

January 24, 2007



U.S. Department  
of Transportation

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

**Pipeline and Hazardous  
Materials Safety Administration**

DOT-SP 8842  
(SEVENTH REVISION)

EXPIRATION DATE: December 31, 2010

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Pacific Scientific Company  
HTL/Kin-Tech Division  
Duarte, CA
2. PURPOSE AND LIMITATION:
  - a. This special permit authorizes the use of non-DOT specification small, high pressure cylinders of welded construction for aircraft use or military weapons systems only, to be used for the transportation in commerce of certain nonflammable compressed gases described in paragraph 6 below. 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. 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.
  - c. Party status will not be granted to this special permit.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR §§ 173.302a(a), 175.3 in that non-DOT specification packagings are not authorized, except as specified herein; and § 178.44.

5. BASIS: This special permit is based on the application of Pacific Scientific, HTL/Kin Tech Division, dated January 15, 2007 submitted in accordance with § 107.109.
6. HAZARDOUS MATERIALS (49 CFR § 172.101):

<b>Hazardous Materials Description</b>			
<b>Proper Shipping Name</b>	<b>Hazard Class/ Division</b>	<b>Identification Number</b>	<b>Packing Group</b>
Nitrogen, compressed	2.2	UN1066	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Prescribed packaging is a non-DOT specification girth welded steel cylinder in accordance with HTL design drawing 41001600 dated April 19, 1982, on file with the Office of Hazardous Materials Special Permits and Approvals (OHMSPA), and in full compliance with DOT Specification 3HT (§§ 178.35 and 178.44) except as follows:

§ 178.35(e) *Safety devices.*

(Added) Approval of the pressure relief device required by § 173.301(f) must be submitted to the OHMEA prior to initial shipment.

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

Cylinder may be girth welded and have end fittings welded as shown on HTL drawing 41001600 dated April 19, 1982. Maximum volume is 16 cubic inches nominal water capacity with a maximum service pressure of 6,600 psi.

§ 178.44(b) *Authorized steel.*

Type 3041 stainless steel with the following composition is authorized with proper welding procedure.

CHEMICAL ANALYSIS

	<u>PERCENT</u>
Carbon	0.035 max
Manganese	2.00 max
Phosphorus	0.045
Sulfur	0.030 max
Silicon	1.00 max
Chromium	17.00/20.00
Nickel	8.00/13.00
Copper	0.70 max

§ 178.44(d) *Manufacture.*

(Added) Each cylinder shall be subjected to a process treatment after welding and before stress relieving by hydrostatically pressurizing to at least 100 percent but not more than 110 percent of the test pressure, and maintained at this pressure for 3 minutes. The process treatment must be witnessed by the independent inspector.

§ 178.44(e) *Welding or Brazing.*

Welding as prescribed in § 178.44(a) of this special permit, is authorized. All pressure welds shall be 100 percent radiographed after hydrostatic test.

§ 178.44(f) *Wall thickness.*

(1) Minimum wall thickness for any cylinder must be 0.050 inc. Minimum wall thickness must be such that the wall stress at the minimum specified test pressure shall not exceed 80,000 psi.

(2) and (3) \* \* \*

§ 178.44(g) *Heat Treatment.*

The half cylinders may be stress relieved or annealed for forming. Welded cylinders must be stress relieved at a temperature of 775°F  $\pm$  25°F for one hour. Stress relieving to be done after process treatment, and before hydrostatic test.

§ 178.44(j) *Cycling tests.*

\* \* \*

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(1) (Added). Results of design qualification testing per 178.44 (p)(4) of this special permit must be submitted to the OHMEA prior to initial shipment.

(2) Cycle test on each lot is not required.

(3) A lot is defined as a group of cylinders sequentially fabricated from the same heat of steel, manufactured by the same process, and stress relieved under the same conditions of time, temperature and atmosphere and shall not exceed 200 cylinders.

§ 178.44(m) *Physical tests* - Not required.

§ 178.44(n) *Magnetic particle inspection*.

Not required. Instead each cylinder must be inspected using apparatus and procedures for liquid penetrant examination in accordance with ASTM-E-165-65. Inspection shall be performed externally on the finished container after hydrostatic test. Evidence of discontinuities, which in the opinion of the independent inspector may appreciably weaken or decrease the durability of the cylinder, shall be cause for rejection.

§ 178.44(p) *Acceptable results of tests*.

(1) Flattening required without cracking to six times the wall thickness of the cylinder.

(2) Physical tests: Not required.

(3) Burst pressure shall be at least 4/3 times the test pressure. Failure must be in the sidewall in a longitudinal direction. Actual burst pressure must be recorded.

(4) Cycling: The design must be qualified by cycling 3 cylinders from zero to service pressure to at least 50,000 pressurizations without evidence of distortion or failure.

§ 178.44(q) *Rejected cylinders*.

Repair of welded seams by welding prior to process treatment authorized; subsequent thereto containers must be heat treated and pass all prescribed tests.

§ 178.44(r) *Marking.*

(1) Applies except cylinders must be marked DOT-SP 8842 instead of DOT-3HT, followed by the service pressure.

(2) Stamping of elastic expansion is not required.

(3) Nameplates are optional.

§ 178.44(s) *Inspector's report.*

The inspector's report must be appropriately modified to reflect identification and compliance with this special permit.

b. TESTING - Each cylinder must be reinspected and hydrostatically retested every 3 years in accordance with § 180.209(a) as prescribed for DOT-3HT cylinders, except that the rejection elastic expansion criteria does not apply.

c. OPERATIONAL CONTROLS -

i. Cylinders are subject to the use restrictions prescribed in § 173.302a(a)(2), except they may also be used in military weapons systems. A copy of the inspector's report on the first lot of cylinders produced must be submitted to the OHMEA prior to initial shipment.

ii. Cylinders must be shipped in strong outside packagings in conformance with § 173.301(a)(9).

iii. Cylinders manufactured under this special permit are not authorized for use fifteen (15) years after the date of manufacture.

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. Packages permanently marked 'DOT-E 8842', 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. Packages marked on or after October 1, 2007 must be marked 'DOT-SP 8842'.
- d. Shipping papers displaying 'DOT-E 8842' 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 aircraft only, and passenger-carrying aircraft.
10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard each 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.
  - 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 the 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 Bob Richard  
Deputy Associate Administrator  
for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Materials Administration, Department of Transportation, Washington, D.C. 20590.

Attention: PHH-31.

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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](http://hazmat.dot.gov/sp_app/special_permits/spec_perm_index.htm)

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PO: KFW/AM