



U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

March 31, 2025

1200 New Jersey Avenue, SE
Washington, DC 20590

DOT-SP 12277
(FIFTEENTH REVISION)

EXPIRATION DATE: 2029-02-28

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: ISGEC Heavy Engineering Limited
Haryana, India

U.S. AGENT: Fabshops
Chatham, NJ

2. PURPOSE AND LIMITATIONS:

a. This special permit authorizes the manufacture, marking, sale and use of a non-DOT specification cylinder (pressure vessel) conforming with all regulations applicable to a DOT specification 106A500W multi-unit tank car tank, except as specified herein, 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. The most recent revision supersedes all previous revisions.

b. The safety analyses performed in development of this special permit only considered the hazards and risks associated with transportation in commerce.

c. Party status will not be granted to this special permit.

3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171- 180.

4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR § 173.314 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 ISGEC Heavy Engineering Limited dated December 21, 2024, submitted in accordance with § 107.109.

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Hazardous Materials Description			
Proper Shipping Name	Hazard Class/ Division	Identification Number	Packing Group
Chlorodifluoromethane or Refrigerant gas R-22	2.2	UN1018	N/A
Chlorine	2.3	UN1017	N/A Hazard Zone B
Dichlorodifluoromethane or Refrigerant gas R 12	2.2	UN1028	N/A
1,2-Dichloro-1,1,2,2-tetrafluoroethane or Refrigerant gas, R 114	2.2	UN1958	N/A
Dimethylamine, anhydrous	2.1	UN1032	N/A
Ethyl chloride	2.1	UN1037	N/A
Methyl bromide	2.3	UN1062	N/A Hazard Zone C
Methyl chloride or Refrigerant gas R 40	2.1	UN1063	N/A
Methylamine, anhydrous	2.1	UN1061	N/A
Sulfur dioxide	2.3	UN1079	N/A Hazard Zone C
1,1,1,2-tetrafluoroethane or Refrigerant gas R-134a	2.2	UN3159	N/A
Trimethylamine, anhydrous	2.1	UN1083	N/A
Ammonia, anhydrous	2.3	UN1005	N/A Hazard Zone D

7. SAFETY CONTROL MEASURES:

a. PACKAGING: Packaging prescribed is a non-DOT specification pressure vessel designed, manufactured, and tested in accordance with The Indian Sugar and General Engineering Corporation drawing number PV-01-1592, Rev.5, the supporting documentation on file with the Office of Hazardous Materials Safety (OHMS) and with DOT Specification 106A500W (§§ 179.300 and 179.301) except as modified by the terms of this special permit and meeting the following requirements:

- (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 206 cm and 221 cm (81 inches and 87 inches); and a bursting pressure not less than 86.18 bar (1250 psig).
- (2) Material of construction must be ASTM A-516-70.
- (3) The minimum thickness after forming of the body shells must be 10.32 mm (0.40625 inch) or the thickness required in § 179.300-6(b), whichever is greater. The welded joint efficiency for these pressure vessels is 1.0.
- (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 101.6 mm (4 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 be 15.88 mm (0.625 inch) or the thickness required in § 179.300-8(b), whichever is greater. The convex heads must be designed to reverse prior to any leakage or rupture.
- (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). Heat treatment must be accomplished after all forming and welding operations.
- (6) Tank fittings must be protected as provided in § 179.300-12.
- (7) Valves for venting, loading and unloading must comply with the requirements of § 179.300-13 except that threaded connections directly to the head are required.

- (8) Attachments must be in compliance with § 179.300-14.
- (9) Safety relief devices must meet the requirements of § 179.300-15 except that only fusible plugs are authorized.

b. TESTING:

(1) Design Qualification

- (i) Upon initiation of production, production on new tooling, modification of the production process or change in the design, one pressure vessel taken at random from the first 10 finished vessels, must be hydrostatically pressurized to the minimum burst pressure 86.18 bar (1250 psig) without rupture or leakage.
- (ii) One pressure vessel, taken at random from the first 10 finished vessels, must have tensile tests performed on specimens taken from each head, the body section and across the body seam. Two weld bend specimens must be taken from the body seam. All specimens are to be prepared and tested as provided in AAR Specifications for Tank Cars, Appendix W, with one weld bend specimen being a root bend and the second being a face bend.

Tensile values and elongation values must not be less than that specified in § 179.300-7. Bend specimens must show no evidence of cracking.

(2) Production Testing

- (i) One pressure vessel from each lot of 200 consecutively produced must be tested to the minimum burst pressure without rupture or leakage. Additionally when production has been suspended for more than 30 days, one pressure vessel taken at random from the first 10 finished vessels must be tested to the minimum burst pressure without rupture or leakage. All other pressure vessels must be hydrostatically tested to a test pressure of 34.47 Bar (500 psig) in a water-jacket, or other suitable method, and operated so as to obtain accurate data. Alternate methods of testing must be approved in writing by the Associate Administrator for Hazardous Materials Safety. The pressure gauge must permit readings to an accuracy of 1 percent. The expansion gauge must permit readings of total volumetric expansion to an accuracy either of 1 percent or 0.1 cubic centimeter.

(A) Pressure must be maintained at test pressure for at least 30 seconds and sufficiently longer to ensure complete expansion. Any internal pressure applied after heat treatment and prior to the official test may not exceed 90 percent of the test pressure.

(B) Permanent volumetric expansion may not exceed 10 percent of the total volumetric expansion at test pressure.

(ii) The longitudinal shell joints and head to body shell girth joints must be 100% radiographed on each pressure vessel. Radiographic records for each vessel must be maintained by the manufacturer for 15 years after the date of manufacture.

(iii) Tensile tests and check analysis must be performed on each heat of material before it may be released for production.

(3) Periodic retest and inspection - Each pressure vessel must be retested and inspected in accordance with § 180.519 as specified for DOT 106A500. The retest and reinspection must be performed by a facility which holds a current retester identification number issued by the Associate Administrator for Hazardous Materials Safety.

c. MANUFACTURE: The manufacturer of pressure vessels under this special permit must secure an approval in accordance with the provisions of 49 CFR Part 107, Subpart H, that apply. Each facility located outside the United States where pressure vessels are to be manufactured or where any part of the manufacture is to take place under this special permit, must secure an authorization under § 107.807 in addition to the applicable requirements of 49 CFR Part 107, Subpart H.

d. INSPECTION: Compliance with the requirements of §§ 107.803 and 178.35 is required before production of containers under this special permit. In addition to the information required by § 178.35, the inspector's report must include information required in § 179.300-20.

e. REPAIR: All repairs to pressure vessels authorized by this special permit must be performed under the direct guidance and supervision of a representative of ISGEC Heavy Engineering Limited. The repairs must be certified as meeting Sections 1.4 and 2.0 of ISGEC Procedure No. DOT/REP-01 "Repair Procedure for Containers in Use" dated August 8, 1999, which is on file with OHMS.

f. OPERATIONAL CONTROLS:

(1) Each cylinder must remain in dedicated product service for its entire life.

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

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 Safety for a specific manufacturing facility in accordance with the Approval Requirements stated in paragraph 7.c.
- 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 ISGEC drawing number PV-01-1592, Rev. 5, except that whenever a provision of this special permit is in conflict with the drawing, ISGEC must comply with the conditions of this special permit and make appropriate revisions to the drawing(s). Revisions to drawings must be prepared by the manufacturer and be requested by the Independent Inspector (IIA) of record. Later drawings and revisions are considered a part of this special permit when requested by the IIA and approved in writing under the provisions of § 173.300a.
- g. MARKING: 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:

DOT SP-12277/34.47 Bar

A516/WC XXXXXX

DOT Registration Approval Number/Serial No.

Independent Inspection Agency Registered Mark/Test Date

Note: 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 106A500 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.
 - 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 materials incident reports. In addition, the grantee(s) of this special permit must notify the Associate Administrator for Hazardous Materials Safety, in writing, of any incident involving a package, shipment or operation conducted under terms of this special permit.

Issued in Washington, D.C.:



for William Schoonover
Associate Administrator for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation, East Building PHH-13, 1200 New Jersey Avenue, Southeast, Washington, D.C. 20590.

Copies of this special permit may be obtained by accessing the Hazardous Materials Safety Homepage at <https://www.phmsa.dot.gov/approvals-and-permits/hazmat/special-permits-search>. Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.

PO: S.Staniszewski/Casey Chambers