

March 14, 2014



U.S. Department
of Transportation

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

**Pipeline and Hazardous
Materials Safety Administration**

DOT-SP 8495
(SIXTEENTH REVISION)

EXPIRATION DATE: January 31, 2018

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Kidde Aerospace
Wilson, North Carolina
2. PURPOSE AND LIMITATIONS:
 - a. This special permit authorizes the manufacture, marking, sale and use of a non-DOT specification cylinder conforming with all regulations applicable to a DOT specification 4DS cylinder, except as specified herein, for the transportation in commerce of the materials authorized by this special permit. 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.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR §§ 173.304a(a) in that the use of a non-DOT specification package is not authorized, except as specified herein.
5. BASIS: This special permit is based on the application of Kidde Aerospace dated December 20, 2013 submitted in accordance with § 107.109.

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Hazardous Materials Description			
Proper Shipping Name	Hazard Class/ Division	Identification Number	Packing Group
Compressed gas, n.o.s. (mixture of bromotrifluoromethane and nitrogen) or Compressed gas, n.o.s. (mixture of pentafluoroethane and nitrogen)	2.2	UN1956	N/A
Compressed gas, n.o.s. (mixture of heptafluoropropane and nitrogen)	2.2	UN1956	N/A
Compressed gas, n.o.s. (mixture of heptafluoropropane, sodium bicarbonate, and nitrogen)	2.2	UN1956	N/A
Compressed gas, n.o.s. (mixture of sodium bicarbonate and nitrogen)	2.2	UN1956	N/A
Liquefied gas, n.o.s. (mixture of hexafluoropropane and nitrogen)	2.2	UN3163	N/A
Fire extinguishers containing compressed or liquefied gas	2.2	UN1044	N/A
Compressed gas, n.o.s. (mixture of fire suppression agent and nitrogen)	2.2	UN1956	N/A

7. SAFETY CONTROL MEASURES:

- a. **PACKAGING** - Packagings authorized are non-DOT specification welded steel cylinders or seamless steel cylinders with an integrally formed shoulder as described in Kidde Aerospace drawings on file with the Office of Hazardous Materials Special Permits and

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Approvals and fabricated in conformance with the requirements of a DOT Specification 4DS cylinder (§§ 178.35 and 178.47) except as follows:

§ 178.47(a) *Type, size and service pressure.*

***Service pressure is at least 500 and not more than 1,400 psig.

§ 178.47(b) *Steel.*

Type Nitronic 40 (ARMCO 21-6-9) austenitic stainless steel with the following analysis:

<u>Element</u>	<u>Percent</u>
Carbon	0.040 max.
Manganese	8.00 - 10.00%
Phosphorus	0.060 max.
Sulfur	0.030 max.
Silicon	1.00 max.
Chromium	19.00 - 21.50
Nickel	5.50 - 7.50
Nitrogen	0.15/0.40

Type 304L austenitic stainless steel with the following analysis:

<u>Element</u>	<u>Percent</u>	
	Min	Max
Carbon	-	0.030
Manganese	-	2.00
Phosphorus -		0.040
Sulfur	-	0.030
Silicon	-	1.00
Chromium	18.00	20.00
Nickel	8.00	11.00
Molybdenum -		1.00
Copper	-	1.00

§ 178.47(f) *Wall thickness.*

Applies except that the wall stress which is calculated at 2 times service pressure may not exceed 90,000 psi for Nitronic components and may not exceed 60,000 psi for Type 304L components.

(1) Calculation for spheres must be made by the formula:

$$S = PD/4tE$$

Where:

S = Wall stress in psi;
P = 2 times service pressure;
D = Outside diameter in inches;
t = Minimum wall thickness;
E = 0.85 (provides 85 percent weld efficiency factor which must be applied in the girth weld area and heat zones which zone must extend a distance of 6 times wall thickness from center of weld);
E = 1.0 (for all other areas)

(2) Calculation for cylinders must be made by the formula:

$$S = [P(1.3D^2 + 0/4d^2)] / (D^2 - d^2)$$

Where:

S = Wall stress in psi;
P = 2 times service pressure;
D = Outside diameter in inches;
d = Inside diameter in inches;
E = 0.85 (provides 85 percent weld efficiency factor which must be applied in the girth weld area and heat zones which zone must extend a distance of 6 times wall thickness from center of weld);

§ 178.47(g) *Heat treatment.*

Seamless hemispheres and cylinders must be stress relieved or annealed for forming.

§ 178.47(i) *Process Treatment.*

Each container must be hydraulically pressurized in a water jacket to at least 100 percent, but not more than 110 percent, of the hydrostatic test pressure and maintained at this pressure for 30 seconds or longer to ensure complete expansion. Total and permanent expansion must be recorded and included in the inspector's report.

§ 178.47(i) Hydrostatic test

All requirements apply. The hydrostatic test pressure must be at least 2 times service pressure.

§ 178.47(n) *Acceptable results for flattening and burst tests*

(1) ***

(2) Burst pressure shall be at least the greater of 3 times service pressure or 4/3 times the test pressure marked on the cylinder.

§ 178.47(q) Marking.

Markings must be in accordance with the requirements of § 178.35(f) and § 178.47(q) except "DOT-SP 8495" must replace "DOT 4DS" followed by the cylinder service pressure, e.g., DOT-SP 8495-XXX. Additionally, the hydrostatic test pressure (TP-CCCC, where CCCC is the manufacturer's test pressure in psig) must be stamped.

b. TESTING - Each cylinder must be tested and reinspected in accordance with § 180.205 as prescribed for DOT 4DS cylinders.

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 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. The cylinders are for Aircraft, Marine, or Military Ground Vehicles use.
- g. The cylinders must be shipped in strong outside packagings in accordance with § 173.301(a)(9).
- h. The cylinders may be shipped equipped with properly approved actuating cartridges installed in the discharge outlet.
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 or aircraft used to transport packages covered by this special permit. The shipper shall 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, 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.:



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: ss/MT/kah