

Irish Standard I.S. EN ISO 11114-1:2012&A1:2017

Gas cylinders - Compatibility of cylinder and valve materials with gas contents - Part 1: Metallic materials (ISO 11114-1:2012)

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I.S. EN ISO 11114-1:2012&A1:2017

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EN ISO 11114-1:2012/A1:2017

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National Foreword

I.S. EN ISO 11114-1:2012&A1:2017 is the adopted Irish version of the European Document EN ISO 11114-1:2012, Gas cylinders - Compatibility of cylinder and valve materials with gas contents - Part 1: Metallic materials (ISO 11114-1:2012)

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EUROPEAN STANDARD NORME EUROPÉENNE

EN ISO 11114-1:2012/A1

EUROPÄISCHE NORM

February 2017

ICS 23.020.35

English Version

Gas cylinders - Compatibility of cylinder and valve materials with gas contents - Part 1: Metallic materials -Amendment 1 (ISO 11114-1:2012/Amd 1:2017)

Bouteilles à gaz - Compatibilité des matériaux des bouteilles et des robinets avec les contenus gazeux -Partie 1: Matériaux métalliques - Amendement 1 (ISO 11114-1:2012/Amd 1:2017) Gasflaschen - Kompatibilität von Flaschen- und Ventil-Werkstoffen mit Gasinhalten - Teil 1: Metallische Werkstoffe (ISO 11114-1:2012/Amd 1:2017)

This amendment A1 modifies the European Standard EN ISO 11114-1:2012; it was approved by CEN on 14 November 2016.

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

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

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Ref. No. EN ISO 11114-1:2012/A1:2017 E

EN ISO 11114-1:2012/A1:2017 (E)

Contents	Page
European foreword	

European foreword

This document (EN ISO 11114-1:2012/A1:2017) 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 Amendment to the European Standard EN ISO 11114-1:2012 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2017, and conflicting national standards shall be withdrawn at the latest by August 2017.

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 has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

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Endorsement notice

The text of ISO 11114-1:2012/Amd 1:2017 has been approved by CEN as EN ISO 11114-1:2012/A1:2017 without any modification.

EUROPEAN STANDARD

EN ISO 11114-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2012

ICS 23.020.30

Supersedes EN ISO 11114-1:1997

English Version

Gas cylinders - Compatibility of cylinder and valve materials with gas contents - Part 1: Metallic materials (ISO 11114-1:2012)

Bouteilles à gaz - Compatibilité des matériaux des bouteilles et des robinets avec les contenus gazeux - Partie 1: Matériaux métalliques (ISO 11114-1:2012) Gasflaschen - Verträglichkeit von Werkstoffen für Gasflaschen und Ventile mit den in Berührung kommenden Gasen - Teil 1: Metallische Werkstoffe (ISO 11114-1:2012)

This European Standard was approved by CEN on 18 February 2012.

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EN ISO 11114-1:2012 (E)

Contents	Page
Foreword	

Foreword

This document (EN ISO 11114-1:2012) 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 September 2012, and conflicting national standards shall be withdrawn at the latest by September 2012.

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This document supersedes EN ISO 11114-1:1997.

This European Standard has been submitted for reference into the RID and/or the technical annexes of the ADR.

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INTERNATIONAL STANDARD

ISO 11114-1

Second edition 2012-03-15

Gas cylinders — Compatibility of cylinder and valve materials with gas contents —

Part 1: Metallic materials

Bouteilles à gaz — Compatibilité des matériaux des bouteilles et des robinets avec les contenus gazeux —

Partie 1: Matériaux métalliques



Reference number ISO 11114-1:2012(E)



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Contents

Page

Forev	vord	iv
Intro	duction	v
1	Scope	1
2	Normative references	1
3	Terms and definitions	2
4 4.1 4.2 4.3	Materials General Cylinder materials Valve materials	2 2 3 3
5 5.1 5.2 5.3 5.4 5.5 5.6	Compatibility criteria General Corrosion Hydrogen embrittlement phenomenon Generation of dangerous products Violent reactions (e.g. ignition) Stress corrosion cracking	3 3 5 5 5
6 6.1 6.2 6.3	Material compatibility Table of compatibility for single gases (see Table 1) Compatibility for gas mixtures Using Table 1	5 5 6
Anne	x A (informative) Gas/materials NQSAB compatibility code	33
Biblic	ography	47

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.

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ISO 11114-1 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 23, *Transportable gas cylinders*, in collaboration with ISO Technical Committee ISO/TC 58, *Gas cylinders*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 11114-1:1997), which has been technically revised. The main changes resulting from the revision of this part of ISO 11114 are

- the term "not recommended" has been replaced by "not acceptable",
- the text has been clarified,
- a requirement for gas mixtures has been introduced.

ISO 11114 consists of the following parts, under the general title *Gas cylinders* — *Compatibility of cylinder and valve materials with gas contents*:

- Part 1: Metallic materials
- Part 2: Non-metallic materials
- Part 3: Autogenous ignition test for non-metallic materials in oxygen atmosphere
- Part 4: Test methods for selecting metallic materials resistant to hydrogen embrittlement

Introduction

Industrial, medical and special gases (e.g. high-purity gases, calibration gases) can be transported or stored in gas cylinders. An essential requirement of the material from which such gas cylinders and their valves are manufactured is compatibility with the gas content.

Compatibility of cylinder materials with gas content has been established over many years by practical application and experience. Existing national and international regulations and standards do not fully cover this aspect.

This part of ISO 11114 is based on current international experience and knowledge.

Where there is any conflict between this International Standard and any applicable regulation, the regulation always takes precedence.

This part of ISO 11114 has been written to be in conformity with the UN Recommendations on the Transport of Dangerous Goods: Model Regulations. When published it will be submitted to the UN Sub Committee of Experts on the Transport of Dangerous Goods with a request that it be included in the Model Regulations.

Gas cylinders — Compatibility of cylinder and valve materials with gas contents —

Part 1: Metallic materials

1 Scope

This part of ISO 11114 provides requirements for the selection of safe combinations of metallic cylinder and valve materials and cylinder gas content.

The compatibility data given is related to single gases and to gas mixtures.

Seamless metallic, welded metallic and composite gas cylinders and their valves, used to contain compressed, liquefied and dissolved gases, are considered.

NOTE In this part of ISO 11114 the term "cylinder" refers to transportable pressure receptacles, which also include tubes and pressure drums.

Aspects such as the quality of delivered gas product are not considered.

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 9809-1, Gas cylinders — Refillable seamless steel gas cylinders — Design, construction and testing — Part 1: Quenched and tempered steel cylinders with tensile strength less than 1 100 MPa

ISO 10156, Gases and gas mixtures — Determination of fire potential and oxidizing ability for the selection of cylinder valve outlets

ISO 10297, Transportable gas cylinders — Cylinder valves — Specification and type testing

ISO 11114-2, Gas cylinders — Compatibility of cylinder and valve materials with gas contents — Part 2: Nonmetallic materials

ISO 11114-3, Gas cylinders — Compatibility of cylinder and valve materials with gas contents — Part 3: Autogenous ignition test for non-metallic materials in oxygen atmosphere

ISO 11120, Gas cylinders — Refillable seamless steel tubes for compressed gas transport of water capacity between 150 I and 3 000 I — Design, construction and testing



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