CGA

Compressed Gas Association

The Standard For Safety Since 1913

CGA C-13—2018

STANDARD FOR PERIODIC VISUAL INSPECTION AND REQUALIFICATION OF ACETYLENE CYLINDERS

SEVENTH EDITION

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Work item 13-010
Acetylene Committee

NOTE—Technical changes from the previous edition are underlined.

NOTE—Appendices A and B (Informative) are for information only.

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1 Introduction

This standard is one of a series compiled by the Compressed Gas Association, Inc. (CGA) to meet the demand for information on compressed gases, cryogenic liquids, and related products.

2 Background

The U.S. Department of Transportation (DOT) and Transport Canada (TC) minimum wall thickness is specified in the regulations based on calculations using the maximum yield strength. The recommended industry practice is to follow a typical minimum sidewall thickness recognizing that variables exist among manufacturers in steel grades and process methods used at the time a cylinder is produced. These variables, which exist among manufacturers' designs, make a calculation of minimum sidewall thickness difficult at the time of requalification considering the age of the population of in-service cylinders and limitations in obtaining specific design parameters for each cylinder. Therefore, manufacturers established a minimum wall thickness for each cylinder diameter based on the steel grade used and targeted metallurgical properties for the cylinder. However, while this calculated minimum wall thickness is set, manufacturers typically target a wall thickness greater than DOT/TC absolute minimum wall thickness to compensate for manufacturing process variables and additional safety factors, for the cylinder.

3 Scope

This standard covers the inspection and requalification of the acetylene cylinder shell and porous mass. It should be of interest to acetylene cylinder manufacturers, acetylene cylinder filling and distribution personnel, authorized acetylene cylinder requalification facilities, welding gas distributors, safety personnel, and users of acetylene.

This standard covers both the thorough prefill external visual inspection of acetylene cylinders and the periodic inspections of the cylinder shell and porous mass, which are required for acetylene cylinder requalification.

This standard applies to acetylene cylinders manufactured:

- under DOT Specifications 8 and 8AL found in Title 49 of the U.S. *Code of Federal Regulations* (49 CFR) Parts 178.59 and 178.60 [1];[1]
- under Specifications TC-8WM and TC-8WAM found in Canadian Standards Association (CSA) B339, *Cylinder, Spheres, Tubes and Other Containers for the Transportation of Dangerous Goods* [2]; and
- required for service by the *Transportation of Dangerous Goods Regulations* of Transport Canada (TC) and CSA B340, *Selection of Cylinders, Spheres, Tubes, and Other Containers for the Transportation of Dangerous Goods, Class 2* [3, 4].

Until 1970, U.S. regulations applicable to acetylene cylinders were under the authority of the Interstate Commerce Commission (ICC). These cylinders identified by an ICC stamping are now regulated according to DOT requirements. In Canada the CSA standards came into effect in 1987. Before 1987, other regulatory agencies issued these cylinder specifications (the most recent being Canadian Transport Commission [CTC]). Canadian cylinders marked with CTC, Board of Transport Commissioners (BTC), or Canadian Railway Commission (CRC) stampings shall be requalified and inspected in accordance with the requirements of CSA B339 [2].

This standard also applies to acetylene cylinders with nonmonolithic or monolithic porous masses manufactured under exemptions or special permits issued by the DOT or TC.

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