



SAFETY BULLETIN

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HAZARDS OF REUSING DISPOSABLE REFRIGERANT (HALOGENATED HYDROCARBON) GAS CYLINDERS

All “nonreusable,” “disposable,” “nonreturnable,” or “nonrefillable” cylinders manufactured according to U.S. Department of Transportation (DOT) or Transport Canada (TC) Specification 39 are:

- Designed for one-use service with a specific product and are considered by DOT and TC to be unserviceable after one use. These cylinders shall not be refilled or reused as containers for any pressurized liquid or gas;
- Designed as “thin-walled containers” and must be protected from mechanical abuse and, as such, are to be transported only when overpacked by a suitable protective structure; and
- Not to be refilled with any other material classified as hazardous by DOT regulations or as dangerous goods by TC’s *Transportation of Dangerous Goods Regulations* [1]. DOT and TC prohibit refilling and transportation.

In the United States, each cylinder is marked with the following statement as required by 49 CFR 178.65(i)(2)(viii) [2]:

- For cylinders manufactured prior to October 1, 1996, “Federal law forbids transportation if refilled—penalty up to \$25,000 fine and 5 years imprisonment (49 U.S.C. 1809),” or “Federal law forbids transportation if refilled—penalty up to \$500,000 and 5 years imprisonment (49 U.S.C. 5124).”
- For cylinders manufactured on or after October 1, 1996, “Federal law forbids transportation if refilled—penalty up to \$500,000 fine and 5 years imprisonment (49 U.S.C. 5124).”

In Canada, the letters “NRC/RU” (nonrefillable container/*remplissage unique*) are required to be marked on the container, as a minimum, as outlined in CSA B339, *Cylinders, Spheres, and Tubes for the Transportation of Dangerous Goods* [3].

In Canada, refilling of Specification TC-39M and CTC-39 containers is prohibited by clause 4.6.5.4 of CSA B340, *Selection and Use of Cylinders, Spheres, Tubes, and Other Containers for the Transportation of Dangerous Goods, Class 2* [4].

These stringent regulations were put into effect in recognition of the dangers inherent in the misuse of these special cylinders, which were designed for only limited service. Unfortunately, such misuse has already resulted in a number of severe personal injuries caused by ruptured cylinders. Cylinder failure in most of these cases could be attributed to the use of gases or liquids other than those for which the cylinder was intended.

The most blatant misuse of these cylinders has been their conversion to compressed air tanks used for tire inflation and various cleaning functions where a portable source of air pressure is needed. This is a particularly dangerous application because:

- Compressed air may contain moisture and eventually cause internal corrosion of the thin-walled cylinder with no visible indications to the exterior. The strength of the cylinder could be drastically reduced;
- Being designed for only one-use cycle, such thin-walled cylinders have a limited cycle life. Repeated fillings in air service subject the cylinders to many pressure cycles that exceed design specifications; and
- Used cylinders may have been weakened by mechanical abuse or by application of heat during their use in the original intended service or, later, when stored in unprotected areas causes external corrosion. In such cases, the pressure relief device, designed to function within a higher range consistent with a new undamaged cylinder, may not afford adequate protection against premature cylinder failure.

Recharging these thin-walled cylinders has caused serious accidents and injuries. DO NOT try to reuse disposable refrigerant cylinders; they are potentially dangerous when refilled. Recent court decisions have placed the responsibility for accidents and injuries on the (mis-)users.

Disposal of these thin-walled cylinders should be in accordance with recommendations obtained from the suppliers who originally filled the cylinders or your local, state, or federal environmental agency. Such recommendations may sometimes be included in the labeling of the cylinders.

For all of these reasons, disposable, thin-walled cylinders are not fit for further use with any material once they have been emptied of their original charge. The Compressed Gas Association urges all refrigerant distributors and service organizations to support this recommendation in an effort to prevent further accidents that may occur through misuse of these containers.

References

Unless otherwise specified, the latest edition shall apply.

[1] *Transportation of Dangerous Goods Regulations*, Transport Canada, Canadian Government Publishing, Public Works and Government Services Canada, Ottawa, ON K1A 0S9, Canada. www.tc.gc.ca

[2] *Code of Federal Regulations*, Title 49 (Transportation), Parts 100-180, Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. www.gpoaccess.gov

[3] CSA B339, *Cylinders, Spheres, and Tubes for the Transportation of Dangerous Goods*, Canadian Standards Association, 5060 Spectrum Way, Mississauga, ON L4W 5N6, Canada. www.csa.ca

[4] CSA B340, *Selection and Use of Cylinders, Spheres, Tubes, and Other Containers for the Transportation of Dangerous Goods, Class 2*, Canadian Standards Association, 5060 Spectrum Way, Mississauga, ON L4W 5N6, Canada. www.csa.ca

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Safety and Health Committee

NOTE—This reaffirmed edition may include minor editorial changes; however, all technical information is the same as the fourth edition.

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