

March 09, 2018



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 14237
(FIRST REVISION)

(FOR RENEWAL, SEE 49 CFR 107.109)

1. GRANTEE: (See individual authorization letter)
2. PURPOSE AND LIMITATION:
 - a. This special permit authorizes the transportation in commerce of certain DOT Specification cylinders and non-DOT specification pressure vessels for Division 2.3 materials by motor vehicle, cargo vessel, and cargo aircraft. 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 the development of this special permit only considered the hazards and risks associated with the transportation in commerce. The safety analyses did not consider the hazards and risks associated with consumer use or other uses not associated with transportation in commerce.
 - c. Unless otherwise stated herein, this special permit consists of the special permit authorization letter issued to the grantee together with this document.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR 172.101, Column 9B and § 175.3 in that transportation of certain Division 2.3 materials by cargo aircraft is forbidden, except as specified herein; and §§ 173.302(a), 173.304(a), and 173.302c in that a non-DOT specification cylinder is not authorized therein, except as specified herein.
5. BASIS: This special permit is based on the application of Entegris, Inc. dated October 17, 2017 submitted in accordance with § 107.105.

6. HAZARDOUS MATERIALS (49 CFR 172.101):

| Hazardous Materials Description | | | |
|--|-------------------------------|------------------------------|----------------------|
| Proper Shipping Name | Hazard Class/ Division | Identification Number | Packing Group |
| Arsine, adsorbed | 2.3 | UN3522 | Zone A |
| Boron trifluoride, adsorbed | 2.3 | UN3519 | Zone B |
| Hydrogen selenide, adsorbed | 2.3 | UN3526 | Zone A |
| Adsorbed gas, toxic, corrosive, n.o.s. (Arsenic Pentafluoride) | 2.3 | UN3516 | Zone A |
| Adsorbed gas, toxic, corrosive, n.o.s. (Germanium Tetrafluoride) | 2.3 | UN3516 | Zone B |
| Adsorbed gas, toxic, corrosive, n.o.s. (Phosphorous Trifluoride) | 2.3 | UN3516 | Zone B |
| Phosphine, adsorbed | 2.3 | UN3525 | Zone A |
| Silicon tetrafluoride, adsorbed | 2.3 | UN1859 | NA, Zone B |

7. SAFETY CONTROL MEASURES:a. PACKAGING -

(1) Packagings prescribed are DOT-3E1800, DOT-3AA2015, and DOT-3AA2265 cylinders, or non-DOT specification welded cylindrical or cube-shaped pressure vessels authorized under DOT-SP 13220. Packagings will be referred to in this special permit as pressure vessels. Each pressure vessel is filled with a monolith solid microporous sorbent and/or bead type sorbent onto which the gas is adsorbed. The gas remains adsorbed during transportation in essentially a solid state. The system is filled, operated, and transported at sub-atmospheric pressures and is described as a sub-atmospheric gas delivery system (SDS). The gas must be removed from the SDS using the input of external

March 09, 2018

energy, such as a steady vacuum. The capacity of the pressure vessels authorized herein must be between 0.4 and 7.3 liters.

(2) Pressure vessels must be transported in a non-DOT specification full opening hinged head or fully removable head steel overpack cylinder. The overpack cylinder must be constructed to Section VIII, Division 1 of the ASME Code with a minimum design margin of 4 to 1. The minimum MAWP must be 75 psig. The maximum water capacity must be 450L (119 gallons). The overpack cylinder may not be equipped with a pressure relief device. The SDS pressure vessels must be securely positioned within the overpack cylinder to prevent excessive movement. The overpack cylinder must have gaskets, valves and fittings that are compatible with the hazardous materials contained within. The overpack cylinder must have a pressure gauge, clearly visible from the outside. The pressure gauge must be recessed into the overpack cylinder or otherwise protected from damage during transportation. The overpack cylinder must be pressurized to 3-5 psig with inert gas.

b. SDS TESTING - Each pressure vessel must be retested by only ATMI or its agents authorized and trained by ATMI. DOT-3E cylinders are not required to be retested. DOT-3AA cylinders must be retested and marked in accordance with the requirements for a DOT-3AA cylinder in 49 CFR Part 180 or in accordance with the requirements of a current DOT special permit for ultrasonic examination. Pressure vessels authorized under DOT-SP 13220 must be retested and marked in accordance with the requirements of that special permit.

c. OVERPACK TESTING -

(1) Each overpack cylinder must be visually inspected (internally and externally) in accordance with CGA Pamphlet C-6 at least once every five years. In addition, each overpack must be pressure tested to a minimum test pressure of at least 1½ times MAWP. The pressure must be maintained for at least 30 seconds. The cylinder must be examined under test pressure and removed from service if a leak or a defect is found. The retest and inspection must be performed by a person trained and experienced in the use of the inspection and testing equipment.

March 09, 2018

(2) Each overpack cylinder that is successfully requalified must be durably and legibly marked with the word "Tested" followed by the requalification date (month/year). The marking must be in letters and numbers at least 12 mm (0.5 inches) high. The requalification marking may be placed on any portion of the upper end of the cylinder near the marking required by paragraph 8.c. of this special permit, or on a metal plate permanently secured to the cylinder. Stamping on the overpack cylinder sidewall is not authorized.

(3) ATMI or its agent must retain a record of the most recent visual inspection and pressure test until the cylinder is requalified. The records must be made available to a DOT representative upon request.

d. OPERATIONAL CONTROLS -

(1) Each SDS pressure vessel authorized by this special permit must remain in dedicated product service for its entire life.

(2) Only ATMI or its agents authorized and trained by ATMI may fill the SDS pressure vessels.

(3) The maximum pressure inside each SDS pressure vessel must be 0 psig at 70 °F and 30 psig at 140 °F.

(4) The contents of the SDS pressure vessels must be limited in pressure and volume so that if totally discharged into the overpack cylinder, the pressure in the overpack cylinder will not exceed 5/4 of the MAWP at 55 °C (131 °F).

(5) The valve wheel of each SDS pressure vessel must be secured by a strap that provides tension in the tightening direction. A plug must be placed in each valve and the pressure vessel and valve area must be shrink-wrapped before being placed in the overpack cylinder. A protective valve cap must be used on all pressure vessels except the DOT 3E 1800 cylinder. Valves on the DOT-3E 1800 cylinders must be protected in accordance with § 173.40(d).

March 09, 2018

(6) Prior to each shipment, the leak integrity of the overpack cylinder must be verified and have a leak rate no greater than 1×10^{-4} std. atm. cc/second.

(7) All closures of the overpack cylinder shall have a method to determine if they have been tampered with during transportation. The pressure indicating device on the overpack cylinder may be used to indicate tampering.

(8) Carriers must be instructed to reject or remove the overpack cylinder from transportation in the event that the pressure gauge drops below a pressure designated by ATMI.

(9) Each overpack cylinder must be labeled for the hazardous material contained within.

(10) The shipper must prepare shipping papers in accordance with 49 CFR, Subpart C of Part 172.

8. SPECIAL PROVISIONS:

a. A person who is not a holder of this special permit who receives a package covered by this special permit may reoffer it for transportation provided no modification or change is made to the package or its contents and it is reoffered for transportation in conformance with this special permit and the HMR.

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

c. Each pressure vessel does not have to be marked "DOT-SP 14237". The outside of each overpack cylinder must be plainly and durably marked on any portion of the upper end with the following:

(1) "OVERPACK CYLINDER - INSIDE CONTAINERS COMPLY WITH DOT-SP 14237". This marking must be at least 50mm (2.0 inches high);

(2) The proper shipping name of the hazardous material contained inside the overpack;

(3) The name and address of the consignee or consignor; and

(4) The name and address or registered symbol of the overpack manufacturer.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor Vehicle, Cargo Vessel, and cargo aircraft.
10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard each cargo vessel, motor vehicle, or aircraft used to transport packages covered by this special permit. The shipper must furnish a copy of this exemption to the air carrier before or at the time the shipment is tendered.
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

March 09, 2018

"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 **B** Immediate notice of certain hazardous materials incidents, and 171.16 **B** Detailed hazardous 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 William Schoonover
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 Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.

PO: CWFREEMAN/TG