

Gas cylinders - Acetylene cylinders - Basic requirements and type testing (ISO 3807:2013, Corrected version 2013-11-15)

EVS

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 3807:2013 sisaldab Euroopa standardi EN ISO 3807:2013 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 3807:2013 consists of the English text of the European standard EN ISO 3807:2013.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 04.09.2013.	Date of Availability of the European standard is 04.09.2013.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 23.020.30

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:
Aru 10, 10317 Tallinn, Eesti; www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:
Aru 10, 10317 Tallinn, Estonia; www.evs.ee; phone 605 5050; e-mail info@evs.ee

English Version

Gas cylinders - Acetylene cylinders - Basic requirements and type testing (ISO 3807:2013, Corrected version 2013-11-15)

Bouteilles à gaz - Bouteilles d'acétylène - Exigences fondamentales et essais de type (ISO 3807:2013, Version corrigée 2013-11-15)

Gasflaschen - Acetylenflaschen - Grundlegende Anforderungen und Baumusterprüfung (ISO 3807:2013, korrigierte Fassung 2013-11-15)

This European Standard was approved by CEN on 3 August 2013.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Foreword

This document (EN ISO 3807:2013, Corrected version 2013-11-15) has been prepared by Technical Committee ISO/TC 58 "Gas cylinders" in collaboration with Technical Committee CEN/TC 23 "Transportable gas cylinders" the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2014, and conflicting national standards shall be withdrawn at the latest by March 2014.

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

This document supersedes EN 1800:2006.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports the objectives of the framework Directives on Transport of Dangerous Goods.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 3807:2013, Corrected version 2013-11-15 has been approved by CEN as EN ISO 3807:2013 without any modification.

EVS

Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Basic requirements	3
4.1 Cylinder shell.....	3
4.2 Porous material.....	3
4.3 Solvent content and acetylene content.....	4
4.4 Working pressure.....	4
4.5 Cylinder identification.....	4
4.6 Fusible plugs.....	4
4.7 Accessories.....	5
5 Type approval	5
5.1 General requirements.....	5
5.2 Request for approval.....	5
5.3 Cylinder type tests.....	6
5.4 Information to be given in the type approval document.....	7
6 Manufacturing of the porous material	8
7 Solvent-free acetylene cylinders	8
Annex A (normative) Determination of the porosity of the porous material	9
Annex B (normative) Determination of the compressive strength of monolithic porous materials	10
Annex C (normative) Calculation of the working pressure	11
Annex D (normative) Verification that development of hydraulic pressure is prevented	12
Annex E (normative) Backfire test	14
Annex F (normative) Fire test	18
Annex G (normative) Testing of the integrity of the porous material in the area of joggle welds	21
Annex H (normative) Test procedures for fusible plugs used in acetylene cylinders	22
Annex I (normative) Inspection procedures for the manufacture of acetylene cylinders	24
Annex J (informative) Explanation and examples for the calculation method according to D.3	26
Bibliography	28

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).

EVS

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.

EVS

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