motors 200 lbs. or more gross weight).		
	Signal, underwater sound, w/o fuze		
	Torpedo bangalore.		
	Torpedo warheads.		

and stowage chart—Continued

Hazard	Stowage	Handling
Fire and shock are the primary hazards to this class of ammunition. They are particularly dangerous because of their tendency to detonate en masse if involved in a fire or subjected to shock. Detonation will result in severe structural damage, increasing in severity and range in relation to the amount of high explosives involved. All high explosive loaded items in this class having thin container walls are relatively easily ruptured or dented. Denting of the container walls by impacts, though not sufficiently severe to rupture them has occasionally resulted in partial or complete detonation, and such kind of ammunition is said to possess "container-dent sensitivity." A certain degree of confinement combined with local heating of the contained explosive by a particular kind of impact apparently causes instantaneous explosive action. But whatever may be the actual mechanics of this phenomenon, the kinds of impacts known to have caused explosion of these items include such impacts as dropping on or striking against a rounded corner, similar to a batch coaming, impact of one bomb against another, or being struck by handling and transportation equipment. In placing or removing dunnage, an accidental or misdirected blow from a sledge hammer, pinch bar or other hand tool may cause such explosions. The impact need not be violent. A short drop of only 2 feet caused a low order detonation of a depth bomb. Warheads, depth bombs, depth charges, Naval mines, and like items are in the "Container-dent sensitivity" category. All of the foregoing also apply in substantial effect to containers of this class of ammunition that are not thin walled.	*AMMUNITION STOWAGE OR PORTABLE MAGAZINE* Items in this class having thin container walls and said to possess "container-dent sensitivity" shall not be tiered one layer on top of another unless they are boxed crated or dunnaged in such a manner that they are properly protected to withstand the superimposed weight. Items having thin walls and possessing "container-dent sensitivity" may be overstowed only with very light cargo such as bomb fin assemblies, empty water fillable practice bombs and empty auxiliary gas tanks. Items of this class having thick walled containers may be tiered one layer on top of another provided they are so stowed, dunnaged, blocked and/or braced as to prevent movement that is likely to damage the ammunition, the vessel or other cargo. Shall not be overstowed with inert permitted cargo having lesser bearing surface or greater unit weight than any item stowed below. Class X-A items shall not be stowed in the same hold or compartment with permitted military explosives other than this class or Class X-B unless the two are separated by a partition bulkhead or a type "A" dunnage floor. Except for wooden barrels or boxes and fiberboard containers, no flammable or combustible material as cargo shall be stowed in a hold or compartment in which this class of ammunition is stowed. When photoflash bombs are stowed with any other military explosive, including items of this class the two stowages must be separated by a partition bulkhead or a type "A" dunnage floor. For stowage adjacent to other dangerous articles see § 146.29-59. Shall not be loaded at an ammunition loading pier.	1. Handle by hand or mechanical means. 2. Do not drop, drag, slide, tumble, walk or otherwise subject these articles to shock. 3. Do not use chute in loading or unloading. 4. Cargo nets shall not be used except to enclose a pallet, skipboard, or tray, or as a preventer or save-all. 5. Bombs, not crated or boxed, without external fittings or with external fittings protected by lug guards, may be rolled only under continuous hand control on level surfaces or on non-powered roller conveyors, provided these surfaces or conveyors are relatively level and free from projections. 6. Unboxed or uncrated warheads, depth bombs, depth charges, or other thin walled items shall not be tiered in "making up" drafts (hoists). 7. No "cant" or barrel hooks shall be used on this class of ammunition. 8. Depth charges and rocket heads that are not boxed or crated shall be loaded by use of pallet, skipboard or tray fitted with cargo net or sideboards. 9. Bombs, except depth bombs, may be loaded by use of wire rope slings, or by pallet, skipboard or tray fitted with cargo net or sideboards. 10. Depth bombs shall be loaded only by using pallet, skipboard, or tray fitted with cargo net or sideboards. (See § 146.29-39.) 11. Slings for use in hoisting this class of ammunition must be approved for use by the Captain of the Port. 12. Single slings made up in multiple assembly with spreader may be used in handling bombs that do not exceed 1,101 pounds each. Two-legged slings shall be used in handling bombs of more than 1,101 pounds each. *TABLE OF LIMITING LOADS* (Applicable when handling bombs by sling method) Weight of individual bomb or cluster: — *Maximum units in one draft* 1 lb. to 250 lbs.[1] — 8 276 lbs. to 500 lbs.[1] — 6 551 lbs. to 1,000 lbs.[1] — 4 1,101 lbs. to 2,000 lbs.[1] — 2 Over 2,200 lbs. — 1 [1]A tolerance of 10% per unit is allowed. (For example, a bomb weighing 550 lbs. may be considered as coming within the 500 lb. group.) 13. Naval mines, uncrated and fitted with lifting eye shall be loaded by using wire rope and shackle. 14. Naval mines, uncrated and not fitted with lifting eye may be loaded by use of wire rope slings or trays fitted with sideboards. 15. The following items when boxed or crated shall be loaded by the use of pallet, skipboard or tray fitted with cargo net or sideboards, photoflash bombs, antitank mines, antipersonnel mines, naval mines, warheads, depth charges, torpedo bangalore, projector charges and rocket heads. 16. Warheads, crated in such a manner that the nose lifting ring is exposed may be loaded by means of said ring. 17. The maximum permitted weight per draft, when handled by pallet, skipboard, tray or pieplate fitted with cargo net or sideboards shall not exceed 2,400 lbs. plus 10%. 18. Drafts consisting of one or more palletized units shall not exceed 4,000 lbs. plus 10%. 19. Lifts of palletized units shall not be tiered except when using a sling so designed as to prevent, by means of sideboards or netting extended upward to the uppermost height of the draft, the upper tier or tiers from shifting or falling from the draft. 20. The limiting weights noted above are for a 5-ton boom. See § 146.29-41.

Classification, handling

Class	Description	I. C. C. marking	I. C. C. class
X-B			
Explosive bombs, mines, torpedoes, etc., packed with fuzes in integral package. (Fuzes will not detonate item with which packaged nor adjacent packages.)	Bombs, bomb clusters, mines, depth charges warheads (all unfuzed), projector charges (unfuzed and without motors), torpedo bangalore (unfuzed), and other unfuzed ammunition filled with relatively large amounts of HE; all possessing a similar hazard characteristic of en masse detonation. The fuze is packed integral with the item, but the fuze will not detonate the item with which packaged nor adjacent packages. Includes but is not limited to: Bombs: Armor-piercing. Demolition. Depth. Depth charge. Fragmentation. G. P. Photoflash (except M–122). S. A. P. Shallow water depth. Mines: Aerial. Aircraft. Anti-personnel (unfuzed). Anti-personnel fragmentation (unfuzed). Anti-tank (unfuzed). Anti-tank non-metallic (unfuzed). Grenade. High explosive. Land. Nuclear weapons (see para. 21 under "Handling"). Signals, underwater sound, w/fuze. Torpedo bangalore. Torpedo warheads.	"Explosive bombs". "Explosive mines". "Explosive projectiles." "Explosive torpedoes."	A A A A

and stowage chart—Continued

Hazard	Stowage	Handling
Fire and shock are the primary hazards to this class of ammunition. They are particularly dangerous because of their tendency to detonate en masse if involved in a fire or subjected to shock. Detonation will result in severe structural damage, increasing in severity and range in relation to the amount of high explosives involved. All high explosive loaded items in this class having thin container walls are relatively easily ruptured or dented. Denting of the container walls by impacts, though not sufficiently severe to rupture them has occasionally resulted in partial or complete detonation, and such kind of ammunition is said to possess "container-dent sensitivity." A certain degree of confinement combined with local heating of the contained explosive by a particular kind of impact apparently causes instantaneous explosive action. But whatever may be the actual mechanics of this phenomenon, the kinds of impacts known to have caused explosion of these items include such impacts as dropping on or striking against a rounded corner, similar to a hatch coaming, impact of one bomb against another, or being struck by handling and transportation equipment. In placing or removing dunnage, an accidental or misdirected blow from a sledge hammer, pinch bar or other hand tool may cause such explosions. The impact need not be violent. A short drop of only 2 feet caused a low order detonation of a depth bomb. Warheads, depth bombs, depth charges, Naval mines, and like items are in the "Container-dent sensitivity" category. All of the foregoing also apply in substantial effect to containers of this class of ammunition that are not thin walled.	*AMMUNITION STOWAGE OR PORTABLE MAGAZINE* Items in this class having thin container walls and said to possess "container-dent sensitivity" shall not be tiered one layer on top of another unless they are boxed, crated or dunnaged in such a manner that they are properly protected to withstand the superimposed weight. Items having thin walls and possessing "container-dent sensitivity" may be overstowed only with very light cargo such as bomb fin assemblies, empty water fillable practice bombs and empty auxiliary gas tanks. Items of this class having thick walled containers may be tiered one layer on top of another provided they are so stowed, dunnaged, blocked and/or braced as to prevent movement that is likely to damage the ammunition, the vessel or other cargo. Shall not be overstowed with inert permitted cargo having lesser bearing surface or greater unit weight than any item stowed below. Except for wooden barrels or boxes and fiberboard containers no flammable or combustible material as cargo or containers of same shall be stowed in a hold in which this class of ammunition is stowed. When photoflash bombs are stowed with any other military explosive, including items of this class, the two stowages must be separated by a partition bulkhead or a type "A" dunnage floor. For stowage adjacent to other dangerous articles see § 146.29–69. Shall not be loaded at an ammunition loading pier.	1. Handle by hand or mechanical means. 2. Do not drop, drag, slide, tumble, walk or otherwise subject these articles to shock. 3. Do not use chute in loading or unloading. 4. Cargo nets shall not be used except to enclose a pallet, skipboard, or tray, or as a preventor or save-all. 5. Bombs, not crated or boxed, without external fittings or with external fittings protected by lug guards, may be rolled only under continuous hand control on level surfaces or on non-powered roller conveyors, provided these surface or conveyors are relatively level and free from projections. 6. Unboxed or uncrated warheads, depth bombs, depth charges, or other thin walled items shall not be tiered in "making up" drafts (hoists). 7. No "cant" or barrel hooks shall be used on this class of ammunition. 8. Depth charges and rocket heads that are not boxed or crated shall be loaded by use of pallet, skipboard or tray fitted with cargo net or sideboards. 9. Bombs, except depth bombs, may be loaded by use of wire rope slings, or by pallet, skipboard or tray fitted with cargo net or sideboards. 10. Depth bombs shall be loaded only by using pallet, skipboard, or tray fitted with cargo net or sideboards. (See § 146.29–39.) 11. Slings for use in hoisting this class of ammunition must be approved for use by the Captain of the Port. 12. Single slings made up in multiple assembly with spreader may be used in handling bombs that do not exceed 1,101 pounds each. Two legged slings shall be used in handling bombs of more than 1,101 pounds each. (See table of Limiting Loads, Class X–A). 13. Naval mines, uncrated and fitted with lifting eye shall be loaded by using wire rope and shackle. 14. Naval mines, uncrated and not fitted with lifting eye may be loaded by use of wire rope slings or trays fitted with sideboards. 15. The following items when boxed or crated shall be loaded by the use of pallet, skipboard or tray fitted with cargo net or sideboards; photoflash bombs, antitank mines, antipersonnel mines, naval mines, warheads, depth charges, torpedo bangalore, projector charges and rocket heads. 16. Warheads, crated in such a manner that the nose lifting ring is exposed may be loaded by means of said ring. 17. The maximum permitted weight per draft, when handled by pallet, skipboard, tray or pieplate fitted with cargo net or sideboards shall not exceed 2,400 lbs. plus 10%. 18. Drafts consisting of one or more palletized units shall not exceed 4,000 lbs. plus 10%. 19. Lifts of palletized units shall not be tiered except when using a sling so designed as to prevent, by means of sideboards or netting extended upward to the uppermost height of the draft, the upper tier or tiers from shifting or falling from the draft. 20. The limiting weights noted above are for a 5-ton boom. See § 146.29–41. 21. Nuclear weapons, warheads, and their components shall be handled and transported in accordance with pertinent military service directives.

Classification, handling

Class	Description	I. C. C. marking	I. C. C. class
X-C			
Guided missiles, solid propellant motors, packed with or without HE warheads.	Completely assembled missiles or rockets with ICC Class A solid fuel motors. Projector charges. Rocket motors, Class A.	"Rocket ammunition with explosive projectiles." Jato units, Class A. Jet, thrust units, Class A.	A

and stowage chart—Continued

Hazard	Stowage	Handling
Fire and shock are the primary hazards to this class of ammunition. They are particularly dangerous because of (1) their tendency to detonate en masse if involved in a fire or subjected to shock, and (2) the combustibility and toxicity of the fuel if involved in a fire. All high explosive loaded items of this class having thin container walls are relatively easily ruptured or dented. Denting of the container walls by impact, though not sufficiently severe to rupture them may result in a partial or complete detonation. A certain degree of confinement combined with local heating of the contained explosive by a particular kind of impact causes instantaneous explosive action. These kinds of impacts are, striking against a rounded corner similar to a hatch coaming, impact of one missile against another, or being struck by handling or transportation equipment. Toxicity by inhalation of fumes is increased when fuels are ignited as the intensity of poisonous fumes is increased. Care should be exercised to minimize the exposure of personnel to the toxic effects of these mixtures and to prevent damage to the container with resulting leakage or spillage.	*AMMUNITION STOWAGE OR PORTABLE MAGAZINE* Class X-C items shall not be stowed in the same hold or compartment with permitted military explosives other than this class or Classes II-B, IV, and VII unless the two are separated by a partition bulkhead or a type "A" dunnage floor. Except for wooden boxes or barrels and fiberboard containers, no flammable or combustible material shall be stowed in a hold or compartment in which this class of ammunition is stowed. Shall not be overstowed with any other kind of cargo. May be stowed on deck protected, except on the square of a hatch. For stowage adjacent to other dangerous articles see § 146.29-59. Shall not be loaded at an ammunition loading pier.	1. Handle by hand or mechanical means. 2. Do not drop, drag, slide, tumble, walk or otherwise subject these articles to shock. 3. Do not use chute in loading or unloading. 4. Cargo nets shall not be used except to enclose a pallet, skipboard, or tray, or as a preventor or save-all. 5. Missiles, not crated or boxed, without external fittings or with external fittings protected by lug guards, may be rolled only under continuous hand control on level surfaces or on non-powered roller conveyors, provided these surfaces or conveyors are relatively level and free from projections. 6. Unboxed or uncrated missiles shall not be tiered in "making up" drafts (hoists). 7. No "cant" or barrel hooks shall be used on this class of ammunition. 8. May be loaded by use of wire rope slings, or by pallet, skipboard or tray fitted with cargo net or sideboards. 9. Slings for use in hoisting this class of ammunition must be approved for use by the Captain of the Port. 10. Single slings made up in multiple assembly with spreader may be used in handling missiles that do not exceed 1,101 pounds each. Two legged slings shall be used in handling missiles of more than 1,101 pounds each. (See table of Limiting Loads, Class X-A). 11. The maximum permitted weight per draft, when handled by pallet, skipboard, tray or pieplate fitted with cargo net or sideboards shall not exceed 2,400 lbs. plus 10%. 12. Drafts consisting of one or more palletized units shall not exceed 4,000 lbs. plus 10%. 13. Lifts of palletized units shall not be tiered except when using a sling so designed as to prevent, by means of sideboards or netting extended upward to the uppermost height of the draft, the upper tier or tiers from shifting or falling from the draft. 14. The limiting weights noted above are for a 5-ton boom. See § 146.29-41.

Classification, handling and stowage chart—Continued

Class	Description	I. C. C. marking	I. C. C. class	Hazard	Stowage	Handling
X-D						
Guided missiles, liquid propellant motors, packed with HE warheads.	Completely assembled missiles or rockets with liquid petroleum fueled motors.	"Rocket ammunition with explosive projectiles."	A	Fire and shock are the primary hazards to this class of ammunition. They are particularly dangerous because of (1) their tendency to detonate en masse if involved in a fire or subjected to shock, and (2) the combustibility and toxicity of the fuel if involved in a fire. All high explosive loaded items of this class having thin container walls are relatively easily ruptured or dented. Denting of the container walls by impact, though not sufficiently severe to rupture them may result in a partial or complete detonation. A certain degree of confinement combined with local heating of the contained explosive by a particular kind of impact causes instantaneous explosive action. These kinds of impacts are, striking against a rounded corner, similar to a hatch coaming, impact of one missile against another, or being struck by handling or transportation equipment. Toxicity by inhalation of fumes is increased when fuels are ignited as the intensity of poisonous fumes is increased. Care should be exercised to minimize the exposure of personnel to the toxic effects of these mixtures and to prevent damage to the container with resulting leakage or spillage.	*AMMUNITION STOWAGE* Class X-D items shall not be stowed in the same hold or compartment with other military explosives, other dangerous cargo, or regulated items. Shall be stowed only in a lower hold, or "On deck protected," not on the square of a hatch. Shall not be overstowed. For stowage adjacent to other dangerous articles see § 146.29–59. Shall not be loaded at an ammunition loading pier. Must be stowed so that superstructure intervenes between it and other items that require "On deck" stowage. Preferred "On deck" stowage is aft. Missiles with liquid petroleum fueled motors may be stowed at any level in any hatch provided leakage of the fuel will drain directly into the bilges.	1. Handle by hand or mechanical means. 2. Do not drop, drag, slide, tumble, walk or otherwise subject these articles to shock. 3. Do not use chute in loading or unloading. 4. Cargo nets shall not be used except to enclose a pallet, skipboard, or tray, or as a preventor or save-all. 5. Missiles, not crated or boxed, without external fittings or with external fittings protected by lug guards, may be rolled only under continuous hand control on level surfaces or on non-powered roller conveyors, provided these surfaces or conveyors are relatively level and free from projections. 6. Unboxed or uncrated missiles shall not be tiered in "making up" drafts (hoists). 7. No "cant" or barrel hooks shall be used on this class of ammunition. 8. May be loaded by use of wire rope slings, or by pallet, skipboard or tray fitted with cargo net or sideboards. 9. Slings for use in hoisting this class of ammunition must be approved for use by the Captain of the Port. 10. Single slings made up in multiple assembly with spreader may be used in handling missiles that do not exceed 1,101 pounds each. Two legged slings shall be used in handling missiles of more than 1,101 pounds each. (See table of Limiting Loads, Class X-A). 11. The maximum permitted weight per draft, when handled by pallet, skipboard, tray or pieplate fitted with cargo net or sideboards shall not exceed 2,400 lbs. plus 10%. 12. Drafts consisting of one or more palletized units shall not exceed 4,000 lbs. plus 10%. 13. Lifts of palletized units shall not be tiered except when using a sling so designed as to prevent, by means of sideboards or netting extended upward to the uppermost height of the draft, the upper tier or tiers from shifting or falling from the draft. 14. The limiting weights noted above are for a 5-ton boom. See § 146.29–41.

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Classification, handling

Class	Description	I. C. C. marking	I. C. C. class
XI-A			
Chemical ammunition, lethal.	Chemical ammunition filled with lethal gases such as mustard gas (H), lewisite gas (L), nerve gas (GB and VX), BW agents, phosgene gas (CG), hydrocyanic acid (AC), nitrogen mustard gas (HN), diphosgene (DP), chlorpicrin gas (PS), cyanogen chloride (CK) when shipped assembled with or without their ignition elements, bursting charges or fuzes. When these substances are shipped in drums, barrels, cylinders or other authorized containers they shall be classified Class A, Poison Gas. When these substances are shipped in authorized ICC specification containers or Chemical Corps specification containers of integrity equal to ICC containers (including projectiles, bombs and rockets without ignition elements, bursting charges or fuzes) they may be handled and stowed either as Class A poison gas or chemical ammunition Class XI-A. Includes but is not limited to the following items when filled with any of the above agents: Ammunition for guns with gas projectile. Bombs, chemical. Bombs, clusters, chemical. Frangible grenade. Hand grenade. Howitzer projectile. Land mine. Mortar projectile. Rockets, chemical. Separate loading projectile. NOTE: The U. S. Army Chemical Corps or U. S. Navy, when shipping chemical ammunition, mark such ammunition and the containers thereof, in general, as follows: (a) By the use of color bands painted upon the ammunition the containers thereof; by letter symbol to indicate the particular kind of chemical therein and the word "Gas" stenciled upon the ammunition of the containers thereof. (b) Persistent gases are marked with two (2) green bands. Nonpersistent gases with one (1) green band. (c) The word "Gas" will be stenciled upon projectiles and upon the outside container of projectiles, grenades, bombs, candles, etc., the stenciling to be of the same color as the designating band. (d) The bodies of all ammunition containing gas will be painted gray.	"Ammunition for cannon with gas projectile." "Explosive bomb" "Explosive projectile." "Explosive mine" "Hand grenade" "Rifle grenade" "Rocket ammunition with gas projectile." Shipping name of item when shipped as Class A poison.	A A A A A A Pois. A

and stowage chart—Continued

Hazard	Stowage	Handling
This type of ammunition or bulk shipments of these substances in containers other than ammunition, represents a particular and special hazard. Minute quantities of either liquid or vapor can cause serious burns and death. The liquid or vapor will contaminate everything with which it comes in contact, cause serious and painful burns to exposed portions of the body and the eyes, and attack the respiratory system usually with fatal results. Nerve gas is highly toxic, quick acting nerve poison. It can be absorbed through any body surface including the respiratory tract, skin, eyes, and gastrointestinal tract. The rapidity of action of nerve gas and absence of identifying symptoms may incapacitate a person so rapidly that he may be unable to take individual protective measures.	*CHEMICAL AMMUNITION STOWAGE, SPECIAL STOWAGE, OR PORTABLE MAGAZINE* Bulk shipments of chemical agents in ICC cylinders, tanks or Chemical Corps specification containers of integrity equal to ICC containers may be stowed in a shelter deck space or in a deck house suitable for such stowage. Chemical ammunition (explosive) shall be stowed in a deep tank, lower hold or between deck, and such stowage shall be effectively sealed off to prevent the escape of any leakage which may take place. (See § 146.-29-85.) Drums or other authorized ICC or Chemical Corps specification containers filled with Class A poison gas may be stowed in the same hold or compartment with chemical ammunition Class XI-A. For stowage adjacent to other dangerous articles see § 146.29-59. May be loaded at a temporary location authorized by the Captain of the Port for the specific loading. When given chemical ammunition stowage, see § 146.29-85 for additional requirements.	When possible and the amount of such ammunition or containers of these chemical substances warrants, a technical representative of the appropriate Army technical service (Chemical or Ordnance Corps) or Navy Department shall be present during the loading and stowage. 1. Handle by hand or mechanical means. 2. Do not drop, drag, tumble, walk or otherwise subject packages to shock. 3. Do not use chute in loading or unloading. 4. Shall not be rolled except under hand control and on a level surface without appreciable incline. 5. Packages shall be braced so as to prevent any movement. Top tiers shall be braced to prevent upward movement. 6. Packages or containers shall be stowed in the position indicated by their markings. When not so marked, boxes shall be stowed on the most stable side and arranged in such a manner that the joints between boxes are staggered. 7. No packages shall be "cant" stowed. 8. Dunnage shall be applied to the sides, ends and tops of the boxes before bracing is applied. 9. Cargo handling stevedore gear may be trays, skipboards, pallets, or pieplates provided they are fitted with cargo nets or sideboards. Boxes or trays with removable sides are authorized. 10. Cargo nets without trays, skipboards, pallets or pieplates are not permitted. 11. Wire rope slings are permitted when handling unboxed bombs or containers filled with this class of chemical warfare material. 12. The maximum permitted weight per draft when handled by tray, skipboard, pallet, or pieplate fitted with cargo net or sideboards shall not exceed 2,400 lbs. plus 10%. 13. Single bombs or other unit containers weighing in excess of 2,200 lbs. must be loaded or unloaded one at a time. 14. Drafts consisting of one or more palletized units shall not exceed 4,000 lbs. plus 10%. 15. Lifts of palletized units shall not be tiered except when using a sling so designed as to prevent, by means of sideboards or netting extended upward to the uppermost height of the draft, the upper tier or tiers from shifting or falling from the draft. 16. The limiting weights noted above are for a 5-ton boom. See § 146.29-41.

Classification, handling

Class	Description	I. C. C. marking	I. C. C. class
XI-B			
Chemical ammunition, nonlethal.	Chemical ammunition filled with non-lethal gases such as Chloracetophenone gas (CN), Chloracetophenone solution (CNB) or (CNS), Brombenzylcyanide (BBC) and Adamsite (DM) when shipped assembled with or without their ignition elements, bursting charges or fuzes. When these substances are shipped in drums, barrels, cylinders or other authorized containers, they shall be classified as tear gasses or irritating substances, Class C—poisons. When these substances are shipped in authorized ICC specification containers or Chemical Corps containers of integrity equal to ICC containers (including projectiles, bombs and rockets, without ignition elements, bursting charges or fuzes) they may be handled and stowed either as Class C—poisons or as chemical ammunition Class XI-B. Includes but is not limited to the following items when filled with any of the above agents: Ammunition for cannon with gas projectile. Bombs, aircraft. Bombs, aircraft cluster. CN capsules. Gas identification sets. Grenades, hand. Grenades, frangible, hand. Grenades, rifle. Rockets. Projectiles, mortar. Tear gas candles. Tear gas pots. NOTE: The U. S. Army and Navy when shipping harassing gas ammunition, mark such ammunition and the containers thereof with the word "gas" and Chemical Corps symbol of the gas with one red band.	"Ammunition for cannon with gas projectile." "Explosive bomb" "Explosive projectile." "Hand grenade" "Rifle grenade" "Tear gas candle" "Tear gas grenade" "Rocket ammunition with gas projectile." Shipping name of item when shipped as Class C poison.	A A A A A Pois. C Pois. C A Pois. C

and stowage chart—Continued

Hazard	Stowage	Handling
Fire and intolerable vapors. The fire hazard of some of these items is similar to that of smokeless powder. The vapors are rarely lethal as concentrations far below the lethal range are intolerable. Gas mask provides complete protection.	*CHEMICAL AMMUNITION STOWAGE, SPECIAL STOWAGE, OR PORTABLE MAGAZINE* It is important to stow in locations not subject to temperatures above 100° F. Stowage shall be accessible from cargo hatch or other access means to the hold or compartment. Drums or other authorized ICC or Chemical Corps specification containers filled with Class C poison gas may be stowed in the same hold or compartment with chemical ammunition, Class XI-B. For stowage adjacent to other dangerous articles see § 146.29–59. May be loaded at a temporary location authorized by the Captain of the Port for the specific loading. When given chemical ammunition stowage, see § 146.29–85 for additional requirements.	When possible and the amount of such ammunition or containers of these chemical substances warrants, the loading and stowage of chemical ammunition or chemical agents for such should be supervised by a representative of the appropriate Army technical service (Chemical or Ordnance Corps) or Navy Department. 1. Handle by hand or mechanical means. 2. Do not drop, drag, tumble, walk or otherwise subject packages to shock. 3. Do not use chute in loading or unloading. 4. Shall not be rolled except under hand control and on a level surface without appreciable incline. 5. Packages shall be braced so as to prevent any movement. Top tiers shall be braced to prevent upward movement. 6. Packages or containers shall be stowed in the position indicated by their markings. When not so marked, boxes shall be stowed on the most stable side and arranged in such a manner that the joints between boxes are staggered. 7. No packages shall be "cant" stowed. 8. Dunnage shall be applied to the sides, ends and tops of the boxes before bracing is applied. 9. Cargo handling stevedore gear may be trays, skipboards, pallets, or pieplates provided they are fitted with cargo nets or sideboards. Boxes or trays with removable sides are authorized. 10. Cargo nets without trays, skipboards, pallets or pieplates are not permitted. 11. Wire rope slings are permitted when handling unboxed bombs or containers filled with this class of chemical warfare material. 12. The maximum permitted weight per draft when handled by tray, skipboard, pallet or pieplate fitted with cargo net or sideboards shall not exceed 2,400 lbs. plus 10%. 13. Single bombs or other unit containers weighing in excess of 2,200 lbs. must be loaded or unloaded one at a time. 14. Drafts consisting of one or more palletized units shall not exceed 4,000 lbs. plus 10%. 15. Lifts of palletized units shall not be tiered except when using a sling so designed as to prevent, by means of sideboards or netting extended upward to the uppermost height of the draft, the upper tier or tiers from shifting or falling from the draft. 16. The limiting weights noted above are for a 5-ton boom. See § 146.29–41.

Classification, handling

Class	Description	I. C. C. marking	I. C. C. class
XI-C			
Fuels in containers for guided missiles and rockets.	Missile fuels are usually non-corrosive, highly combustible mixtures, shipped in drums of aluminum or glass containers, used as fuels for guided missiles or rockets. Includes but is not limited to: Acetonitrile (methyl cyanide) Aluminum borohydride. Anhydrous ammonia. Aniline. Diborane. Diethylene triamine. Diethylene glycol dinitrate, liquid. Dimethyl hydrazine, unsymmetrical. Ethyl alcohol. Furfuryl alcohol. Gasoline (AVGAS). Heptane. Hydrazine. Hydrazine hydrate. Kerosene. Liquid fluorine. Liquid hydrogen. Methyl alcohol. Monoethylaniline. Nitroglycerine, liquid. Nitromethane. Octane. Pentaborane. Pentane. Potassium cuprocyanide. Tetranitromethane.	Shipping name of item.	F. G. F. L. F. S. Oxy. M. Nonf. G. Pois. B.

and stowage chart—Continued

Hazard	Stowage	Handling
The principal hazard is its involvement in a fire since all of the fuels are highly combustible and toxic and under certain conditions will explode. Aniline-furfuryl alcohol mixtures are toxic through inhalation of the fumes or vapors, ingestion, and absorption through the skin. Toxicity by inhalation of fumes is increased when fuels are ignited as the intensity of poisonous fumes is increased. Care should be exercised to minimize the exposure of personnel to the toxic effects of these mixtures and to prevent damage to the containers with resulting leakage or spillage.	This class will *not* be stowed with any corrosive liquid (acids, etc.), oxidizing agents, or explosives. For stowage adjacent to other dangerous articles see § 146.29-50. May be stowed "On deck" and protected from direct rays of the sun and inclement weather, or may be stowed in a deep tank and such stowage shall be effectively sealed off to prevent the escape of any leakage which may take place. Pertinent parts of § 146.29-85 apply. Compatibility of items within this class shall be in accordance with § 146.29-99, Chart B. Must be stowed so that superstructure intervenes between it and other items that require "On deck" stowage. This requirement also applies to non-compatible items within this class. Preferred "On deck" stowage is aft. Drums may be tiered 2-high by use of metal dunnage of aluminum. When stowed on deck, the weather deck must be tight and the cargo hatch fitted with a tight raised coaming. The stowage must be accomplished by means of a crib and a platform so constructed as to provide a free space of at least six inches in height between the deck and the floor of the crib in such a manner as to allow flushing of any leakage that may occur. The stowage must not be made over the square of the hatch. If stowed aboard a vessel carrying no other military explosives, see § 146.29-11(b).	When possible, and the amount of substance warrants, the loading and stowage of fuels should be supervised by a representative of the appropriate Army technical service (Ordnance Corps) or Navy Department. 1. Handle by hand or mechanical means using extreme care against damage to the container resulting in leakage or spillage. 2. Do not drop, drag, tumble, walk or otherwise subject packages or drums to shock. Drums will *not* be rolled. 3. Packages shall be stowed in the position indicated by their markings; drums and kegs shall be stowed on end with bung holes up. 4. Do not use chute in loading or unloading. 5. Observe packages or drums for leakage or spillage and for odor of aniline or alcohol in the case of aniline-furfuryl alcohol shipments. If no odor is present and no evidence of leakage is present, the shipment is assumed to be in safe working condition and the cargo can be handled by personnel wearing the usual type of leather gloves and safety shoes. No other type of protective clothing will be required; however, in this operation as well as all other operations involving aniline-furfuryl alcohol mixtures, treadle type of deluge shower and a container of approximately 5% solution of acetic acid or strong vinegar must be available. 6. In the event of damage to a container resulting in leakage or spillage, stop operations, clear area of all personnel, render first-aid to personnel affected and spray copious amount of water on area affected. Decontamination must be handled with a minimum delay by personnel trained in this procedure and equipped with protective clothing and self-contained breathing apparatus. 7. Cargo handling stevedore gear may be trays, skipboards, pallets, or pieplates provided they are fitted with cargo nets or sideboards. Boxes or trays with fixed or removable sides are authorized. 8. Cargo nets without trays, skipboards, pallets or pieplates are not permitted. 9. Lifts of palletized units shall not be tiered except when using a sling so designed as to prevent, by means of sideboards or netting extended upward to the uppermost height of the draft, the upper tier or tiers from shifting or falling from the draft. 10. The maximum permitted weight per draft, when handled by pallet, skipboard, tray or pieplate fitted with cargo nets or sideboards shall not exceed 2,400 lbs. plus 10%. 11. Drafts consisting of one or more palletized units shall not exceed 4,000 lbs. plus 10%. 12. The limiting weights noted above are for a 5-ton boom. See § 146.29-41.

Classification, handling

Class	Description	I. C. C. marking	I. C. C. class
XI-D			
Oxidizers in containers for guided missiles and rockets.	Oxidizers for use with guided missiles and rockets are non-flammable liquids; however, they are strong oxidizers and if allowed to come in contact with readily organic materials or metallic powders, may cause spontaneous combustion. They are highly toxic producing poisonous vapors and fumes and capable of producing severe burns or death if improperly handled. Fuming nitric acid vigorously attacks most metals, particularly iron and steel. Includes but is not limited to: Compressed gas, oxygen. Hydrogen peroxide. Liquid nitrogen tetroxide. Liquid oxygen. Mixed acid (nitric-sulfuric). Red nitric acid, fuming. White nitric acid, fuming.	Shipping name of item.	Cor. L. Nonf. G. Oxy. M.

and stowage chart—Continued

Hazard	Stowage	Handling
The principal hazards arise from the combustibility of organic materials when in contact with acids and the toxicity of fumes and vapors produced. The oxides of nitrogen, referred to as "nitrous fumes" if inhaled in appreciable quantities, may cause severe damage to respiratory and pulmonary tissues and, under certain conditions, may result in death. Color of the fumes is *not* an index to their toxicity. *All* nitric acid fumes are dangerous. Contact with the skin results in severe burns and may result in permanent scars or deformity. Contact with the eyes may cause blindness. Red Fuming Nitric Acid (RFNA) is not flammable in itself and cannot be detonated, but the combustibility of all organic material is greatly increased in contact with this acid. This acid is very hygroscopic (completely soluble), and its introduction *INTO* water will cause rapid evolution of heat with spattering of the acid. RFNA vigorously attacks most metals, particularly iron and steel. Nitric acid will react with salt water to liberate chlorine and other poisonous gases. Winterized water fire extinguishers containing salt as a freezing point depressant, should not be used to fight fires involving nitric acid. The use of large quantities of water, as a spray rather than a stream, to dilute the acid and extinguish the fire, is effective. Fire extinguishers of a suitable type should be provided wherever this acid is handled or stowed.	This class will *not* be stowed with any inflammable liquid fuels, metallic powders, or explosives. For stowage adjacent to other dangerous articles see § 146.29-59. May be stowed "On deck" and protected from direct rays of the sun and inclement weather, or may be stowed in a deep tank and such stowage shall be effectively sealed off to prevent the escape of any leakage which may take place. Pertinent parts of § 146.29-85 apply. Compatibility of items within this class shall be in accordance with § 146.29-99, Chart B. Must be stowed so that superstructure intervenes between it and other items that require "On deck" stowage. This requirement also applies to non-compatible items within this class. Preferred "On deck" stowage is aft. Drums may be tiered 2-high by use of metal dunnage of aluminum. When stowed on deck, the weather deck must be tight and the cargo hatch fitted with a tight raised coaming. The stowage must be accomplished as to provide a free space of at least six inches in height between the deck and the floor of the crib in such a manner as to allow flushing of any leakage that may occur. The stowage must not be made over the square of the hatch. If stowed aboard a vessel carrying no other military explosives, see § 146.29-11(b).	When possible, and the amount of substance warrants, the loading and stowage of oxidizers and acids should be supervised by a representative of the appropriate Army technical service (Chemical Corps or Ordnance Corps) or Navy Department. 1. Handle by hand or mechanical means using extreme care against damage to the container resulting in leakage or spillage. 2. Do not drop, drag, tumble, walk, or otherwise subject packages or drums to shock. Drums will not be rolled. 3. Packages shall be stowed in the position indicated by their markings; drums and kegs shall be stowed on end with bung holes up. 4. Do not use chute in loading or unloading. 5. Visually inspect packages or drums for evidence of spillage or leakage and forodor of nitrous dioxide, fumes in the case of fumin g nitric acid shipments If no odor is detected and no fumes are visible, the shipment is assumed to be in safe working condition and the cargo can be handled by personnel wearing gloves and aprons of acid-resistant material, safety shoes and eye goggles. No other type of protective clothing will be required; however, two complete sets of acid-resistant protective clothing, including a self-contained breathing apparatus, of an approved type, must always be immediately available for emergency use. In this operation, aswell as all other operations involving fuming nitric acid, treadle type of deluge showers and a container of approximately 5% solution of aceticacid or strong vinegar must be available. 6. In the event of damage to a container resulting in leakage, spillage or fumes, stop operations, clear area of all personnel, render first-aid to personnel affected and spray copious amount of water on area affected. Decontamination must be handled with a minimum delay by personnel trained in this procedure and equipped with approved type of protective clothing and self-contained breathing apparatus. Damaged containers will be removed only by such personnel. 7. Cargo handling stevedore gear may be trays, skipboards, pallets, or pieplates provided they are fitted with cargo nets or sideboards. Boxes or trays fitted with fixed or removable sides are authorized. 8. Cargo nets without trays, skipboards, pallets or pieplates are not permitted. 9. Lifts of palletized units shall not be tiered except when using a sling so designed as to prevent, by means of sideboards or netting extended upward to the uppermost height of the draft, the upper tier or tiers from shifting or falling from the draft. 10. The maximum permitted weight per draft, when handled by pallet, skipboard, tray, or pieplate fitted with cargo net or sideboards shall not exceed 2,400 lbs. plus 10%. 11. Drafts consisting of one or more palletized units shall not exceed 4,000 lbs. plus 10%. 12. The limiting weights noted above are for a 5-ton boom. See § 146.29-41.

[CGFR 62-11, 27 F.R. 5287, June 5, 1962, as amended, CGFR 63-19, 28 F.R. 5385, May 30, 1963; CGFR 64-20, 29 F.R. 6798, May 23, 1964; CGFR 65-17, 30 F.R. 7444, June 5, 1965]

PART 147—REGULATIONS GOVERNING USE OF DANGEROUS ARTICLES AS SHIPS' STORES AND SUPPLIES ON BOARD VESSELS

Sec.

GENERAL REGULATIONS

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DETAILED REGULATIONS GOVERNING USE OF SHIPS' STORES AND SUPPLIES

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147.04-2 Cylinders of foreign manufacture forming part of a fire extinguishing system.
147.04-3 Stowage and care of cylinders.
147.04-4 Culinary supplies, potable spirits, cosmetics.
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147.04-6 Portable magazine chest for stowage of ships' signal and emergency equipment.

SHIPS' STORES AND SUPPLIES OF A DANGEROUS NATURE

147.05-100 Table S—Classification: Ships' stores and supplies of a dangerous nature.

ARMING OF U.S. MERCHANT CARGO VESSELS

147.06-1 Authorization.
147.06-2 Storage of high explosives.
147.06-3 Storage of small-arms ammunition.
147.06-4 Care of ammunition.
147.06-5 Construction of magazines.

AUTHORITY: The provisions of this Part 147 issued under R.S. 4405, as amended, 4462, as amended, 4472, as amended; 46 U.S.C. 375, 416, 170; sec. 3, 68 Stat. 675, as amended; 50 U.S.C. 198, E.O. 10402, 17 F.R. 9917, 3 CFR, 1952 Supp.

SOURCE: The provisions of this Part 147 contained in Order 74, 6 F.R. 516, Jan. 18, 1941; CGFR 47-35, 12 F.R. 4184, June 27, 1947, 12 F.R. 4349, July 3, 1947, unless otherwise noted.

GENERAL REGULATIONS

§ 147.01-1 Scope of regulations.

The acceptance, handling, stowage or use of explosives or other dangerous articles or substances and combustible liquids as ships' stores and supplies of a dangerous nature that are permitted for such use on board domestic vessels shall be in accordance with the provisions of the regulations and table comprising this part.

§ 147.01-2 Application.

Any explosive or other dangerous article or substance and combustible liquids as ships' stores and supplies, as dangerous in accordance with the definition in §§ 147.02-1 and 147.02-2 shall not be used on board any domestic vessel subject to the regulations in this part unless specific permission for such use is given in the table, § 147.05-100, or certification for such use, where so required by said table, has been issued by the Commandant of the Coast Guard.

§ 147.01-3 Compliance.

Applicable provisions of the regulations in this part shall be observed by:

(a) All manufacturers, shippers, vendors or other persons offering explosives or other dangerous articles or substances, and combustible liquids as ships' stores and supplies of a dangerous nature for use on board domestic vessels subject to the regulations in this subchapter.

(b) Domestic vessels subject to the regulations in this subchapter, their owners, charterers, or agents and the master and personnel thereof.

§ 147.01-4 Certificated articles of ships' stores.

(a) Articles of ships' stores and supplies of a dangerous nature that are required by the provisions of § 147.05-100 to be certified for use on board domestic vessels shall not be offered for such use or used on board domestic vessels subject to the regulations in this part unless so certified.

(b) Certifications issued under authority of the regulations in this part shall become effective immediately upon issue. Articles so certified and bearing the certificate number and legend in accordance with the provisions of § 147.03-6 may then be offered for use and used on board domestic vessels.

[7 F.R. 2516, Apr. 1, 1942, as amended by CGFR 53-26, 18 F.R. 5257, Sept. 1, 1953]

§ 147.01-6 Certification of ships' stores and supplies by trade name.

Application may be made at any time for certification covering use of articles of ships' stores and supplies of a dangerous nature by trade name or trademark. Such application shall not be made or accepted for articles or substances that are described by name in the list of explosives and other dangerous articles and combustible liquids, in § 146.04-5 in this subchapter.

[CGFR 53-26, 18 F.R. 5257, Sept. 1, 1953]

§ 147.01-7 Foreign vessels.

The acceptance, handling, stowage or use of explosives or other dangerous articles or substances and combustible liquids as ships' stores and supplies of a dangerous nature that are permitted for such use on board foreign vessels, shall be in accordance with the provisions of the regulations and table comprising this part, or in accordance with the law and regulations of the country whose flag the vessel flies.

DEFINITION OF SHIPS' STORES AND SUPPLIES OF A DANGEROUS NATURE

§ 147.02-1 Ships' stores and supplies.

For the purposes of the regulations in this part ships' stores and supplies are defined as any article or substance which is used on board a vessel subject to the regulations in this subchapter, for the upkeep and maintenance of the vessel; or for the safety or comfort of the vessel, its passengers or crew; or for the operation or navigation of the vessel (except fuel for its own machinery).

§ 147.02-2 Ships' stores and supplies of a dangerous nature defined.

For the purpose of the regulations in this part ships' stores and supplies possessing such characteristic properties as will cause the substance to properly classify as either an explosive, inflammable liquid, inflammable solid, oxidizing material, corrosive liquid, compressed gas, poisonous article, hazardous article or combustible liquid in accordance with the definition for such substances as contained in the regulations in this subchapter are defined as ships' stores and supplies of a dangerous nature. This definition shall be binding upon all manufacturers, shippers, vendors or other persons offering any such articles for use on board domestic vessels. Acceptance and use on board domestic vessels subject to the regulations in this subchapter shall be in accordance with the provisions of §§ 147.01-1—147.01-6; §§ 147.03-1—147.03-11; §§ 147.04-1—147.04-4; and § 147.05-100.

DETAILED REGULATIONS GOVERNING CERTIFICATION OF SHIPS' STORES AND SUPPLIES

§ 147.03-1 Products requiring certification.

Ships' stores and supplies of a dangerous nature, as defined in §§ 147.02-1 and 147.02-2, shall not be used on board vessels subject to the regulations in this part unless certified for such use by the Commandant of the Coast Guard: *Provided, however,* That explosives or other dangerous articles or substances, and combustible liquids to be used as stores that are described by name in the list, § 146.04-5 of this subchapter, are not required to be so certified when permitted for such use by provisions of the table comprising § 147.05-100. This proviso shall not extend to compounds, mixtures or other substances that are described by generic name. Examples of such substances are polishes, waxes, insecticides, fumigants, disinfectants, cleaning compounds, removing compounds, and distillates.

§ 147.03-2 Source of application for certification.

The manufacturer of an article or substance may make application for certification for use of his product as an article of ships' stores and supplies.

§ 147.03-3 Procedure to obtain certification.

A manufacturer desiring to secure certification of his product for use as an article of ships' stores or supplies on board domestic vessels shall submit to the Commandant of the Coast Guard a statement setting forth all essential information with regard to the product. The statement shall be sworn to, or affirmed by an owner, partner, president or secretary of the company, partnership, corporation or association submitting the statement. Such oath or affirmation shall attest to the truth and accuracy of the statement. The manufacturer shall

also submit with the application for certification the original report of an independent testing laboratory acceptable to the Commandant, covering § 147.03-4 (g), (h), (i), (m), (n), and (o). Charges incurred for any test relating to certification shall be borne by the manufacturer.
[CGFR 52-41, 17 F. R. 10385, Nov. 13, 1952]

§ 147.03-4 Information required in statement.

The statement accompanying the application for certification of a product shall contain such of the following information as may be applicable:

(a) Name and address of the manufacturer.

(b) Trade name under which the product will be marketed.

(c) When properly described by a true chemical name, give such name.

(d) If a compound or mixture, state the true chemical names of the various ingredients and the percentages of each.

(e) A complete description of the individual container or containers in which the product is marketed.

(f) Describe any outside container in which two or more individual containers are shipped and give the gross and net weight of the package.

(g) If possessing flash and fire points state the points in degrees Farenheit as determined by Tagliabue's open cup method. (If the product is not susceptible to fire and flashpoint determination, so state.)

(h) State whether the product gives off explosive, inflammable, corrosive, or toxic vapors within a temperature range up to 150° F.

(i) State what reaction, if any, accompanies the addition of water to the substance or article.

(j) State if the product is liquid, semi-solid or solid.

(k) If of a solid or semi-solid form, what is the melting point of the substance.

(l) If an article is composed in part of an explosive ingredient, state the percentage of the explosive ingredient present.

(m) If an article is composed in part of a gas, state the maximum pressure possible at a temperature of 130° F.

(n) If an article is composed in part of poisonous ingredients, state the percentage of each kind of poison present.

(o) State if the product is or is not subject to spontaneous heating as determined by the Mackey Apparatus Method.

(p) If an article depends upon a factor of force or the addition of another product for its operation, state the method of application or use.

(q) Furnish a copy or facsimile reproduction of the label under which the substance will be marketed.
[CGFR 52-41, 17 F. R. 10385, Nov. 13, 1952]

§ 147.03-5 Samples for test.

The Commandant of the Coast Guard may require that an amount of the product, or a number of the articles sufficient for purposes of test, shall be submitted, or it may purchase in the open market a sufficient quantity of the products, or number of the articles for such test.

§ 147.03-6 Certification identification.

When a product is certified for use as an article of ships' stores or supplies on board vessels, it will be assigned a certification number by the Commandant of the Coast Guard. Before offering a product for use on board vessels, the manufacturer shall cause the certificate number and the following legend, in the form shown to be applied to each container of the product.

> No. xxx Date ----------
>
> Certificated for use as an article of stores on board vessels. This certification only covers hazard in the use of this product. The efficiency of this product is not passed upon.
>
> U. S. Coast Guard

The "x" marks to be replaced by the official number as awarded by the Commandant of the Coast Guard.

This legend may be incorporated as part of the label, or affixed as a separate label, or etched or stamped in the container or the material of each unit. No other form or statement regarding the Commandant of the Coast Guard's certification shall be made upon any label, container or advertising matter descriptive of the certified product.

§ 147.03-7 Certification of changes.

A certified product, its name, its form or design, the container of such product or the label appearing on the container shall not be altered and again marked without first securing certification in the same manner as required by §§ 147.03-3 and 147.03-4.

§ 147.03-8 Refusal to certify.

The Commandant of the Coast Guard may, for cause, withhold the certification of a product or an article; and reserves the right to require, before a certification is issued, that the trade name under which the article will be marked, be altered to avoid error, duplication or to provide clarity.

§ 147.03-9 Renewal of certification.

The manufacturer of each approved product or article shall, during the month of January in every year, submit a statement sworn to or affirmed that the characteristics of the approved product or article have not been altered or changed in any respect and it is the intention to continue to market the product. Upon receipt of such statement the records of the Commandant of the Coast Guard will be endorsed, indicating the certification continues active and in force. Failure to receive such statement shall automatically serve to cancel a certification, and the U.S. Coast Guard's Proceedings of the Merchant Marine Council shall note the cancelation of the certificate.

§ 147.03-10 False statement.

(a) The manufacturer or duly authorized agent submitting an application for certification of any product or article, who sets forth or causes to be set forth therein any false statement for the purpose of securing certification, shall be deemed to be in violation of the regulations in this part.

(b) Any manufacturer or agent, or any sales agent, of any product or article, who sets forth or causes to be set forth, a false statement regarding certification, shall be deemed to be in violation of the regulations in this part.

§ 147.03-11 Noncertified articles on board vessels.

Owner, charterer, agent, master or person in charge of a vessel, or other persons, knowingly taking or causing to be taken on board any domestic vessel, or using on board any such vessel, any ships' stores or supplies of a dangerous nature, as defined in §§ 147.02-1 and 147.02-2, that are not certified as required by the regulations in this part for such use by the Commandant of the Coast Guard, shall be deemed to be in violation of the regulations in this part: *Provided*, That in an emergency a domestic vessel in a foreign port or a port of the Canal Zone may replenish any article of ships' stores or supplies of a dangerous nature in such amount and under such condition as the judgment of the master may dictate as being necessary for the safety of the vessel.

Detailed Regulations Governing Use of Ships' Stores and Supplies

§ 147.04-1 Cylinder requirements.

(a) Cylinders containing a compressed gas, other than liquefied petroleum gas, for use as an article of stores on board any domestic vessel subject to the regulations in this subchapter shall conform to the following conditions:

(1) All cylinders shall be constructed, tested and marked in accordance with the Interstate Commerce Commission specifications in effect upon the date of manufacture and test.

(2) Cylinders shall bear upon the shoulder thereof a test date marking indicating such cylinder has been tested within a period of 5 years. A cylinder continuously installed in place on board a vessel as part of the vessel's equipment for a period of time exceeding 5 years, shall, after 12 years have elapsed from the date of previous test and marking, be removed from the vessel, its contents discharged, the cylinder retested and remarked.

(3) Any cylinder, the contents of which have been discharged or which for any cause has been removed from a vessel subsequent to 5 years from the last test, as indicated by the marking, shall be retested and remarked.

(4) Retesting, remarking, or recharging shall be in accordance with the regulations of the Interstate Commerce Commission in effect at the time the operation takes place.

(5) Cylinders forming part of a system installed on board a domestic vessel shall not be removed from said installation and placed on board any other vessel (except in an emergency) when the test date marking indicates that more than 5 years have elapsed since the cylinder was last tested.

(6) Cylinders marked showing a test date within the preceding 5 years but which show dents or other evidence of rough usage or corrosion to such extent as to indicate possible weakness or that have lost more than 5 percent of their official tare weight or that have been involved in a fire shall not be used or continued in use as a container of any