



U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety Administration**

February 8, 2016

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

DOT-SP 16416

EXPIRATION DATE: January 31, 2018

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: INOX India Limited
Gujarat, India

US AGENT: Cryogenic Vessel Alternative Inc.
Baytown, TX

2. PURPOSE AND LIMITATIONS:

a. This special permit authorizes the manufacture, mark, sale and use of a DOT specification 4L cylinder to be used for the transportation in commerce of methane, refrigerated liquid, Division 2.1. 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.

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

4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR § 173.316 in that the use of a DOT Specification 4L cylinder is not authorized for the transportation of methane, refrigerated liquid, except as specified herein.

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NOTE: This does not relieve the holder of this special permit from securing an approval from the Associate Administrator for Hazardous Materials Safety.

5. BASIS: This special permit is based on the application of INOX India Limited dated March 11, 2015, submitted in accordance with § 107.105 and the public proceeding thereon.

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Hazardous Material Description			
Proper Shipping Name	Hazard Class/ Division	Identification Number	Packing Group
Methane, refrigerated liquid (<i>cryogenic liquid</i>) or Natural gas, refrigerated liquid (<i>cryogenic liquid</i>), with high methane content)	2.1	UN1972	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING -

(1) Prescribed packaging is a vacuum insulated DOT Specification 4L cylinder having a water capacity not exceeding 1,000 pounds, and a design service temperature of -320 °F.

(2) The filling density of each DOT Specification 4L cylinder must be related to the set to discharge pressure of the pressure relief devices as shown below:

Lowest Pressure Relief Setting (PSIG)	Maximum Fill Density (Percent by weight)
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15	40.5
20	40.0
30	39.1
40	38.6
50	38.2
60	37.9
70	37.5

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100	36.6
150	35.0
200	33.7
250	32.5
300	31.3
350	30.2

(3) Each cylinder must be designed with adequate insulation, fabricated and maintained so that during transportation, the total rate of venting must not exceed 30 SCF of methane per hour. The venting rate for each cylinder must be established by testing and must be marked as specified in § 173.316(c)(3)(ii). The marking must include the month and year of the test performed.

(4) Each pressure relief device must be in direct contact with the vapor phase while in transportation and during discharge.

b. TESTING -

(1) Each cylinder must be inspected and tested once every 5 years by hydrostatic or pneumatic pressure to 1.5 times the service pressure. When testing under pneumatic pressure, adequate precautions must be in place to prevent injury to personnel and loss of property. Any cylinder that shows evidence of distortion or leakage must be removed from service.

(2) Any cylinder for which the venting rate exceeds 110 percent of the marked venting rate must be inspected, reworked, retested for venting rate, and remarked with the new venting rate by the cylinder manufacturer, or an authorized repair facility. The entire procedure must be documented, and be made available to a DOT official upon request.

c. MARKING - In addition to the markings required in §§ 178.35(f) and 178.57(p), each cylinder must be marked "DOT-SP 16416". See paragraph 7.a.(3) of this special permit for additional marking requirements.

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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 modification or change is 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 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 Approvals and Permits Division 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. The cylinder may not be used as a fuel tank for powering a motor vehicle.

g. The one-way travel time must be normally accomplished within the holding time established for the cylinder type, with a safety factor of 2.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle.

10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard each motor vehicle used to transport packages covered by this special permit.

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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

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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 "Dr. Magdy El-Sibaie".

for Dr. Magdy El-Sibaie
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-30, 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 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.

PO: LMajors