

CGA C-6—2007

**STANDARDS FOR VISUAL
INSPECTION OF STEEL
COMPRESSED
GAS CYLINDERS**

TENTH EDITION



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NOTE—Technical changes from the previous edition are underlined.

NOTE—Appendix A (Informative) is for information only.

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1 Introduction

Title 49 of the U.S. *Code of Federal Regulations* (49 CFR), Parts 100-180, *Hazardous Materials Regulations*, of the U.S. Department of Transportation (DOT) as well as the regulations of Transport Canada (TC) require that a cylinder be condemned when it leaks; when there is internal or external corrosion, denting, bulging; or when evidence of rough usage exists to the extent that the cylinder is likely to be weakened appreciably [1].¹ Until 1970, U.S. regulations applicable to compressed gas cylinders were under the authority of the Interstate Commerce Commission (ICC). Older cylinders, therefore, can be identified by an ICC stamping. Such cylinders are now regulated according to DOT requirements.

NOTE—Under prescribed conditions of use, a formal visual inspection has been authorized in lieu of the periodic hydrostatic retest for certain low pressure cylinders used for noncorrosive gas service. See 49 CFR 180.209 for DOT requirements or clause 24 of CSA B339, *Cylinders, Spheres, and Tubes for the Transportation of Dangerous Goods*, for TC requirements [1, 2].

NOTE—Wherever reference is made to DOT regulations, similar requirements can be found in TC regulations. Older cylinders can be marked CTC, BTC, or CRC.

2 Scope

This publication has been prepared as a guide to cylinder requalifiers and users for establishing cylinder inspection procedures and standards. It is general in nature, although some specific limits are recommended. It should be distinctly understood that it does not cover all circumstances for each individual cylinder type and condition of lading. Cylinder users must expect to modify their inspection procedures to suit their own cylinder design or the conditions of use that can exist in their own service.

Experience in the inspection of cylinders is an important factor in determining the acceptability of a given cylinder for continued service. Users lacking this experience who have questionable cylinders should return them to a manufacturer of the same type of cylinders or to a competent requalification agency for reinspection.

The suggestions contained in this standard do not apply to cylinders manufactured under specification DOT-3HT, CTC-3HT, or TC-3HTM. Because of the special provisions of that specification, separate recommendations covering service life and standards for visual inspection of these cylinders are contained in CGA C-8, *Standard for Requalification of DOT-3HT, CTC-3HT, and TC-3HTM Seamless Steel Cylinders* [3]. For cylinders manufactured under specification DOT-8, DOT-8AL, CTC-8, CTC-8AL, CTC-8WC, TC-8WM, or TC-8WAM, see CGA C-13, *Guidelines for Periodic Visual Inspection and Requalification of Acetylene Cylinders* [4]. For aluminum cylinders, see CGA C-6.1, *Standards for Visual Inspection of High Pressure Aluminum Compressed Gas Cylinders*; CGA C-6.2, *Guidelines for Visual Inspection and Requalification of Fiber Reinforced High Pressure Cylinders*; and CGA C-6.3, *Guidelines for Visual Inspection and Requalification of Low Pressure Aluminum Compressed Gas Cylinders* [5, 6, 7].

Inspection procedures include preparation of cylinders for inspection, exterior inspection, interior inspection if required, nature and extent of damage to be looked for, and some tests that indicate the conditions of the cylinder, etc. A sample inspection report is shown in Appendix A, which may be revised to suit the user's requirements.

3 Definitions

For the purpose of this publication, the following definitions apply.

3.1 Corrosion or pitting

Loss of wall thickness in a cylinder by corrosive media.

NOTE—There are several kinds of pitting or corrosion to be considered.

¹ References are shown by bracketed numbers and are listed in order of appearance in the reference section.