



Transport
Canada

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Transportation of Dangerous Goods
Directorate
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Equivalency Certificate (Approval issued by the competent authority of Canada)

Certificate No.: SU 4237 (Ren. 13)

Certificate Holder: Structural Composites Industries
a Worthington Cylinders Company

Mode of Transport: Road, Rail, Air, Marine

Effective Date: **APR 1 6 2018**

Expiry Date: April 30, 2023

LEGEND

For the purposes of this Equivalency Certificate, the document name listed in the short form has the same meaning as the document name listed in the long form. If a document is referred to in this Equivalency Certificate, it is referred to by the short form.

TDG Regulations: *Transportation of Dangerous Goods Regulations,*

CSA B339-14: CSA Standard B339-14, "*Cylinders, spheres, and tubes for the transportation of dangerous goods*", January 2014, published by the Canadian Standards Association (CSA),

CSA B340-14: CSA Standard B340-14, "*Selection and use of cylinders, spheres, tubes, and other containers for the transportation of dangerous goods, Class 2*", January 2014, published by the Canadian Standards Association (CSA).

Equivalency Certificate SU 4237 (Ren. 13)
(Approval issued by the competent authority of Canada)

CONDITIONS

This Equivalency Certificate authorizes Structural Composites Industries, a Worthington Cylinders Company to handle, offer for transport or transport, in Canada, and authorizes any person to handle, offer for transport, transport or import into Canada, by road or railway vehicle, by aircraft or by ship, cylinders in a manner that does not comply with sections 5.1.1 and 5.2, subparagraphs 5.10(1)(a)(ii), 5.10(1)(b)(iii), 5.10(1)(c)(ii), and 5.10(1)(d)(iii), and subsection 5.10(2) of the *TDG Regulations*, if:

Selection and Use

(a) subject to conditions (b) to (e) of this Equivalency Certificate, the requirements with respect to specification TC-3FCM cylinders in CSA B340-14, are complied with;

(b) each cylinder contains one of the following dangerous goods:

- UN1002, AIR, COMPRESSED, with not more than 23.5 percent oxygen, by volume,
- UN1066, NITROGEN, COMPRESSED,
- UN1072, OXYGEN, COMPRESSED,
- UN1956, COMPRESSED GAS, N.O.S. (mixture of oxygen and air or nitrogen);

(c) each cylinder is packaged in accordance with Clause 4.9 of CSA B340-14;

(d) each cylinder is stored in a protective environment for use in one of the following services:

- (i) aircraft escape slide,
- (ii) back-up crew oxygen,
- (iii) walk around oxygen, or
- (iv) naval liferaft;

(e) not more than 15 years has elapsed since the initial test date for each cylinder;

Manufacture

(f) the cylinders were manufactured prior to March 1, 2007 at 336 Enterprise Place, Pomora, CA, U.S.A., in accordance with the specific procedures and with model nos. ALT 279, ALT 280, ALT 281, ALT 282, ALT 372, ALT 405, ALT 621, ALT 63A or ALT 565, filed by Structural Composites Industries, Taylor-Wharton Gas Equipment Division, Harsco Corporation with the Transportation of Dangerous Goods Directorate;

Equivalency Certificate SU 4237 (Ren. 13)
(Approval issued by the competent authority of Canada)

(g) subject to conditions (h) to (k) of this Equivalency Certificate, the cylinders are in compliance with the requirements applicable to specification TC-3FCM in National Standard of Canada CAN/CSA B339-02, "*Cylinders, Spheres, and Tubes for the Transportation of Dangerous Goods*", October 2002, amended in November 2003 and February 2005, published by the Canadian Standards Association (CSA);

(h) the filament material is composed of high modulus para-aramid in accordance with the Society of Automotive Engineers, Inc. aerospace material specification AMS 3901, "*Organic Fiber (Para-Aramid), Yarn and Roving, High Modulus*", dated September 1998, including the applicable supplementary detail specifications thereto;

(i) the para-aramid filament is tested for strand strength in accordance with the American Society for Testing and Materials Standard ASTM D2343-03, "*Standard Test Method for Tensile Properties of Glass Fiber Strands, Yarns, and Rovings Used in Reinforced Plastics*", published in 2003, and the filament strand strength is at least 3100 MPa;

(j) the cylinder for the gunfire test is positioned so that the projectile impacts the cylinder bottom and exits at the side wall, or so that the projectile impacts the cylinder side wall at a 90° angle to the side wall axis, and any evidence of fragmentation failure of the tested cylinder or any tear greater than 76.2 mm from the entrance or the exit hole is cause for rejection;

(k) the Transport Canada mark, the specification designation and the service pressure marked on each cylinder is:

"TC-SU 4237-"

followed by service pressure expressed in bar;

Requalification

(l) subject to condition (m) of this Equivalency Certificate, cylinders due for requalification are requalified in accordance with the requirements applicable to the specification TC-3FCM set out in CSA B339-14;

(m) the requalification period for the cylinders is 5 years; and

Equivalency Certificate SU 4237 (Ren. 13)
(Approval issued by the competent authority of Canada)

(n) the certificate holder reports any incident involving loss of contents or failure of the cylinders to the Executive Director, Regulatory Frameworks and International Engagement, Regulatory Affairs Branch, Transportation of Dangerous Goods Directorate, Transport Canada.

Note 1: The conditions of this Equivalency Certificate must be complied with. Subsection 31(4) of the *Transportation of Dangerous Goods (TDG) Act, 1992* stipulates that non-compliance with any of the terms or conditions invalidates the Equivalency Certificate. If any of the conditions are not complied with, the *TDG Act, 1992* and *TDG Regulations* would apply as though this equivalency certificate did not exist.

Note 2: The issuance of this Equivalency Certificate in no way reduces the certificate holder's responsibility to comply with any other requirements of the *TDG Regulations* that are not specifically addressed in this certificate.

Signature of Issuing Authority



David Lamarche, P. Eng., ing.
Chief,
Approvals and Special Regulatory Projects

Equivalency Certificate SU 4237 (Ren. 13)
(Approval issued by the competent authority of Canada)

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(The following Explanatory Note is for information purposes only and is not part of this certificate.)

Explanatory Note

The cylinders have previously been manufactured under a permit granted pursuant to the *Regulations for the Transportation of Dangerous Commodities by Rail*. The applicant had demonstrated that the substitution of para-aramid fiber for Type-S fibreglass filament as described would result in a cylinder which could be used with equivalent safety to that of a TC-3FCM specification cylinder. The present certificate authorizes continued use of the cylinders under the *TDG Regulations*, as amended. This certificate also authorizes an extension of the requalification period to 5 years for cylinders contained in a protective environment.

Legend for Certificate Number

SH - Road, SR - Rail, SA - Air, SM - Marine
SU - More than one Mode of Transport
Ren. - Renewal

Equivalency Certificate SU 4237 (Ren. 13)
(Approval issued by the competent authority of Canada)

NOTE

Under Canadian Law, a foreign manufacturer of non-specification cylinders cannot be charged with an offence under the *Transportation of Dangerous Goods Act, 1992* for failure to comply with the conditions of a Certificate. However, certain remedies under the Act are available to Transport Canada in this eventuality.

These include:

1. detention of dangerous goods and consequently the means of containment containing them (subsection 17(1));
2. detention of the means of containment whether full or empty (subsection 17(1));
3. directions not to import the means of containment or to return them to origin (subsection 17(3));
4. inspectors' directions (section 19);
5. directions to importers of the means of containment to issue notices of defective construction or recall (subsection 9(2)); and
6. revocation of the certificate, thereby making any use of the means of containment an offence; (subsection 31(6)).

If none of the foregoing are adequate, Protective Directions may be issued to prohibit or to control the use of the cylinders. (section 32).