Compressed Gas Association
The Standard For Safety Since 1913

CGA P-70—2016

(Formerly SB-7)
REAFFIRMED 2022

STANDARD FOR THE SAFE HANDLING OF OXYGEN CYLINDERS IN THE OFFSHORE MARINE INDUSTRY

FIRST EDITION

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Work Item 21-056
Safety and Health Committee

NOTE—Technical changes from CGA SB-7—2003 edition are underlined.

NOTE—No technical information has been changed from the 2016 edition. This reaffirmed edition may include minor editorial changes.

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1 Introduction

There have been a number of incidents where oxygen cylinders have ruptured after having been used in offshore marine operations. Some member companies of the Compressed Gas Association have studied this problem. The results of the study show that the main cause of cylinder ruptures is the mishandling of oxygen cylinders by users who allow sea water to flow back into the cylinders once they are empty. Metallurgical tests show that sea water in a standard CTC/DOT 3A or 3AA or equivalent TC 3AM or 3AAM oxygen cylinder causes extremely rapid corrosion to the extent that the cylinder can rupture within 60 days depending on the oxygen pressure in the cylinder.

2 Scope

This standard outlines the procedures for the safe handling of oxygen cylinders in the offshore marine industry.

It does not address the general handling of compressed gas cylinders. For additional information on general handling, see CGA P-1, *Standard for Safe Handling of Compressed Gases in Containers* [1].

3 Definitions

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

3.1 Publication terminology

3.1.1 Shall
Indicates that the procedure is mandatory. It is used wherever the criterion for conformance to specific recommendations allows no deviation.

3.1.2 Should
Indicates that a procedure is recommended.

3.1.3 May
Indicates that the procedure is optional.

3.1.4 Will
Is used only to indicate the future, not a degree of requirement.

3.1.5 Can
Indicates a possibility or ability.

4 Filling procedures

The potential for a cylinder rupture from rapid corrosion due to sea water ingress is a hazard that not only puts the user at risk but also the producer who transports, handles, and refills the cylinders. Industrial gas companies shall include the following additional procedures in prefill inspections:

- Check the weight of cylinders against their tare weights;
- Check for residual pressure;
- Evaluate the residual contents of the cylinder for the presence of water;
- Invert a cylinder before discharging the residual product;
- Perform the hammer test (see CGA P-15, *Standard for the Filling of Nonflammable Compressed Gas Cylinders*, for additional information) and vent the cylinder [2]; and
- Evacuate the cylinder before filling.