

August 31, 2006



U.S. Department
of Transportation

400 Seventh Street, S.W.
Washington, D.C. 20590

**Pipeline and Hazardous
Materials Safety Administration**

DOT-SP 10785
(ELEVENTH REVISION)

EXPIRATION DATE: May 31, 2010

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Thermo MeasureTech
Sugar Land, TX
2. PURPOSE AND LIMITATIONS:
 - a. This special permit authorizes the manufacture, marking, sale and use of non-DOT specification cylinders containing certain Divisions 2.2 and 2.3 gases as described in paragraph 6 below to be transported in radiation detectors rather than in DOT Specification cylinders. 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 § 172.101, Column 9 in that the boron trifluoride is forbidden by aircraft except as specified herein; and § 173.302a(a)(1) and § 175.3 in that the use of non-DOT specification packaging is not authorized except as specified herein.
5. BASIS: This special permit is based on the application of Thermo MeasureTech dated June 8, 2006, submitted in accordance with § 107.105 and the public proceeding therein.

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6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Proper Shipping Name/ Hazardous Material Description	Hazard Class/ Division	Identi- fication Number	Packing Group
Argon, compressed	2.2	UN1006	N/A
Boron trifluoride	2.3	UN1008	N/A
Helium, compressed	2.2	UN1046	N/A
Hexafluoroethane, R116	2.2	UN2193	N/A
Xenon	2.2	UN2036	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Packagings prescribed are radiation detection chambers which are a component of a non-contacting measurement system, commonly described as nuclear gauging devices. These gas filled cylindrical shaped radiation detectors consist of metal cylinders with welded, brazed, or soldered joints; brazed ceramic to metal insulator feed-through assemblies for electrical connectors; and a metal fill tube, manufactured in accordance with applicable drawings on file with the Office of Hazardous Materials Special Permits and Approvals (OHMSPA) and conforming to the following:

(1) **Type, Inner Gas Containment Dimensions and Material.**(i) Type I Cylinder:

INNER GAS CONTAINMENT DIMENSIONS: 6.0" (15.2 cm) - 6.5" (16.5 cm) in diameter x 13.5" (34.2 cm) - 125" (317.5 cm) in length
 MAX. ENCLOSED VOLUME: 4148 cubic inches (68 liters)
 MATERIAL: ASTM A-513 or 300 series stainless steel
 MIN. WALL THICKNESS: 0.105" (0.267 cm)
 MAX. FILL PRESSURE: 160 psig (1200 kPa)
 GAS CONTAINED: Argon or Freon-116

(ii) Type II Cylinder:

INNER GAS CONTAINMENT DIMENSIONS: 5.0" (12.7 cm) 8.5" (21.6 cm) in diameter x 8.5" (21.6 cm) - 11.25" (28.6 cm) in length
 MAX. ENCLOSED VOLUME: 639 cubic inches

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(10.5 liters)

MATERIAL: HRS C-1015, CRS 1018, or 300 series stainless steel
MIN. WALL THICKNESS: 0.0598" (0.152 cm)
MAX. FILL PRESSURE: 160 psig (1200 kPa)
GAS CONTAINED: Argon or Freon-116

(iii) Type III Cylinder:

INNER GAS CONTAINMENT DIMENSIONS: 3.5" (8.89 cm) - 4.0" (10.2 cm) in diameter x 7.5" (19.1 cm) - 16.0" (40.6 cm) in length
MAX. ENCLOSED VOLUME: 201 cubic inches (3.27 liters)
MATERIAL: 300 series stainless steel
MIN. WALL THICKNESS: 0.065" (0.165 cm)
MAX. FILL PRESSURE: 360 psig (2,580 kPa)
GAS CONTAINED: Argon or Freon-116

(iv) Type III-N Cylinder:

INNER GAS CONTAINMENT DIMENSIONS: 3.87" (9.83 cm) in diameter x 7.62" (19.4 cm) or 15.62" (39.7 cm) in length
MAX. ENCLOSED VOLUME: 90 cubic inches (1.48 liters) or 184 cubic inches (3.02 liters)
MATERIAL: 300 series stainless steel
MIN. WALL THICKNESS: 0.065" (0.165 cm)
MAX. FILL PRESSURE: 2 psig (115 kPa) or 45 psig (412 kPa)
GAS CONTAINED: Boron trifluoride or Helium-3

(v) Type IV Cylinder:

INNER GAS CONTAINMENT DIMENSIONS: 2.0" (5.10 cm) - 2.5" (6.35 cm) in diameter x 8.0" (20.3 cm) - 13.0" (33.0 cm) in length
MAX. ENCLOSED VOLUME: 64 cubic inches (1.05 liters)
MATERIAL: ASTM A-513
MIN. WALL THICKNESS: 0.049" (0.124 cm)
MAX. FILL PRESSURE: 360 psig (2580 kPa)
GAS CONTAINED: Argon, Freon-116, or Xenon

(vi) Type V Cylinder:

INNER GAS CONTAINMENT DIMENSIONS: 12.5" outside diameter, 2.5" inside diameter, and 2.5" in length.
MAX. ENCLOSED VOLUME: 187 cubic inches
MATERIAL: 300 Series stainless steel
MIN. WALL THICKNESS: 0.125"

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MAX. FILL PRESSURE: 45 psig
GAS CONTAINED: Helium-3

b. The design burst pressure of the cylinder must be at least 4 times the maximum filling pressure.

c. When offered for transportation, the nuclear gauging device may be comprised of one package containing both the radioactive material source component and the radiation detection component which includes the elements described in paragraph 7(a); or the radioactive material may be in one package and the radiation detection component in a second package. Under either conditions, the package containing radioactive material must be in full compliance with the radioactive material provisions of 49 CFR Parts 100 - 180. The gas filled radiation detectors, or the component containing the detectors, must be in strong outside packagings as described in the May 22, 1992 application for the special permit, and must protect the gas filled detector from damage during transport.

d. Notwithstanding § 175.3, packages containing no more than 11.6 grams of boron trifluoride at pressures less than 2 psig (115 kPa) may be transported by passenger or cargo aircraft.

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 reoffered for transportation in conformance with this special permit and the HMR.

c. Each person offering for transportation a package containing a system component that includes radioactive material must satisfy all requirements for packaging, marking, labeling, transport documentation, modal restrictions (including § 173.448(e) and (f)), and all other Class 7 (radioactive material) provisions of 49 CFR Parts 171 - 180.

d. Except when transported by air, packages containing only the gas filled radiation detector components of the gauging systems are excepted from 49 CFR Part 172, Subparts E (labeling) and F (placarding).

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- e. Each gas filled radiation detector authorized for transport under this special permit must bear the name of the manufacturer. The outer packagings used for the transport of the gas filled detectors must bear the name of the person offering the shipment. Radioactive material packages must be marked with the name of the person certifying that the package meets the requirements of paragraph 8(a).
- f. 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.
- g. Transportation of Division 2.3 materials (gases which are poisonous by inhalation) are not authorized aboard cargo vessel or aircraft unless specifically authorized in the Hazardous Materials Table (§ 172.101).
- h. Packagings permanently marked "DOT-E 10785", prior to October 1, 2007 may continue to be used under this special permit for the remaining service life of the packaging or until the special permit is no longer valid. Packagings marked on or after October 1, 2007 must be marked "DOT-SP 10785".
- i. Shipping papers displaying "DOT-E 10785" may continue to be used until October 1, 2007, provided the special permit remains valid.
9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, rail freight, cargo vessel, cargo aircraft and passenger-carrying aircraft.
10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard each cargo vessel, aircraft or motor vehicle used to transport packages covered by this special permit. The shipper must furnish a current copy of this special permit 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.

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- 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 -- 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 Robert A. McGuire
Associate Administrator
for Hazardous Materials Safety

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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