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Gas cylinders — Service life testing for cylinders and tubes of composite construction

Bouteilles à gaz — Durée de vie des bouteilles et tubes composites

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 58, *Gas cylinders*, Subcommittee SC 3, *Cylinder design*.

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Introduction

The concept of a service life test programme originated from the United Nation Recommendation on the Transport of dangerous Goods (The Orange Book 19th Revision). The Orange Book requirement for a service life test programme for composite cylinders of more than 15 years will be incorporated into the International Regulation for Transport of Dangerous Goods by sea, air and land.

In the 19th Revision of United Nation Recommendation on the Transport of dangerous Goods (The Orange Book) Note 2 of Section 6.2.2.1.1 is as follows:

*"**NOTE 2:** Composite cylinders with a design life longer than 15 years shall not be filled after 15 years from the date of manufacture, unless the design has successfully passed a service life test programme. The programme shall be part of the initial design type approval and shall specify inspections and tests to demonstrate that cylinders manufactured accordingly remain safe to the end of their design life. The service life test programme and the results shall be approved by the competent authority of the country of approval that is responsible for the initial approval of the cylinder design. The service life of a composite cylinder shall not be extended beyond its initial approved design life."*

To understand what testing programmes are in use by ISO P member countries, competent authorities were asked to provide information regarding the composite cylinder approvals that are accepted in their country and any service life test programmes currently practised.

The information received from the competent authorities has been used to determine the similarities and differences in the service life test programmes in use.

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Gas cylinders — Service life testing for cylinders and tubes of composite construction

1 Scope

This document covers composite cylinders and tubes to be used under the International Regulation for Transport of dangerous Goods by sea, air and land:

— with a water capacity up to 3000 l;

— with a design life greater than 15 years.

This document provides:

— information on existing service life test programmes from ISO/TC 58/SC 3 member countries;

— comments (initially for internal committee use only) on similarities and differences;

— recommendations on the feasibility of harmonization and whether it would be appropriate to develop an ISO deliverable.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 10286, *Gas cylinders — Terminology*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 10286 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
design life
maximum life (in years) for which the composite cylinder is designed and approved in accordance with the applicable standard

3.2
service life
number of years the cylinder is permitted to be in service

Note 1 to entry: In this document for “cylinder/tube” only the term “cylinder” will be used.

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