INTERNATIONAL STANDARD

ISO 3807

Second edition
2013-09-01

Corrected version
2013-11-15

Gas cylinders — Acetylene cylinders — Basic requirements and type testing

Bouteilles à gaz — Bouteilles d'acétylène — Exigences fondamentales et essais de type

Reference number
ISO 3807:2013(E)

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 3807 was prepared by Technical Committee ISO/TC 58, *Gas cylinders*.

This second edition of ISO 3807 cancels and replaces the first edition of ISO 3807-1:2000 and the first edition of ISO 3807-2:2000. The main technical modifications are the following:

a) ISO 3807-1 and ISO 3807-2 were revised taking into account EN 1800 and the according requirements were merged into one standard (ISO 3807).

b) A test for the compressive strength of the porous material was added.

c) A calculation method as an alternative to the elevated temperature test was added.

d) The impact stability test was removed.

e) The procedure for establishing permissible acetylene/solvent concentrations for bundles was removed and is now included in ISO 13088.

This corrected version of ISO 3807:2013 corrects Formula (I.1).

Introduction

There are two types of acetylene cylinders operated in certain parts of the world:

— acetylene cylinders with a test pressure of at least 60 bar and without fusible plugs;

— acetylene cylinders with a test pressure of at least 52 bar, fitted with fusible plugs which release the gas and hence reduce the pressure if the cylinder temperature increases unintentionally.

This International Standard covers the requirements for both types of acetylene cylinders and specifies specific requirements in separate Annexes.

This International Standard is intended to be used under a variety of national regulatory regimes but has been written so that it is suitable for the application of the UN Model Regulations [1]. Attention is drawn to requirements in the specified relevant national regulations of the country (countries) where the cylinders are intended to be used that might override the requirements given in this International Standard.

In International Standards, weight is equivalent to a force, expressed in Newton. However, in common parlance (as used in terms defined in this International Standard), the word “weight” continues to be used to mean “mass”, even though this practice is deprecated (ISO 80000-4).

In this International Standard the unit bar is used, due to its universal use in the field of technical gases. It should, however, be noted that bar is not an SI unit, and that the according SI unit for pressure is Pa.

Pressure values given in this International Standard are given as gauge pressure (pressure exceeding atmospheric pressure) unless noted otherwise.

Gas cylinders — Acetylene cylinders — Basic requirements and type testing

1 Scope

This International Standard specifies the basic and type testing requirements for acetylene cylinders with and without fusible plugs with a maximum nominal water capacity of 150 l and requirements regarding production/batch test procedures for manufacturing of acetylene cylinders with porous material.

It does not include details of the design of the cylinder shell; these are specified, for example, in ISO 9809-1, ISO 9809-3, ISO 4706 and ISO 7866.

NOTE The limitation to 150 l is derived from the definition for cylinder in the UN Model Regulations. However, in practice acetylene cylinders in general have lower water capacities than 150 l.

2 Normative references

The following referenced documents are indispensable for the application 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 10297, *Gas cylinders — Cylinder valves — Specification and type testing*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
acetylene cylinder
cylinder, manufactured and suitable for the transport of acetylene, containing a *porous material* (3.6) and *solvent* (3.9) (where applicable) for acetylene with a valve and other accessories affixed to the cylinder

Note 1 to entry: For solvent-free acetylene cylinders, see Clause 7.

Note 2 to entry: When there is no risk of ambiguity, the word “cylinder” is used.

3.2
cylinder shell
<acetylene cylinders> empty cylinder, manufactured and suitable for receiving and containing a *porous material* (3.6) for use as part of an *acetylene cylinder* (3.1)

3.3
fusible plug
non-reclosing pressure relief device designed to function by the yielding or melting of a plug of fusible material at a predetermined temperature

3.4
manufacturer
<acetylene cylinders> company responsible for filling the *cylinder shell* (3.2) with *porous material* (3.6) and which generally prepares it for the first charge of acetylene