U.S. Department
of Transportation

**Research and
Special Programs
Administration**

MAR 30 2000

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

DOT-E 8962
(FOURTH REVISION)

EXPIRATION DATE: February 28, 2002

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Pacific Scientific Company (HTL/KIN-TECH DIV.)
Duarte, CA

2. PURPOSE AND LIMITATIONS:

a. This exemption authorizes the manufacture, mark, sale and use of non-DOT specification pressure vessels conforming with all regulations applicable to a DOT specification 3HT except as specified herein, for the transportation in commerce of the materials authorized by this exemption. This exemption provides no relief from any Hazardous Materials Regulation other than as specifically stated herein.

b. The safety analyses performed in development of this exemption 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 §§ 173.302(a), 175.3, and 178.44.

5. BASIS: This exemption is based on the application of Pacific Scientific dated February 29, 2000, submitted in accordance with § 107.109.

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Proper Shipping Name/ Hazardous Material Description	Hazard Class/ Division	Identi-fication Number	Packing Group
Nitrogen, compressed	2.2	UN1066	n/a

7. SAFETY CONTROL MEASURES. Packaging prescribed is a non-DOT specification girth welded stainless steel cylinder having 75 cubic inches maximum water capacity and 5300 psi maximum service pressure, manufactured in compliance with HTL drawing 41001700 Revisions A thru J and 41001701 Revisions A thru H on file with the Office of Hazardous Materials Exemptions and Approvals (OHMEA) and DOT Specification 3HT (§ 178.44) except as follows:

§ 178.44(a) Type, size and pressure.

Type and size. Girth welded stainless steel cylinders with one end fitting welded as shown on the drawing 41001701 with water capacity not over 75 cubic inches and service pressure of 5300 pounds per square inch.

§ 178.44(b) Authorized Material.

Type ARMCO Nitronic 40 (21-6-9) stainless steel with the following analysis is authorized with proper welding procedure.

CHEMICAL ANALYSIS	PERCENT
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

§ 178.44(d) Manufacture.

(Add) Each cylinder must 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. Total and permanent expansion need not be recorded.

§ 178.44(e) Welding or Brazing.

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

§ 178.44(f) Wall thickness.

Applies except that in paragraph (1) the minimum wall thickness must be such that the wall stress at the minimum specified test pressure must not exceed 75 percent of the minimum tensile strength of the stainless steel and such stress must not be over 121,000 psi.

§ 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 900° ± 25° for one hour stress relieving to be done after process treatment and before hydrostatic test.

§ 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 STM E-165-65. Inspection must be performed externally on the finished cylinder after hydrostatic test. Evidence of discontinuities, which in the opinion of the independent inspector may significantly weaken or decrease the durability of the cylinder, must be cause for rejection.

§ 178.44(p) Acceptable results of tests.

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

(2) Physical tests: Not required.

(3) Burst pressure must be at least 4/3 times the test pressure. Actual burst pressure must be

recorded.

(4) Cycling: at least 15,000 pressurizations.

§ 178.44(q) Rejected cylinders.

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

§ 178.44(r) Marking.

* * *

Applies but instead of DOT-3HT, cylinders must be marked DOT-E 8962 followed by the service pressure. Stamping of elastic expansion is not required.

8. SPECIAL PROVISIONS:

a. A statement verifying the adequacy of the pressure relief devices for each cylinder design must be submitted to the OHMEA prior to initial shipment.

b Cylinders are authorized for use as components of military weapons systems only.

c. Cylinders must be shipped as an integral part of the missile system.

d. Cylinders manufactured under this exemption are not authorized 20 years after the date of manufacture.

e. Each cylinder must be reinspected and hydrostatically retested every 3 years in accordance with § 173.34(e) as prescribed for DOT-3HT cylinders except that the rejection elastic expansion does not apply.

f. In accordance with the provisions of Paragraph (b) of § 173.22a, persons may use the packaging authorized by this exemption for the transportation of the hazardous materials specified in paragraph 6, only in conformance with the terms of this exemption.

g. A person who is not a holder of this exemption, but receives a package covered by this exemption, may reoffer it for transportation provided no modifications or changes are made to the package and it is offered for transportation in conformance with this exemption and the HMR.

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

i. Each packaging manufactured under the authority of this exemption must be marked with a registration symbol designated by the Office of Hazardous Materials Exemptions and Approvals for a specific manufacturing facility.

j. A current copy of this exemption must be maintained at each facility where the package is manufactured under this exemption. It must be made available to a DOT representative upon request.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, rail freight and cargo aircraft only.

10. MODAL REQUIREMENTS: A copy of this exemption must be carried aboard each aircraft or motor vehicle used to transport packages covered by this exemption. 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 exemption and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:

- All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, Parts 171-180.
- Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this exemption must receive training on the requirements and conditions of this exemption in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this exemption, including display of its number, when the exemption has expired or is otherwise no longer in effect.

12. REPORTING REQUIREMENTS: The carrier is required to report any incident involving loss of packaging contents or packaging failure to the Associate Administrator for Hazardous Materials Safety (AAHMS) as soon as practicable.

(Sections 171.15 and 171.16 apply to any activity undertaken under the authority of this exemption.) In addition, the holder(s) of this exemption must also inform the AAHMS, in writing, as soon as practicable of any incidents involving the package and shipments made under this exemption.

Issued at Washington, D.C.

MAR 30 2000
(DATE)

For Robert A. McGuire
Acting Associate Administrator for
Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Research and Special Programs Administration, Department of Transportation, Washington, D.C. 20590. Attention: DHM-31.

The original of this exemption is on file at the above office. Photo reproductions and legible reductions of this exemption are permitted. Any alteration of this exemption is prohibited.

Copies of exemptions may be obtained from the AAHMS, U.S. Department of Transportation, 400 7th Street, Washington, DC 20590-0001, Attention: Docket Section, 202-366-5046.

Dist: FHWA, FRA, FAA
PO: AM(00)