

POSITION STATEMENT

IDENTIFICATION AND HANDLING OF SPUN DOT/TC/ISO/UN CYLINDERS

Background

A spun cylinder is a cylinder that has been welded closed at one end by the spinning process, without the addition of weld metal. Spun cylinders manufactured to U.S. Department of Transportation (DOT) and Transport Canada (TC) specifications are required to be marked with the word SPUN by DOT and TC.

However, ISO 9809-1, -2, -3, and -4 do not require the word SPUN to be marked on the cylinders [1, 2, 3, 4]. The current absence of a requirement for ISO cylinders to be marked SPUN presents safety concerns for the industry.

There may be unintended consequences such as a leak from the bottom closure if a spun cylinder is not identified and is charged with a toxic, flammable, or corrosive gas. Any persons filling or using that cylinder would be impacted. Also, the user of these cylinders could be impacted if the cylinder is not properly stored for example, in a well-ventilated area. As a result, there are industrial gas companies requiring controls to be in place to ensure that the use of spun cylinders is restricted and/or not used in toxic, flammable, and corrosive gas services.

When ISO 9809 spun cylinders are clearly identified, each company that fills these cylinders can then assess any potential hazards prior to filling these cylinders with Hazard Class 2.1 (Flammable) or 2.3 (Toxic/Corrosive) gases.

Question

ISO 9809 cylinders may be manufactured by a base spin-forming method [1, 2, 3, 4]. How can these cylinders be identified as there is currently no requirement in U.S. or Canadian regulations to mark them as SPUN?

Answer

In Title 49 of the U.S. *Code of Federal Regulations* (49 CFR) 178.71(s) and CSA B341-18, *UN pressure receptacles and multiple-element gas containers for the transport of dangerous goods*, Clause 4.4.1.3 (as referenced by the *Transportation of Dangerous Goods Regulations*), there is a provision that allows optional markings to be placed on the shoulder of the cylinder [5, 6, 7]. In this case, the word SPUN can be marked as a customer requirement in the purchase document or marked by an authorized cylinder regualifier at the request of the cylinder owner for cylinders already in service.

References

Unless otherwise specified, the latest edition shall apply.

[1] ISO 9809-1, *Gas cylinders — Design, construction and testing of refillable seamless steel gas cylinders and tubes — Part 1: Quenched and tempered steel cylinders and tubes with tensile strength less than 1 100 MPa*, American National Standards Institute. www.ansi.org

[2] ISO 9809-2, *Gas cylinders — Design, construction and testing of refillable seamless steel gas cylinders and tubes — Part 2: Quenched and tempered steel cylinders and tubes with tensile strength greater than or equal to 1 100 Mpa*, American National Standards Institute. www.ansi.org

[3] ISO 9809-3, *Gas cylinders — Design, construction and testing of refillable seamless steel gas cylinders and tubes — Part 3: Normalized steel cylinders and tubes*, American National Standards Institute. www.ansi.org

[4] ISO 9809-4, *Gas cylinders — Design, construction and testing of refillable seamless steel gas cylinders and tubes — Part 4: Stainless steel cylinders with an R m value of less than 1 100 Mpa*, American National Standards Institute. www.ansi.org

[5] *Code of Federal Regulations*, Title 49 (Transportation) Parts 100-180, U.S. Government Printing Office. www.gpo.gov

[6] CSA B341-2018, *UN pressure receptacles and multiple-element gas containers for the transport of dangerous goods*, Canadian Standards Association. www.csagroup.org

[7] *Transportation of Dangerous Goods Regulations*, Transport Canada. www.tc.gc.ca

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