



Transportation of Dangerous Goods
 Directorate
 Tower C, Place de Ville
 9th Floor
 330 Sparks Street
 Ottawa, Ontario
 K1A 0N8

Direction générale du Transport
 des marchandises dangereuses
 Tour C, Place de Ville
 9^e étage
 330, rue Sparks
 Ottawa (Ontario)
 K1A 0N8



Equivalency Certificate
 (Approval issued by the competent authority of Canada)

Certificate No.: SU 4236 (Ren. 14)

Certificate Holder: Structural Composites Industries
 a Worthington Cylinders Company

Mode of Transport: Road, Rail, Marine, Air

Effective Date: **APR 16 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).

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CONDITIONS

This Equivalency Certificate authorizes Structural Composites Industries, a Worthington Cylinders Company to manufacture, sell, offer for sale, distribute or deliver 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 (d) 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, or
- 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) not more than 15 years has elapsed since the initial test date for each cylinder;

Manufacture

(e) the cylinders are manufactured at 336 Enterprise Place, Pomona, CA, U.S.A., in accordance with the specific procedures and with model nos. ALT 414, ALT 545, ALT 545A, ALT 554, ALT 561, ALT 665, ALT 665P, ALT 683, ALT 684 or ALT 685 filed by Structural Composites Industries, a Worthington Cylinders Company, with the Executive Director, Regulatory Frameworks and International Engagement, Regulatory Affairs Branch, Transportation of Dangerous Goods Directorate, Transport Canada;

(f) subject to conditions (g) to (i) of this Equivalency Certificate, the cylinders are in compliance with the requirements applicable to specification TC-3FCM in CSA B339-14;

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(g) the filament material is composed of:

- (i) 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 July 2014, including the applicable supplementary detail specifications thereto, and
- (ii) commercial Type-S fiberglass in accordance with the applicable requirements of Clause 9.2.2.1 of CSA B339-14;

(h) the para-aramid filament is tested for strand strength in accordance with the American Society for Testing and Materials standard ASTM D2343-09, *Standard Test Method for Tensile Properties of Glass Fiber Strands, Yarns, and Rovings Used in Reinforced Plastics*, published in 2009, and the filament strand strength is at least 3100 MPa;

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

“TC-SU 4236-”

followed by service pressure expressed in bar; and

(j) 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.

This Equivalency Certificate serves as the registration of Structural Composites Industries, a Worthington Cylinders Company pursuant to Clause 25.2 of CSA B339-14, to manufacture cylinders of the designs specified herein. Structural Composites Industries, a Worthington Cylinders Company's registered mark pursuant to CSA B339-14, is:

ALT

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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

A handwritten signature in blue ink that reads "David Lamarche, P. Eng." The signature is written in a cursive, flowing style.

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

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

Explanatory Note

The cylinders were previously manufactured in accordance with a permit granted under the *Regulations for the Transportation of Dangerous Commodities by Rail*. The certificate holder has demonstrated that the substitution of para-aramid fiber for Type-S fiberglass filament would result in a cylinder that could be used with equivalent safety to that of a TC-3FCM specification cylinder. This certificate authorizes continued manufacture and use of the cylinders.

Legend for Certificate Number

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

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).