



SAFE USE OF GAS CYLINDERS IN MARINE SERVICE

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Prepared by WG-2 Gas cylinders and pressure vessels
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Amendments to 61/18

Section	Change
4.1	Last paragraph was added
5.4	Typo in the reference to the standard was corrected

Note: Technical changes from the previous edition are underlined

1 Introduction

The number of industrial gas cylinders which are used in areas such as off-shore oil production, on board ships, shipyards, fish farms and diving applications has increased considerably over the past few decades. The consequence of this is that these cylinders are exposed to the risks of rough handling as well as internal contamination, for example by sea water.

These conditions are generally referred to as marine environment or marine service.

A number of incidents have been reported, caused by internal corrosion of oxygen cylinders in marine service, resulting in perforation or violent rupture of the cylinder.

In addition, severe internal corrosion has been detected during routine inspections and periodic inspection.

Investigations have revealed a higher occurrence of damage to the porous material of acetylene cylinders in marine service than in industrial use.

Though the majority of the above incidents have not resulted in injuries or fatalities, it is evident that these incidents represent a potential risk of damage to both users and personnel in cylinder filling stations.

IGC Technical Note 32/82 *Detection and Prevention of Internal Corrosion of Oxygen Cylinders in Off-Shore Service* [1]¹ first examined the problem and provided recommendations to prevent and detect internal corrosion of oxygen cylinders in marine service.

This publication covers only the additional recommendation believed to be specific to gas cylinders in marine service. All inspection and prefill checks as required by transport regulations such as the *European Agreement on the Carriage of Dangerous Goods by Road*, ADR [2] shall also be performed as necessary.

By applying the recommendations of this publication, the integrity of gas cylinders in marine service should be improved and thereby reduce safety concerns.

This publication has been prepared based on the additional information collected by EIGA companies and supersedes TN 32/82 [1].

Since the recommendations in this publication have been applied, EIGA has noted a significant reduction in marine service incidents.

2 Scope

This publication applies only to those cylinders which can be identified as having a significant risk of internal contamination and/or rough handling.

It covers primarily dedicated oxygen and acetylene cylinders including bundles of cylinders used in the marine environment, but many of its recommendations may be applied also to other industrial gas cylinders in marine service.

NOTE This publication does not cover any regulatory requirements for filling, transporting, use and retesting of gas cylinders, which are outside their regional area of approval.

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