



DEPARTMENT OF TRANSPORTATION
HAZARDOUS MATERIALS REGULATIONS BOARD
WASHINGTON, D.C. 20590

12749

Title 49—Transportation

CHAPTER I—DEPARTMENT OF
TRANSPORTATION

SUBCHAPTER A—HAZARDOUS MATERIALS
REGULATIONS BOARD

[Docket No. HM-104; Amdt. Nos. 171-24,
172-24, 173-79, 174-21, 178-32]

MISCELLANEOUS AMENDMENTS

The purpose of these amendments to the Hazardous Materials Regulations of the Department of Transportation is (1) to specify a new definition for ammonium nitrate fertilizer; (2) to authorize new packagings for ammonium nitrate fertilizer and to provide additional packagings for ammonium nitrate (no organic coating), ammonium nitrate mixed fertilizer, and sodium nitrate; (3) to identify a specific composition of calcium nitrate that is not subject to regulation; (4) to delete dichloroisocyanuric acid, dry, from the regulations; (5) to add mono-(trichloro) tetra-(monopotassium dichloro)-penta-s-triazinetriene to the regulations; (6) to change the proper shipping names of some dry chlorine compounds; (7) to authorize the shipment of certain dry chlorine compounds in DOT specification 56 portable tanks; (8) to provide specific methods of securing certain portable tanks in rail transportation; (9) to authorize the shipment of titanium sulfate solution, containing not more than 45 percent sulfuric acid, in DOT specification 6D cylindrical steel overpacks with inside DOT specifications 2S polyethylene containers; (10) to authorize the shipment of dichlorodifluoromethane-difluoroethane mixtures in DOT specification 4E240 aluminum cylinders; (11) to exempt from labeling and certain marking requirements compressed gas cylinders that are component parts of passenger restraint systems installed in motor vehicles; (12) to change the requirements for the shipment of hydraulic accumulators; (13) to authorize the use of inside DOT specification 2N metal cans made of 135-pound tin plate throughout and with the top head of each can attached to the body section by full double seams with a durable seaming compound; and (14) to provide the correct reference to an ASTM test method used in determining the density of plastics.

On August 10, 1972, the Hazardous Materials Regulations Board published a notice of proposed rule making, Docket No. HM-104; Notice No. 72-10 (37 FR 16108), which proposed these amendments. The reasons for all these amendments were discussed in that notice of proposed rule making. Interested persons

were invited to give their views and several comments were received by the Board.

Nitrates. A commenter questioned the proposed authorization of the use of polyethylene and polypropylene bags for the shipment of ammonium nitrate fertilizer. It was stated that, in the event of fire, the plastic material will melt and become intimately mixed with the ammonium nitrate fertilizer thereby forming a blasting agent. This rule making does not introduce anything new with regard to the use of bags, made of plastic materials, for ammonia nitrate fertilizer. This amendment would simply allow the use of additional types of plastic bags. The present regulations authorize the use of DOT-44P plastic bags for this material. Extensive tests were performed by testing organizations that showed ammonium nitrate fertilizer in plastic bags was not more hazardous than when packed in paper bags. Also, in addition to the results of past tests, the actual safety record experienced throughout the years has indicated that ammonium nitrate fertilizer packaged in plastic bags is not a problem. Therefore, the Board has provided for ammonium nitrate fertilizer to be packaged in bags made of plastic materials.

Another commenter stated that calcium nitrate, which is chemically pure, meets the definition of an oxidizing material and therefore, should continue to be subject to regulation. However, there is information available on another material identified as "Calcium nitrate fertilizer" and consisting of a double salt (calcium nitrate and ammonium nitrate) and containing not more than 15.5 percent total nitrogen and at least 12 percent of water. The data indicates that this material does not meet the oxidizing material definition; therefore, it should not be subject to regulation. The Board agrees with the original petitioner for the change and the distinction made by a commenter between "types" of calcium nitrate. Therefore, the Board has withdrawn that portion of the proposal which proposed to delete the entry for calcium nitrate. It remains subject to regulation. However, to preclude the applicability of the regulations to the double salt that poses no significant hazard, the Board has amended § 172.5 by specifically identifying the material that is a fertilizer grade of calcium nitrate and by incorporating its specific components together with the maximum amount of nitrogen and the minimum water content of the material.

Two commenters suggested that the proposed changes in § 174.532(k) be modified. One commenter pointed out that the proposed rule making deleted the restriction against loading ammonium nitrate (organic coating) in all-metal cars. The Board emphasizes that the restriction actually continues in effect since § 174.532(k) only relates to nitrate formulations listed in § 173.182(b). Ammonium nitrate (organic coating) has been deleted from § 172.182(b) because this material is not shipped in bulk quantities and § 172.182(b) is the section which authorizes transportation in bulk. The other commenter stated that § 174.532(k) should be amended by removing the references to certain nitrate products, and authorize all nitrate materials listed in § 173.182(b), to be loaded in clean, covered hopper cars. His reason for such a change is based on § 172.182(b)(1) which presently permits all nitrate materials so listed to be shipped in tight closed freight cars. The Board agrees with this commenter and has removed the restriction in § 174.532(k) that only certain nitrates are authorized to be shipped in covered hopper cars.

A comment was received requesting that § 173.182(b)(5)(ii) be amended to reduce the total basis weight of the authorized paper bags from 180 pounds to 150 pounds and that subparagraph § 173.182(b)(6)(iii) be amended to authorize the use of a 5 or 5.5 mil single ply plastic bag as an alternate packaging. The proposed rule making did not address itself to these suggested changes and because of this, these proposed changes were not available for public comment. Therefore, they were not considered in this rule making action.

A comment was received objecting to the proposal in the list of hazardous materials to change "Ammonium nitrate fertilizer containing 90 percent or more ammonium nitrate with no organic coating" to "Ammonium nitrate (no organic coating)." The Board points out that because ammonium nitrate formulations which are not fertilizers according to the new test criteria must be covered, two separate descriptions become necessary, one for fertilizer materials and one for non-fertilizer materials. Regarding the ammonium nitrate fertilizer formulations, the Board is prescribing a shorter simplified description "Ammonium nitrate fertilizer." Since shipping papers and markings on packagings will be affected and to provide for a reasonable transition period, the Board has decided to permit use of formerly prescribed descriptions until June 30, 1975.

Dry chlorine compounds in portable tanks. A commenter indicated that this proposal would create certain problems because present non-specification portable tanks, used for specific dry chlorine compounds cannot be converted, because of physical limitations, to meet the DOT-56 specification requirements. The Board believes that the regulations should not be amended to authorize the use of such non-specification portable tanks for these dry chlorine compounds. However, in certain situations, such as the one mentioned above, it will consider the continuation of special permits to permit a reasonable phase-out period for non-DOT specification packaging provided adequate precautions are taken relative to safety in transportation.

Automotive restraint systems. Two commenters had several objections to the proposal to exempt compressed gas cylinders that are component parts of passenger restraint systems installed in motor vehicles from all of the regulations except those requirements for cylinder construction, filling, and specification marking. Based on the objections, it appears that the proposal was not clearly understood by the commenters. It is important to recognize that the notice contained proposed exemptions from all of the regulations except those requirements for cylinder construction, filling, and specification marking for charged compressed gas cylinders installed in motor vehicles which would otherwise be in compliance with the regulations when shipped in strong outside packagings as ordinary freight. Several comments were addressed to the design and construction regulations for DOT-39 specification cylinders which were not proposed to be changed in this rule making. Rather, the object of this rule making action is to assure an adequate level of safety while removing unnecessary regulatory controls from motor vehicles equipped with certain passenger restraint systems when these vehicles are shipped in interstate or foreign commerce.

Another commenter suggested that the wording of this proposal, which requires the cylinder used in a restraint system to be in compliance with a cylinder specification in Part 178, be amended to cover cylinders authorized by special permits. The Board agrees in part with this suggestion and has added the phrase "Unless otherwise authorized by the Department * * *" at the beginning of subparagraph § 173.306(d) (3) (i).

A commenter suggested that the amendment include restraint systems that also contain gas generators. The Board agrees that such a provision should be made if tests are successfully conducted in accordance with procedures used to establish compliance with § 173.34(d). Therefore, a note has been added to the exemption for restraint systems to include gas generators.

Hydraulic accumulators. The Department of Defense requested that the partial exemption be revised to include pneumatic accumulators which are parts of missiles or components thereof. The Board did not make the requested change since pneumatic accumulators were not covered in the proposal.

In consideration of the foregoing, 49 CFR Parts 171, 172, 173, 174, and 178 are amended as follows:

PART 171—GENERAL INFORMATION AND REGULATIONS

I. In § 171.7, paragraph (c) (19) is added to read as follows:

§ 171.7 Matter incorporated by reference.

(c) * * *

(19) TFI: The Fertilizer Institute
1015 18th Street N.W., Washington,
20036.

PART 172—LIST OF HAZARDOUS MATERIALS CONTAINING THE SHIP NAME OR DESCRIPTION OF ALL MATERIALS SUBJECT TO PARTS 170-18 THIS SUBCHAPTER

II. In § 172.5, paragraph (a), the of hazardous materials, is amended to read as follows:

§ 172.5 List of hazardous materials.

(a) * * *

Article	Classed as--	Exemptions and packing (see section)	Label required if not exempt	Maximum quantity in 1 outside container 1 rail expre
Cancel				
Ammonium nitrate.....	Oxy. M.....	173.153, 173.182.....	Oxy.....	100 lb.
Ammonium nitrate fertilizer, containing 90 percent or more ammonium nitrate with no organic coating.	Oxy. M.....	173.153, 173.182.....	Oxy.....	100 lb.
Dichloroisocyanuric acid, dry, containing more than 39 percent available chlorine.	Oxy. M.....	173.153, 173.217.....	Oxy.....	100 lb.
Potassium dichloroisocyanurate, dry, containing more than 39 percent available chlorine.	Oxy. M.....	173.153, 173.217.....	Oxy.....	100 lb.
Sodium dichloroisocyanurate, dry, containing more than 39 percent available chlorine.	Oxy. M.....	173.153, 173.217.....	Oxy.....	100 lb.
Trichloroisocyanuric acid, dry, containing more than 39 percent available chlorine.	Oxy. M.....	173.153, 173.217.....	Oxy.....	100 lb.
Add				
Ammonium nitrate (no organic coating).	Oxy. M.....	173.153, 173.182.....	Oxy.....	100 lb.
Ammonium nitrate fertilizer, containing no more than 0.2 percent carbon.	Oxy. M.....	173.153, 173.182.....	Oxy.....	100 lb.
*Calcium nitrate.....	Oxy. M.....	173.153, 173.182.....	Oxy.....	100 lb.
Calcium nitrate fertilizer, consisting of a double salt (calcium nitrate and ammonium nitrate) and containing not more than 16.5 percent total nitrogen and not less than 12 percent water.		Not subject to Parts 170-189 of this subchapter.		
Mono-(trichloro) tetra-(monopotassium dichloro)-penta-s-triazinetri- one (dry, containing more than 39 percent available chlorine).	Oxy. M.....	173.153, 173.217.....	Oxy.....	100 lb.
Potassium dichloro-s-triazinetri- one (dry, containing more than 39 percent available chlorine).	Oxy. M.....	173.153, 173.217.....	Oxy.....	100 lb.
Sodium dichloro-s-triazinetri- one (dry, containing more than 39 percent available chlorine).	Oxy. M.....	173.153, 173.217.....	Oxy.....	100 lb.
Trichloro-s-triazinetri- one (dry, containing more than 39 percent available chlorine).	Oxy. M.....	173.153, 173.217.....	Oxy.....	100 lb.
Change				
*Ammonium nitrate-phosphate.....	Oxy. M.....	173.153, 173.182.....	Oxy.....	100 lb.
Hydraulic accumulators (pressurized with nonflammable, nonliquefied compressed gas);	Nonf. C.G.....	173.306(f).....		

PART 173—SHIPPERS

(A) In Part 173 Table of Contents, § 173.217 is amended to read as follows:

Sec.
173.217 Calcium hypochlorite mixtures, dry, lithium hypochlorite compounds, dry, mono-(trichloro) tetra-(monopotassium dichloro)-penta-s-triazinetrione, dry, potassium dichloro-s-triazinetrione, dry, sodium dichloro-s-triazinetrione, dry, trichloro-s-triazinetrione, dry.

(B) In § 173.182, the introductory text of paragraphs (a) and (b) and paragraphs (b) (3), (4), (5), and (6) are amended; paragraph (b) (7) is added to read as follows:

§ 173.182 Nitrates.

(a) Aluminum nitrate, ammonium nitrate (no organic coating), ammonium nitrate (organic coating), ammonium nitrate-carbonate mixture, ammonium nitrate-phosphate, ammonium nitrate fertilizer¹ (containing no more than 0.2 percent carbon), ammonium nitrate mixed fertilizer, barium nitrate, calcium nitrate, guanidine nitrate, lead nitrate, magnesium nitrate, nitrates, n.o.s., nitrate of soda and potash, nitro carbamate (see Note 1), potassium nitrate, silver nitrate, sodium nitrate, and strontium nitrate, when offered for transportation by rail freight, rail express, highway, or carriers by water must be packed in containers as follows:

[Note 1 remains the same.]

(b) Aluminum nitrate, ammonium nitrate (no organic coating), ammonium nitrate-carbonate mixture, ammonium nitrate-phosphate, ammonium nitrate fertilizer¹ (containing no more than 0.2 percent carbon), ammonium nitrate mixed fertilizer, barium nitrate, calcium nitrate, guanidine nitrate, nitrate of soda and potash, potassium nitrate, sodium nitrate, and strontium nitrate, when offered for transportation by rail freight, rail express, highway, or carriers by water, in addition to packagings prescribed in paragraph (a) of this section, may be packed as follows:

(3) In bulk on cargo vessels subject to the regulations in Subchapter N—Dangerous Cargoes, 46 CFR Part 146, prescribed by the Commandant, U.S. Coast Guard.

(4) Burlap bag made water-resistant and tight against sifting, and of not less than 7½ ounce burlap. Authorized net weight not over 200 pounds. Ammonium nitrate-carbonate mixtures, calcium nitrate, potassium nitrate, sodium nitrate, nitrate of soda and potash, or strontium nitrate when so packed are exempt from

¹ Applies only to materials tested in accordance with and meeting the definition in The Fertilizer Institute's publication "Definition and Test Procedures for Ammonium Nitrate Fertilizer" dated May 7, 1971.

labeling requirements and § 177.823 of this subchapter. For water shipments see Subchapter N—Dangerous Cargoes, 46 CFR Part 146, for the regulations prescribed by Commandant, U.S. Coast Guard. (See §§ 174.532 and 177.838 of this subchapter for loading requirements.)

(5) Multiple-wall paper bags. Each bag filled to weight with product and closed for shipment must be capable of withstanding three 4-foot drops on face or back onto solid concrete without rupture and must be constructed as follows:

(i) Multiple-wall paper bag made of at least four plies. Authorized net weight not over 110 pounds. Each bag must include a moisture barrier ply and be made tight against sifting. Ammonium nitrate-carbonate mixtures, calcium nitrate, potassium nitrate, sodium nitrate, nitrate of soda and potash, or strontium nitrate when so packed are exempt from labeling requirements and § 177.823 of this subchapter. For water shipments see Subchapter N—Dangerous Cargoes, 46 CFR Part 146, for the regulations prescribed by Commandant, U.S. Coast Guard. (See §§ 174.532 and 177.838 of this subchapter for loading requirements); or

(ii) Multiple-wall paper bag made of at least three plies of extensible kraft paper having a minimum total basis weight of 180 pounds. Authorized net weight not over 80 pounds. Each bag must have the innermost ply coated with polyethylene to provide a moisture barrier. Authorized only for ammonium nitrate (no organic coating), ammonium nitrate fertilizer, and ammonium nitrate mixed fertilizer. (See §§ 174.532 and 177.838 of this subchapter for loading requirements.)

(6) Plastic bags constructed as follows:
(i) Specification 44P (§ 178.241 of this subchapter). All plastic bag. Authorized net weight not over 81 pounds. Authorized only for ammonium nitrate fertilizer and ammonium nitrate mixed fertilizer. (See §§ 174.532 and 177.838 of this subchapter for loading requirements); or

(ii) Polypropylene bag made of 9 denier polypropylene fibers spun continuously to form a sheet weighing at least 3½ ounces per square yard. Authorized net weight not over 100 pounds. Each bag must have an inner liner of polyethylene not less than 4 mils thick. Each bag filled to weight with product and closed for shipment must be capable of withstanding three 4-foot drops on face or back onto solid concrete without rupture. Authorized only for ammonium nitrate (no organic coating) and ammonium nitrate fertilizer. (See §§ 174.532 and 177.838 of this subchapter for loading requirements); or

(iii) Polyethylene bag made of two plies of high-density polyethylene film laminated together so that the orientation of each ply of film is at right angles to the other. Authorized net weight not exceeding 100 pounds. For a net weight not exceeding 50 pounds, the thickness

of each bag must be at least 2.5 mils. For a net weight not exceeding 100 pounds, the thickness of each bag must be at least 4 mils. Each bag must be capable of withstanding the test requirements of § 178.241-4 and each bag must be in compliance with the requirements of § 178.241-3 of this subchapter for bag closures. Authorized only for ammonium nitrate (no organic coating), ammonium nitrate fertilizer, and sodium nitrate. Sodium nitrate when so packed is exempt from labeling requirements. (See §§ 174.532 and 177.838 of this subchapter for loading requirements.)

(7) Specification 53² or 56 (§§ 178.251, 178.252 of this subchapter). Portable tank. Authorized only for sodium nitrate.

(C) In § 173.217, the heading and the introductory text of paragraph (a) is amended; paragraph (a) (6) is added to read as follows:

§ 173.217 Calcium hypochlorite mixtures, dry, lithium hypochlorite compounds, dry, mono-(trichloro) tetra-(monopotassium dichloro)-penta-s-triazinetrione, dry, potassium dichloro-s-triazinetrione, dry, sodium dichloro-s-triazinetrione, dry, trichloro-s-triazinetrione, dry.

(a) Calcium hypochlorite mixtures, dry, lithium hypochlorite compounds, dry, mono-(trichloro) tetra-(monopotassium dichloro)-penta-s-triazinetrione, dry, potassium dichloro-s-triazinetrione, dry, sodium dichloro-s-triazinetrione, dry, trichloro-s-triazinetrione, dry, each containing more than 39 percent available chlorine must be packed in specification packagings as follows:

(6) Specification 56 (§§ 178.251, 178.252 of this subchapter). Metal portable tank. Authorized only for mono-(trichloro) tetra-(monopotassium dichloro)-penta-s-triazinetrione, dry, potassium dichloro-s-triazinetrione, dry, and sodium dichloro-s-triazinetrione, dry. For rail transportation, see § 174.534 (b) of this subchapter.

(D) In § 173.297, paragraph (a) (4) is added to read as follows:

§ 173.297 Titanium sulfate solution containing not more than 45% sulfuric acid.

(4) Specification 6D (§ 178.102 of this subchapter). Cylindrical steel overpack with inside specification 2S (§ 178.35 of this subchapter) polyethylene container not over 30-gallons capacity. Overpack of over 15 gallons must be constructed of at least 18-gauge steel throughout.

(E) § 173.304 paragraph (a) (2), the table is amended as follows:

§ 173.304 Charging of cylinders with liquefied compressed gas.

- (a) * * *
- (2) * * *

² Use of existing tanks authorized. Construction not authorized after May 31, 1973.

Maximum permitted filling density (see note 1)

Kind of gas

Containers marked as shown in this column as the same type with higher service pressure may be used except as provided in § 173.34 (b), (c), § 173.361 (d) (see notes following table)

Change

Dichlorodifluoromethane and difluoroethane mixture (constant boiling mixture) (see note 8).

Percent Not liquid full at 130° F.

DOT-3A240; DOT-3A240; DOT-3B240; DOT-3E1800; DOT-4A240; DOT-4B240; DOT-4C240; DOT-4D240; DOT-4E240; DOT-4F240; DOT-33.

(F) In § 173.306, paragraph (e) (2) is deleted; the heading of paragraph (e) is amended; and paragraphs (d) (3) and (f) are added to read as follows:

§ 173.306 Exemptions from compliance with regulations for shipping compressed gas.

(d) * * *

(3) A cylinder which is a component part of a passenger restraint system and is installed in a motor vehicle, charged with nonliquefied, nonflammable compressed gas and having no more than two actuating cartridges per valve, is exempt from the requirements of Parts 170-189 of this subchapter except:

(i) Unless otherwise authorized by the Department, each cylinder must be in compliance with one of the cylinder specifications in Part 178 and authorized for use in § 173.302 for the gas it contains;

(ii) Each cylinder must be in compliance with the filling requirements of § 173.301; and

(iii) Each actuating cartridge must be approved in accordance with § 173.86 and meet the definition set forth in § 173.100 (w).

NOTE—A cylinder containing a gas generator may be included within the provisions of this exemption if the requirements of § 173.34 (d) are satisfied.

(e) Refrigerating machines. * * *

(f) Deleted

following apply to hydraulic accumulators containing nonliquefied, nonflammable

gas, and nonflammable liquids, fabricated from materials which will not fragment upon rupture:

(1) Hydraulic accumulators installed in motor vehicles, construction equipment, and assembled machinery and designed and fabricated with a burst pressure of not less than five times their charged pressure at 70° F., when shipped, are exempt from the requirements of Parts 170-189 of this subchapter.

(2) Hydraulic accumulators charged to not more than 200 p.s.i. at 70° F., are exempt from specification packaging, marking, and labeling requirements when shipped under the following conditions, except that marking name of contents on outside packing is required for shipments via carriers by water: in addition to the above exemptions, shipments via highway carriers are exempt from Part 177 of this subchapter, except § 177.817.

(i) Each accumulator must be shipped as an inside packaging;

(ii) Each accumulator may not have a gas space exceeding 2,500 cubic inches under stored pressure, and

(iii) Each accumulator must be tested, without evidence of failure or damage, to at least three times its charged pressure at 70° F., but not less than 120 p.s.i., before initial shipment and before each refilling and reshipment.

(3) Hydraulic accumulators with a charging pressure exceeding 200 p.s.i. at 70° F. are exempt from specifications packaging requirements when shipped under the following conditions:

(i) Each accumulator must be in compliance with the requirements stated in

subparagraphs (2) (i), (ii), and (iii) of this paragraph, and

(ii) Each accumulator must be designed and fabricated with a burst pressure of not less than five times its charged pressure at 70° F. when shipped.

PART 174—CARRIERS BY RAIL FREIGHT
IV. (A) In § 174.532 paragraph (k) is amended to read as follows:

§ 174.532 Loading other hazardous materials.

* * * * *
(k) Nitrates listed in § 173.182 (b) of this subchapter must be loaded in clean closed cars, which must be free of loose boards, cracks, holes, or exposed decayed spots. Interior of cars must be swept clean and be free of any projections capable of damaging bags when the nitrate is so packaged. Doors of cars must have tight closures. Journals and boxes must be in good condition. (See § 174.541 (a) (1) and (2) of this subchapter.)

* * * * *
(B) In § 174.534, paragraph (b) is added to read as follows:

§ 174.534 Portable containers or tanks.

(b) Specifications 52, 53, 56, and 57 portable tanks must not be transported on flat cars or on flat bed trailers on

(B) In Appendix B to Part 178, Table I is amended as follows:

APPENDIX B—SPECIFICATIONS FOR PLASTICS

TABLE I

Property	Type I	Type II	Type III	ASTM method
Density, g./cc.	0.910-0.926	0.926-0.941	0.941-0.965	D 1505-68.

Change

This amendment is effective September 30, 1974 except for the regulations covering "Ammonium nitrate (no organic coating)" and "Ammonium nitrate fertilizer," as they relate to shipping papers and markings on packagings. These materials which were formerly described in accordance with section 172.5 as "Ammonium nitrate ammonium nitrate with no organic coat-fertilizer, containing 90 percent or more shipping papers and so marked on packing" may continue to be so described on tagings until June 30, 1975. However, compliance with these regulations, as amended herein, is authorized immediately.

flat cars, except under conditions approved by the Federal Railroad Administrator. For cargo tanks see § 174.533 (c).

PART 178—SHIPPING CONTAINER SPECIFICATIONS

V. (A) § 178.32-2 is amended to read as follows:

§ 178.32 Specification 2N; inside containers, metal cans.

* * * * *
Each can must be made of good quality tin plate with parts and dimensions in compliance with the requirements of the following table:

Maximum diameter of can (inches)	Minimum thickness of metal (inch)	
	In body	In heads
4 3/8	0.01134 (107 lb tin plate)	0.01305 (128 lb tin plate)
6 1/4	0.01134 (107 lb tin plate)	0.01485 (148 lb tin plate)
6 1/2	0.01405 (135 lb tin plate)	0.01405 (135 lb tin plate)

* * * * *
The minimum thickness of metal in each head may be 10 lb tin plate provided side seams are soldered and internal seams are attached to body sections by full double seams. The minimum thickness of metal in each head may be 135 lb tin plate provided side seams are soldered and internal seams are attached to body sections by full double seams.

* * * * *
Top heads must be attached to body sections by full double seams with durable seaming compound, and bottom heads must be attached to body sections by soldering.