



U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

March 04, 2024

1200 New Jersey Avenue, SE
Washington, DC 20590

DOT-SP 20541
(FIFTH REVISION)

EXPIRATION DATE: 2028-01-31

(FOR RENEWAL, SEE 49 CFR 107.109)

1. **GRANTEE:** ISGEC Heavy Engineering Ltd.
d.b.a. ISGEC
Haryana, India

US AGENT: Ridgeback Company, Inc.
Chatham, NJ

2. **PURPOSE AND LIMITATIONS:**

a. This special permit authorizes the manufacture, mark, sale, and use of DOT specification 110A500W tank cars that have been inspected outside of the United States. 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. The safety analyses did not consider the hazards and risks associated with consumer use, use as a component of a transport vehicle or other device, or other uses not associated with transportation in commerce.

c. In accordance with 49 CFR 107.107(a), party status may not be granted to a manufacturing permit. These packagings may be used in accordance with 49 CFR 173.22a.

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

4. **REGULATIONS FROM WHICH EXEMPTED:** 49 CFR § 179.300-19(a) in that the tank cars are inspected outside of the United States.

Tracking Number: 2023114167

5. **BASIS:** This special permit is based on the application of ISGEC Heavy Engineering Ltd., dated November 4, 2023, submitted in accordance with § 107.109.
6. **HAZARDOUS MATERIALS (49 CFR 172.101):**

Hazardous Material Description			
Proper Shipping Name	Hazard Class/ Division	Identification Number	Packing Group
Chlorodifluoromethane <i>or</i> Refrigerant gas R 22	2.2	UN1018	N/A
1-Chloro-1,2,2,2-tetrafluoroethane <i>or</i> Refrigerant gas R 124	2.2	UN1021	N/A
Pentafluoroethane <i>or</i> Refrigerant gas R 125	2.2	UN3220	N/A
1,1,1,2-Tetrafluoroethane <i>or</i> Refrigerant gas R 134a	2.2	UN3159	N/A
1-Chloro-1,1-difluoroethane <i>or</i> Refrigerant gas R 142b	2.1	UN2517	N/A
1,1,1-Trifluoroethane <i>or</i> Refrigerant gas, R 143a	2.1	UN2035	N/A
1,1-Difluoroethane <i>or</i> Refrigerant gas R 152a	2.1	UN1030	N/A
Propane	2.1	UN1978	N/A
Liquefied gas, n.o.s.	2.2	UN3163	N/A
Refrigerant gas R 404A	2.2	UN3337	N/A
Refrigerant gas R 407C	2.2	UN3340	N/A
Butane	2.1	UN1011	N/A
Isobutane	2.1	UN1969	N/A
Pentanes	3	UN1265	I

7. SAFETY CONTROL MEASURES:

a. PACKAGING: Packaging prescribed is a non-DOT specification pressure vessel designed, manufactured, and tested in accordance with The ISGEC Heavy Engineering Ltd drawing number PV-01-1635, Rev.00, Calculations number PV-01-1635A, Rev.0, and supporting documentation on file with the Office of Hazardous Materials Safety (OHMS) and with DOT Specification 110A500W (§§ 179.300 and 179.301), except as modified by the terms of this special permit and meeting the following requirements:

b. 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 an electric-arc welded longitudinal seam. The pressure vessel must have: an outside diameter (nominal) of 76.2 cm (30 inches), an overall shell length (nominal) of 142.5 cm (56.1 inches) / 162.5 cm (63.9 inches) and overall length to end of chime 200cm (78.74 inches) / 220 cm (86.6 inches); and a bursting pressure not less than 86.18 bar (1250 psig).

(1) Material of construction must be ASTM A-516-70.

(2) The minimum thickness after forming of the body shells must be 8 mm (0.3125 inch). The welded joint efficiency for these pressure vessels is 1.0.

(3) Each tank head must be formed concave to pressure and must be fusion-welded to the tank shell. It must be one piece, hot formed in one heat to provide a straight flange at least 50 mm (2 inches) long. Each tank head must have a butt weld into the shell for the fusion-welding of the head to body shell. The minimum thickness after forming of each head must be 8 mm (0.3125 inch).

(4) 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.

(5) Tank fittings must be protected as provided in § 179.300-12.

(6) 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.

- (7) Attachments must be in compliance with § 179.300-14.
- (8) Safety relief devices must meet the requirements of § 179.300-15.

c. 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 (1,250 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 34.5 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 110A500W. The retest and reinspection must be performed by a facility that holds a current retester identification number issued by the Associate Administrator for Hazardous Materials Safety.

d. 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.

e. INSPECTION:

(1) 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.

(2) An Independent Inspector Agency (IIA) holding a valid registration with the OHMS must witness the tests and chemical analysis of materials specified by this special permit. The chemical analysis of materials and all tests as specified in this special permit are not required to be carried out within the limits of the United States.

f. 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 Ltd.

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 packaging covered by this special permit, may reoffer it for transportation provided no modification or change is made to the packaging 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 either (1) marked with the name of the manufacturer and location (city and state) of the facility at which it is manufactured or (2) marked with a registration symbol designated by the Office of Hazardous Materials Safety for a specific manufacturing facility.
- e. A current copy of this special permit must be maintained at each facility where the packaging 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-01-1635 except that whenever a provision of this special permit is in conflict with the drawing, ISGEC Heavy Engineering Ltd. must comply with the conditions of this special permit and make appropriate revisions to the drawing. 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 § 107.803.
- 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 20541/25.86 Bar A516/WC XXXXXX

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.

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 cargo vessel and motor vehicle 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, 49 CFR 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 this 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.:

A handwritten signature in blue ink, appearing to read "William Schoonover", is written over a faint circular stamp.

for William Schoonover
Associate Administrator for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Material 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: BB