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CGA C-6—2022

STANDARD FOR VISUAL INSPECTION OF STEEL COMPRESSED GAS CYLINDERS

THIRTEENTH EDITION

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Work Item 24-014
Cylinder Specifications Committee

NOTE—Technical changes from the previous edition are underlined.

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

THIRTEENTH EDITION: 2022
TWELFTH EDITION: 2019
ELEVENTH EDITION: 2013
TENTH EDITION: 2007

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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 is 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). Therefore, older cylinders 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 pressure requalification 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]. For further information on pressure requalification test methods, see CGA C-1, *Methods for Pressure Testing Compressed Gas Cylinders and Tubes* [3].

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 standard provides cylinder users (requalifiers, owners, fillers, operators, etc.) with criteria to accept, reject, and condemn steel compressed gas cylinders. This standard does not cover all circumstances for each individual cylinder type and condition of lading.

NOTE—Special permit cylinders may contain their own visual inspection criteria in the special permit. Equivalency certificate cylinders may contain their own visual inspection criteria in the equivalency certificate.

In situations where a particular cylinder design type is not covered by this standard, users shall modify their inspection procedures. If a particular compressed gas service has unique detrimental effects on a cylinder's internal or external condition, these shall also be considered by the user.

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 re-inspection.

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 this 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* [4].

For cylinders manufactured under specification DOT-8, DOT-8AL, CTC-8, CTC-8AL, CTC-8WC, TC-8WM, or TC-8WAM, see CGA C-13, *Standard for Periodic Visual Inspection and Requalification of Acetylene Cylinders* [5].

For aluminum alloy cylinders, see CGA C-6.1, *Standard for Visual Inspection of High Pressure Aluminum Alloy Compressed Gas Cylinders*; CGA C-6.2, *Standard for Visual Inspection and Requalification of Fiber Reinforced High Pressure Cylinders*; and CGA C-6.3, *Standard for Visual Inspection of Low Pressure Aluminum Alloy Compressed Gas Cylinders* [6, 7, 8].

Inspection procedures include preparation of cylinders for inspection, exterior inspection, interior inspection (if required), nature and extent of damage to be looked for, and tests that indicate the conditions of the cylinder, etc. A sample inspection report for low pressure cylinders exempt from pressure testing is shown in Appendix A. This sample inspection report may be revised to suit user or regulatory requirements.

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