

March 29, 2016



U.S. Department  
of Transportation

East Building, PHH-30  
1200 New Jersey Avenue S.E.  
Washington, D.C. 20590

**Pipeline and Hazardous  
Materials Safety Administration**

DOT-SP 14437  
(FOURTH REVISION)

EXPIRATION DATE: 2020-02-29

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Columbiana Boiler Company, LLC  
Columbiana, OH
2. PURPOSE AND LIMITATIONS:
  - a. This special permit authorizes the manufacture, marking, sale and use of a non-DOT specification pressure vessel similar to a DOT Specification 106A500X Multi-Unit Tank Car Tank "ton tank" for the transportation in commerce of the material authorized by this special permit. This special permit provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein.
  - b. The safety analyses performed in development of this special permit only considered the hazards and risks associated with transportation in commerce.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR §§ 173.3, 173.314, and 179.300 in that a non-DOT specification pressure vessel is not authorized except as specified herein.
5. BASIS: This special permit is based on the application of Columbiana Boiler Company, LLC dated March 10, 2015 and additional information of January 7, 2016, submitted in accordance with § 107.105 and the public proceeding thereon.

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

<b>Hazardous Materials Description</b>			
<b>Proper Shipping Name</b>	<b>Hazard Class/ Division</b>	<b>Identification Number</b>	<b>Packing Group</b>
Ammonia, anhydrous	2.3	UN1005	N/A Hazard Zone D
Chlorine	2.3	UN1017	N/A Hazard Zone B
Sulfur dioxide	2.3	UN1079	N/A Hazard Zone C
Those materials authorized to be transported in DOT Specification DOT 106A Containers	As appropriate	As appropriate	As appropriate

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Packaging prescribed is a non-DOT specification pressure vessel designed, manufactured, and tested in accordance with Columbiana Boiler Company, LLC drawing number 102303-1 revision 2 dated January 6, 2016, CBC Specification CBC 106W, revision 9, dated January 29, 2015 and the supporting documentation on file with the Office of Hazardous Materials Approvals and Permits Division (OHMSAPD).

(1) Pressure vessels must be manufactured using equipment and processes adequate to ensure that each pressure vessel produced conforms to the requirements of this special permit. Pressure vessels must be cylindrical, circular in cross section, of welded steel with electric-arc welded longitudinal seam. The pressure vessel must have: an outside diameter (nominal) of 76.2 cm (30 inches), an overall length (nominal) of 207 cm and 225 cm (81.5 inches and 88.5 inches); and a bursting pressure not less than 86.18 bar (1250 psi).

(2) Head material of construction must be ASTM A-516-70/ASME SA-516 Grade 70 normalized. Shell material of construction must be ASTM A-516-70/ASME SA-516 Grade 70.

(3) The minimum thickness after forming of the body shells must be 7.14 mm (0.281 inch). The welded joint efficiency for the longitudinal joint in these pressure vessels is 1.0. The welded joint efficiency for the head to shell girth joints in these pressure vessels is 0.45 accounting for no radiography.

(4) Each tank head must be formed convex to pressure and must be fusion-welded to the tank shell. It must be one piece, hot formed in one heat so as to provide a straight flange at least 38.1 mm (1.5 inches) long. Each tank head must have a snug drive fit into the shell for the fusion-welding of the head to body shell. The minimum thickness after forming of each head must meet the requirements of CBC specification CBC 106W, revision 9, dated January 29, 2015.

(5) All welding, weld procedures, postweld heat treatment procedures, and operators used to fabricate pressure vessels under this special permit must be in compliance with and qualified under the requirements of Appendix W of the Association of American Railroads Manual of Standards and Recommended Practices, Specifications for Tank Cars (Appendix W) (AAR M-1002 Issue 2014 dated 11/2014) or American Society of Mechanical Engineers (ASME) Code, Section IX (ASME IX 2015 Edition, July 1, 2015). Heat treatment must be accomplished after all forming and welding operations.

(6) Tank fittings must be protected as detailed in CBC Specification CBC 106W, revision 9, dated January 29, 2015.

(7) Valves shall meet the requirements of Pamphlet 17 of the Chlorine Institute and Compressed Gas Association (CGA) CGA-S-1.1- edition 14, dated 11/01/11 /CGA-V-1- edition 13, dated 5/01/13, made of metal not subject to rapid deterioration by lading, and shall withstand tank test pressure without leakage. The valves shall be screwed directly into one tank head. Provision shall be made for closing outlet connections of the valves.

**March 29, 2016**

Threads for openings shall be National Gas Taper Threads (NGT) tapped to gage, clean cut, even and without checks.

(8) Siphon pipes and their couplings on the inside of the tank head and lugs on the outside of the tank head for attaching the valve protective housing must be fusion-welded in place prior to postweld heat treatment. All other fixtures and appurtenances, except as specifically provided for, are prohibited.

(9) Unless prohibited in part 173 of this subchapter, tanks shall be equipped with one or more pressure relief devices meeting the requirements of Pamphlet 17 of the Chlorine Institute edition 4, revision 2, dated May 2011 and Compressed Gas Association (CGA) CGA-S-1.1- edition 14, dated 11/01/11 /CGA-V-1- edition 13, dated 5/01/13, made of metal not subject to rapid deterioration by the lading and screwed directly into tanks heads. The total discharge capacity shall be sufficient to prevent building up pressure in tank in excess of 82.5 percent of the tank test pressure. When relief devices of the fusible plug type are used, the required discharge capacity shall be available in each head. See AAR Specifications for Tank Cars, Appendix A, Effective September 01, 1990 for the formula for calculating discharge capacity.

(10) Threads for openings shall be National Gas Taper Threads (NGT) tapped to gage, clean cut, even and without checks.

(11) Pressure relief devices shall be set for start-to-discharge and rupture discs shall burst at a pressure not exceeding the following:

(i) Start to discharge, or burst maximum, 375 p.s.i. (25.86 bar) and Vapor-Tight, minimum 300 psig. (20.68 bar)

(ii) Fusible plugs shall function at a temperature not exceeding 175° F (79.4C). and shall be vapor-tight at a temperature of not less than 130° F.

b. TESTING -

(1) Tests shall be as required by CBC Specification CBC 106W, Revision 9, dated January 29, 2015.

(2) Radiographic records for each vessel must be maintained by the manufacturer for 5 years after the date of manufacture.

(3) Each valve shall be tested by air or gas before being put into service. The valve shall open and be vapor-tight at the pressure prescribed in Paragraph (11) above.

(4) Rupture disks of non-reclosing pressure relief devices must be tested and qualified as prescribed in appendix A, Paragraph 5, of the AAR Manual of Standards and Recommended Practices, Section C-Part III, AAR Specifications for Tank Cars, Effective September 01, 1990 and CGA-S1.1.1 Edition 14, dated 11/01/11.

(5) For pressure relief devices of the fusible plug type, a sample of the plug used shall function at a temperature not to exceed 175F (79.4C) and shall be vapor tight at a temperature not less than 130F (54.4C).

(6) The start-to-discharge and vapor-tight pressures of pressure relief devices shall not be affected by any auxiliary closure or other combination.

c. INSPECTION -

(1) New construction - All inspections prescribed by CBC Specification CBC 106W, Edition 14, dated 11/01/11 shall be carried out by an impartial and competent inspector employed by an Authorized Inspection Agency.

(2) Periodic retest and inspection - Each pressure vessel must be retested and inspected in accordance with § 180.519 as specified for DOT 106A500X. The retest and reinspection must be performed by the Original Equipment Manufacturer (OEM) or in accordance with DOT-SP 15647.

d. OPERATIONAL CONTROLS -

(1) Pressure vessel design must allow application of the Chlorine Institute's Emergency Kit "B".

(2) Repair of welded couplings and re-threading is authorized. Any welding to couplings, threaded openings or pressure vessel shall follow the CBC 106W OEM specification.

8. SPECIAL PROVISIONS:

a. In accordance with the provisions of Paragraph (b) of § 173.22a, persons may use the packaging authorized by this special permit for the transportation of the hazardous materials specified in paragraph 6, only in conformance with the terms of this special permit.

b. A person who is not a holder of this special permit, but receives a package covered by this special permit, may reoffer it for transportation provided no modifications or changes are made to the package and it is offered for transportation in conformance with this special permit and the HMR.

c. A current copy of this special permit must be maintained at each facility where the package is offered or reoffered for transportation.

d. Each packaging manufactured under the authority of this special permit must be marked with the DOT registered Approval number issued by the Office of Hazardous Materials Special Permits and Approvals for a specific manufacturing facility.

e. A current copy of this special permit must be maintained at each facility where the package is manufactured under this special permit. It must be made available to a DOT representative upon request.

f. Pressure vessels manufactured under this special permit must be in conformance with Columbiana Boiler Company, LLC's drawing number 102303-1, except that whenever a provision of this special permit is in conflict with the drawing, Columbiana Boiler Company, LLC must comply with the conditions of this special permit and make appropriate revisions to the drawing(s).

g. MARKING - As a minimum each pressure vessel must be marked by stamping permanently and plainly in letters and figures at least 9.525mm (3/8 inch) high into the metal of valve end chime as follows:

Columbiana Boiler Co. USA  
DOT SP 14437  
IMDG CA008020024  
HYDROTEST 500 PSI/34.47 BAR  
SA-516-70  
(OWNER'S OR BUILDER'S SYMBOL & SERIAL NUMBER)  
(INSPECTOR'S MARK)  
(TEST DATE)  
WATER CAP ( )LBS ( )KG  
TARE ( )LBS ( )KG

NOTE: TARE WEIGHT INCLUDES WEIGHT OF EMPTY CONTAINER, VALVES, AND SAFETY RELIEF DEVICES.  
WEIGHT OF VALVE PROTECTIVE BONNET IS NOT INCLUDED.

Variations to the required marking must be approved in writing by the Associate Administrator for Hazardous Materials Safety.

h. OHMSAPD may require the testing under prescribed conditions of any pressure vessel when probable cause appears for suspecting that a pressure vessel is in an unsafe operating condition in accordance with the requirements specified in § 180.509(b).

i. Any pressure vessel not used for the transport of the hazardous materials authorized under this special permit for a period of 1 year or more must be successfully retested and inspected in accordance with § 180.519 as specified for DOT 106A500X prior to being returned to hazardous material transportation service.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, rail freight and cargo vessel.
10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard each motor vehicle and cargo vessel used to transport packages covered by this special permit.

**March 29, 2016**

11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this special permit and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:
- o All terms and conditions prescribed in this special permit and the Hazardous Materials Regulations, Parts 171-180.
  - o Persons operating under the terms of this special permit must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.
  - o Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this special permit must receive training on the requirements and conditions of this special permit in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this special permit, including display of its number, when the special permit has expired or is otherwise no longer in effect.

Under Title VII of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)- "The Hazardous Materials Safety and Security Reauthorization Act of 2005" (Pub. L. 109-59), 119 Stat. 1144 (August 10, 2005), amended the Federal hazardous materials transportation law by changing the term "exemption" to "special permit" and authorizes a special permit to be granted up to two years for new special permits and up to four years for renewals.

12. REPORTING REQUIREMENTS: Shipments or operations conducted under this special permit are subject to the Hazardous Materials Incident Reporting requirements specified in 49 CFR §§ 171.15 - Immediate notice of certain hazardous materials incidents, and 171.16 - Detailed hazardous

**March 29, 2016**

materials incident reports. In addition, the grantee(s) of this special permit must notify the Associate Administrator for Hazardous Materials Safety -- OHMSPA, in writing, of any incident involving a package, shipment or operation conducted under terms of this special permit.

Issued in Washington, D.C.:



for Dr. Magdy El-Sibaie  
Associate Administrator for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Materials Safety Administration, Department of Transportation, Washington, D.C. 20590. Attention: PHH-31.

Copies of this special permit may be obtained by accessing the Hazardous Materials Safety Homepage at [http://hazmat.dot.gov/sp\\_app/special\\_permits/spec\\_perm\\_index.htm](http://hazmat.dot.gov/sp_app/special_permits/spec_perm_index.htm) Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.

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