U.S. Department
of Transportation
**Research and
Special Programs
Administration**

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

SEP 12 2001

DOT-E 8757
(EIGHTH REVISION)

EXPIRATION DATE: March 31, 2002

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: YZ Systems, Inc.
Snyder, TX
(Former Grantee: YZ Industries, Inc.)

2. PURPOSE AND LIMITATIONS:

a. This exemption authorizes the manufacture, mark, sale and use of non-DOT specification stainless steel cylinders conforming with all regulations applicable to a DOT Specification 3A cylinder, 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 (HMR) 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. 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.

3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.

4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR §§ 173.34(e) in that a retest is not required, §§ 173.201(c), 173.202(c), 173.203(c), 173.302(a)(1), 173.304(a)(1) and (b), 175.3 in that a non-DOT specification cylinder is not authorized, except as specified herein.

SEP 12 2001

5. BASIS: This exemption is based on the application of YZ Systems, Inc., dated December 12, 2000, and additional information dated April 17 and August 13, 2001 submitted in accordance with § 107.105 and the public proceeding thereon.

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Proper Shipping Name/ Hazardous Materials Description	Hazard Class/ Division	Identi-fication Number	Packing Group
Air, compressed	2.2	UN1002	N/A
Butane or Butane mixtures	2.1	UN1011	N/A
Carbon dioxide	2.2	UN1013	N/A
Compressed gas, toxic, flammable, n.o.s. *inhalation hazard Zone A, B, C, or D**	2.3	UN1953	N/A
Ethane, compressed	2.1	UN1035	N/A
Gasoline	3	UN1203	II
Helium, compressed	2.2	UN1046	N/A
Hydrocarbon gases, liquefied, n.o.s. or Hydrocarbon gases mixtures, liquefied, n.o.s.	2.1	UN1965	N/A
Hydrocarbon gases, compressed, n.o.s.	2.1	UN1964	N/A
Hydrocarbons, liquid, n.o.s.	3	UN3295	I, II, III
Isobutane or isobutane mixtures	2.1	UN1969	N/A
Kerosene	3	UN1223	III
Liquefied petroleum gas	2.1	UN1075	N/A
Liquefied gas, toxic, flammable, n.o.s.*	2.3	UN3160	N/A
Methane, compressed or Natural gas, compressed (with high methane content)	2.1	UN1971	N/A
Natural gasoline	3	UN1257	I, II

Proper Shipping Name/ Hazardous Materials Description	Hazard Class/ Division	Identi- fication Number	Packing Group
Nitrogen, compressed	2.2	UN1066	N/A
Oil gas	2.3	UN1071	N/A
Petroleum distillates, n.o.s.	3	UN1268	I
Petroleum crude oil	3	UN1267	I, II, III
Propane	2.1	UN1978	N/A

* Applicable parts of § 173.40 must be complied with when transporting this material.

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Packaging prescribed is a stainless steel non-DOT specification cylinder, constructed from seamless stainless steel tubing, with flanged flat head end closures at each end restrained by six tie rods, and containing a piston which forms two pressure chambers. The cylinder must conform with YZ System's drawing 5A-0032, Rev. 6, or drawing 5A-0086, Rev. 4, calculations on file with the OHMEA and with the DOT-3A Specification (§§ 178.35 and 178.36), except as follows:

§ 178.35(b) Inspections and analyses.

Chemical analyses and tests as specified must be made within the United States unless otherwise approved in writing by the Associate Administrator, in accordance with § 173.300b. Certification of changes to the original cylinder designs (Model DS or DS9) must be performed by an independent inspection agency (IIA) approved in writing by the Associate Administrator, in accordance with § 173.300a. The IIA certification must include a statement that the cylinder design meets all the requirements of this exemption. Once the IIA certifies a cylinder design change, inspections and verifications required during production may be carried out by a manufacturer's inspector.

§ 178.35(e) Safety devices.

Each head must be equipped with a safety relief device. Safety devices and other connections, must be as required or authorized by the appropriate specification, and as required in § 173.34 and 173.301.

§ 178.35(f) Markings.

Applies except cylinders must be marked "DOT-E 8757 1800" or "DOT-E 8757 3600" for Model DS and DS9, respectively.

§ 178.35(g) Inspectors report.

(Added) The inspector's report form may be revised to accommodate the tests required by this exemption.

(Added) A copy of the inspector's report on the first lot of cylinders produced must be submitted to the OHMEA prior to the first shipment.

§ 178.36(a) Type, size and service pressure.

(1) Model DS piston style receptacle has flat heads on each end restrained with tie rods which are secured by nuts at both ends. The maximum volume may not exceed 1,000 cc. The maximum service pressure must be 1,800 psig. The dimensions are as follows:

Maximum outside diameter: 2.005 inches
Maximum length: 29 inches long
Minimum side wall thickness: 0.110 inch

(2) Model DS9 piston style receptacle has flat heads on each end restrained with tie rods which are secured by nuts at both ends. The maximum volume may not exceed 1000 cc. The maximum service pressure is 3,600 psig. The dimensions are as follows:

Maximum outside diameter: 2.005 inches
Maximum length: 29 inches long
Minimum side wall thickness: 0.110 inch

§ 178.36(b) Steel.

All cylinder components must be type 304 or 316 stainless steel or Nitronic 50 (UNS20910) and type 316 stainless steel for "DOT-E 8757 1800" and "DOT-E 8757 3600" cylinders respectively.

§ 178.36(g) Heat treatment.

The completed cylinders need not be heat treated.

§ 178.36(i) Hydrostatic test.

(1), (2) and (3) * * *

(4) Cylinders must be tested as follows:

(i) Each compartment of each piston style receptacle must be subjected to a pneumatic test of at least 500 psig without leakage. If the cylinder fails this test, it must be rejected.

(ii) Each cylinder (seamless tube with end caps but without pistons, and with tie bolts) must be hydrostatically tested to at least 3,000 psig in the case of cylinders with a marked service pressure of 1,800 psi, or 6,000 psig in the case of cylinders with a marked service pressure of 3,600 psi and show no defect.

(iii) In addition, one cylinder (seamless tube with end caps with tie bolts, if applicable, but without pistons,) from each lot must be pressurized to failure. Rate of pressurization may not exceed 200 psi per second.

(A) A "lot" is defined as the quantity of pressure vessels fabricated from the same heat of steel, manufactured by the same process and heat treated in the same equipment under same conditions of time, temperature and atmosphere and may not exceed a quantity of 500. The burst test must be performed on each lot of cylinders produced. or every six months whichever occurs first.

(B) The pressure at which the cylinder fails to hold test pressure must be recorded. This pressure may not be less than 5,000 psi and 10,000 psi respectively for the 1800 psi and 3600 psi service pressure cylinders.

(C) The size of the cylinder tested will be based on the size that had the greatest production during the previous 6 months or 500 cylinders.

(D) If cylinder failure is determined to be due to gasket performance, the cylinder may be requalified, if it is rebuilt per manufacturers specifications and retested. Failure of a rebuilt cylinder due to gasket performance shall be cause of rejection of the gasketing; however, the cylinder may be requalified at a later date once the manufacturer has determined the gasket attribute causing the initial failure, and has taken appropriate quality control actions to correct the problem as evidenced by successful documentation of same and satisfactory testing of the cylinder as outlined above.

(E) If any cylinder fails this test by other than gasket perfomance, the entire lot must be rejected.

§ 178.36(j) Flattening test.

The tube body of one cylinder from each lot of 500 or less that has passed the test prescribed in § 178.36(i)(4)(ii) of this exemption must be flattened to at least 6 times wall thickness without cracking.

§ 178.36(m) Leakage test.

Not applicable; however, the requirements of §§ 178.36(i) and 178.36(j) above apply.

SEP 12 2001

b. OPERATIONAL CONTROLS -

(1) Each cylinder must be visually reinspected at least once a year for deterioration of seals, scratches, dents and gouges. Components that are deteriorated or damaged must be replaced by factory specified parts as shown on YZ drawings 5A-0032, Rev. 5 and 5A-0086, Rev. 3 or drawings referenced thereon. Components may be replaced by the factory or user, observing Tie Rod Nut tightening torque values shown on the above drawings.

(2) At least once a year, the end caps, tie rods, and cylinder must be thoroughly cleaned with an appropriate solvent recommended by the manufacturer.

(3) The cylinder may be used only for oil-well, natural gas and liquefied petroleum (LP) gas sampling service.

8. SPECIAL PROVISIONS:

a. 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.

b. 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 modification or change is made to the package or its contents and it is offered for transportation in conformance with this exemption and the HMR.

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

d. Each packaging manufactured under the authority of this exemption 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 Exemptions and Approvals for a specific manufacturing facility.

e. 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.

f. No modifications may be made to the cylinder which would affect its performance and its compliance with the requirements of this exemption until such modifications have been reviewed, tested and certified by an Independent Inspection Agency (IIA) as meeting the requirements of this exemption.

g. If the Associate Administrator or the IIA deems it necessary, the IIA may perform periodic inspections of the manufacturer's facility.

h. The IIA's design certification must include test results and documents related to the cylinder design approval. A copy of the design certification must be maintained at each facility where the cylinder is manufactured and by the IIA for a period of 15 years from the date of completion of the design certification.

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

10. MODAL REQUIREMENTS: A current copy of this exemption must be carried aboard each cargo vessel, aircraft or motor vehicle used to transport packages covered by this exemption. The shipper shall 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.

SEP 12 2001
(DATE)

Robert A. McGuire
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, S.W., Washington, DC 20590-0001, Attention: Records Center, 202-366-5046.

PO: SStaniszewski