

June 26, 2009



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 14485
(FIRST REVISION)

EXPIRATION DATE: May 31, 2013

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Constellation Technology Corporation
Largo, FL
2. PURPOSE AND LIMITATIONS:
 - a. This special permit authorizes the manufacture, marking, sale and use of non-DOT specification cylinders described as radiation detector chambers for the transportation in commerce of certain Division 2.1 and 2.2 gases. 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 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 Part 172 Subparts E and F; Part 174 except 174.24, Part 176 except 176.24 and Part 177 except 177.817; and §§ 173.302a, 173.306(b)(4) and 175.3 in that the use of a non-DOT specification package is not authorized, except as specified herein.

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5. BASIS: This special permit is based on is based on the application of Constellation Technology Corporation dated June 17, 2009 submitted in accordance with § 107.109 and additional information dated June 25, 2009.
6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Hazardous Material Description			
Proper Shipping Name	Hazard Class/ Division	Identification Number	Packing Group
Helium, compressed	2.2	UN1046	N/A
Hydrogen, compressed	2.1	UN1049	N/A
Xenon, compressed	2.2	UN2036	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Packagings prescribed are hermetically sealed, non-DOT specification cylinders described as radiation detection chambers which are components of measurement systems known as gamma spectrometers. The cylinders have welded joints and brazed metal to ceramic electrical feed-through assemblies. The design burst pressure of each cylinder must be at least 4 times the maximum filling pressure if not equipped with a pressure relief device or 3 times the maximum filling pressure if equipped with a pressure relief device. The radiation detection chambers must be manufactured in accordance with Constellation Technology Corporation drawings on file with the Office of Hazardous Materials Special Permits and Approvals (OHMSPA) and with the following:

- (1) Vessel Design Xe-1001:
Inner Gas Containment Dimensions: 4.4" inner diameter x 29.8" inner length
Capacity: 7200 cubic cm
Maximum filling pressure: 665 psi filled with 5.5 lbs of Xenon gas.
Material: Aluminum or stainless steel
Minimum wall thickness (aluminum): .218"
Minimum wall thickness (stainless steel): .145"

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(2) Vessel Design Xe-15:

Inner Gas Containment Dimensions: 1.3" inner diameter
x 2.8" inner length

Capacity: 60 cubic cm

Maximum filling pressure: 665 psi filled with 21g of
Xenon gas

Material: Aluminum or Titanium

Minimum wall thickness (aluminum): .155"

Minimum wall thickness (titanium): .060"

b. OPERATIONAL CONTROLS -

(1) Each cylinder (radiation detection chamber) must be shipped in a strong outside packaging capable of withstanding a minimum drop test of four feet without breakage of the radiation sensor or rupture of the outside packaging.

(2) If repackaged, packagings used to ship larger equipment containing radiation sensors covered by this special permit must be in strong outside packagings providing equivalent protection for the devices as specified in paragraph 7.b.(1) above.

(3) Emergency response information provided with the shipment, and available via an emergency response telephone number must identify those cylinders that are not fitted with pressure relief devices, and provide appropriate guidance for exposure to fire.

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.

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- 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 Special Permits and Approvals for a specific manufacturing facility.
- 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. Except when offered for transportation by air:
 - (1) Packages covered by this special permit are excepted from the labeling requirement of Subpart E of 49 CFR Part 172.
 - (2) Shipments are not subject to the placarding requirements of Subpart F of 49 CFR Part 172.
- 9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, rail freight, cargo vessel, cargo aircraft only, 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 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, in writing, of any incident involving a package, shipment or operation conducted under terms of this special permit.

Issued in Washington, D.C.:



for Theodore L. Willke
Associate Administrator for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Material 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: CWF/AM