Office national des transports du Canada
National Transportation Agency of Canada

SPECIAL PERMIT 2948 REVISION NO. 1

This Special Permit is issued pursuant to the terms of Section 71.6(a) of the "Regulations for the Transportation of Dangerous Commodities by Rail" to authorize the shipment by rail in Canada of certain non-flammable gases in filament-wound reinforced plastic (FRP) (full composite) (FC) seamless, aluminum lined cylinders, under conditions prescribed herein, and does not relieve any shipper or carrier from compliance with any requirement of the said Regulations, except as specifically stated.

1. BASIS

Letters dated March 18, 1987 and November 30, 1988 from Comdyne I, Inc., 6800 County Road 189, West Liberty, Ohio, 43357, U.S.A.

2. COMMODITY CLASSIFICATION

Non flammable gas 2.2

3. COMMODITY NAME

a) Air, compressed
b) Oxygen, compressed
c) Compressed gas, n.o.s. (air compressed, enriched with up to 39 percent by volume oxygen content).

4. IDENTIFICATION NUMBER

a) 1002
b) 1072
c) 1956

5. REGULATION AFFECTED

73.302

6. AUTHORIZED SHIPPER

Comdyne I, Inc., its agents or distributors or customers.

7. PACKAGING DESCRIPTION

a) Non CTC Specification filament-wound reinforced plastic seamless, full composite, aluminum lined cylinders made of definitely prescribed materials.

(1) Design and construction of the cylinder and liner must be in compliance with Comdyne I Inc. drawing 285-1000, dated August 15, 1986 and 285-10010 date June 6, 1986 and additional design and performance data on file with the Director of Operation.

b) In addition, the cylinders shall be in full compliance with DOT FRP-1 Standard Revision I dated March 15, 1982 (178.AA) except as follows:

i) 178.AA-3 Inspection by whom and where.

Inspections and verifications must be performed by an approved Independent Inspection Agency.

ii) 178.AA-5 Material

(a) Aluminum liner must be 6351 or 6061 alloy and T6 temper

iii) 178.AA-4 Duties of Inspector.

(a) ***
(b) ***
(c) ***
(d) ***
(e) ***
(f) ***
(g) Furnish complete inspector's report (178.AA-16) to the maker of the cylinder, to the Director of Operation and upon request, to the purchaser. (See 178.AA-17).

iv) 178.AA-6 Manufacture

(a) Liner (Add to end of paragraph). Each cylinder liner must be of seamless construction with integrally formed heads and bottoms. Manufacture is by backward extruded shell with threaded end formed by spinning.

v) 178.AA-15 Marking

(a) ***
(b) Required markings are as follows:

(1) "CTC SP 2948" or "CTC/DOT-E 9716"

(2) A serial number and an identifying symbol (letters); location of number to be just below or immediately following the CTC mark; location of symbol to be just below or immediately following the number. The symbol and numbers must be those of the maker.

(3) ***

(4) ***

(c) ***

vi) 178.AA-18 Design Qualification Tests.

(a) General - except as authorized in 178.AA-10(a), qualification tests as prescribed in this paragraph shall have been performed on representative cylinders of each specific design prior to the initial shipment. All cylinders used for design qualification tests must be fabricated on the same equipment and subjected to the same processes as is used to produce cylinders intended for charging and shipment. All tests must be witnessed by an independent inspector. Test reports must be kept on file by the cylinder maker and made available to the independent inspector and the Director of Operation upon request.

(b) Applies, except that designs using 6061 with the same mechanical strength as 6351 liner previously qualified under this exemption may be qualified based on acceptable results of tests on the largest capacity (with the same diameter and service pressure rating) cylinder to represent tests for smaller sized cylinders (with the same diameter and service pressure rating). In this case, mechanical strength of 6061 alloy must be the same (within plus or minus 2-1/2 percent of mechanical properties of 6351 alloy used).

c) Applies, except that designs using 6061 with the same mechanical strength as 6351 liner previously qualified under this exemption may be qualified based on acceptable results of tests on the largest capacity (with the same diameter and service pressure rating) cylinder to represent tests for smaller sized cylinders (with the same diameter and service pressure rating). In this case, mechanical strength of 6061 alloy must be the same (within plus or minus 2-1/2 percent of mechanical properties of 6351 alloy used).

e) Not required for designs using 6061 T6 alloy with mechanical properties within Plus or minus 2-1/2 percent of strength of 6351 alloy previously used.

(f) ***

(g) ***

(h) Qualification test results - a report of all tests for each design describing test setup, procedure and results must be submitted to the Director of Operation. This report must include at least the following basic information on each cylinder tested: ***

8. SPECIAL REQUIRMENTS

a) Cylinder service life must not exceed 15 years.

b) Use of these cylinders for underwater breathing is not authorized.

c) Cylinders used in oxygen service must be in compliance with section 73.302(a)(5)(i) through (a)(5)(iv).

d) Cylinder must be packaged in accordance with section 73.301(k).

e) Each cylinder must be reinspected and hydrostatically retested every three years in accordance with section 73.34(e) as prescribed for CTC 3HT cylinders, except that the rejection elastic expansion criteria does not apply, permanent volumetric expansion must not exceed 5 percent of total volumetric expansion at test pressure and retest dates must be steel stamped on the outer exposed metallic surface of the cylinder neck or marked on a label securely affixed to the cylinder and overcoated with epoxy. Reheat treatment or repair of rejected cylinders not authorized.

f) A cylinder which has been subjected to the action of fire must not be returned to service.

g) The Director of Operation shall be advised of any change in design of the cylinder.

9. REPORTING REQUIREMENTS

The Director of Operation shall be advised of any incident involving loss of contents and shall be provided with a summary of shipping experience before the expiration date of the Special Permit.

10. EXPIRY DATE

This Special Permit shall remain in effect until December 16, 1989 and may be revoked by the Director of Operation at any time prior to this date.

Director of Operation
Rail Safety Branch

Issued at Hull, Quebec
this 16th day of December, 1988.

Address all inquiries to:

Director of Operation
Rail Safety Branch
National Transportation Agency
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K1A 0N9