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Gas cylinders — Vocabulary

Bouteilles à gaz — Vocabulaire

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Foreword

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

This sixth edition cancels and replaces the fifth edition (ISO 10286:2021), which has been technically revised.

The main changes are as follows:

— introduction of several new terms and definitions throughout Clause 3;

— correction of definitions throughout Clause 3;

— removal of some terms and definitions in Clause 3;

— addition to Annex B of both the terms introduced in Clause 3 and of additional terms where no definition were given but the correct translation into French and German are given.

In addition to text written in the official ISO languages (English, French), this document gives text in German. This text is published under the responsibility of the Member Body for Germany (DIN) and is given for information only. Only the text given in the official languages can be considered as ISO text.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The terms and definitions in this document are given in the following layout:

preferred term(s)	in bold typeface
admitted term(s)	or synonyms, in normal typeface
DEPRECATED: deprecated term	deprecated term(s), in normal typeface, with the designation "DEPRECATED":
definition	the definition, where available, in normal typeface
Note 1 to entry:	notes to entry, cross-references and examples.
Figures/non-verbal representations	

The terms in this document are sorted in systematic order as far as possible. Further guidance on terminological presentation can be found in ISO 10241-1.

The definitions support the understanding of the terms used in this document. They have been prepared with due regard to possible uses in different fields related to gas cylinders. However, it is possible that they will require adaption for particular uses.

Within this document, the term "ADR" is for simplification used as to also include similar regulations such as RID and ADN, where appropriate.

Table 1 shows a hierarchical overview of pressure receptacles according to the UN Model Regulations.

Annex A shows the different pressures for pressure receptacles in relation to each other.

Annex B shows a table giving both the terms of clause 3 as well as terms for additional terminology including the translation to the other two languages of this three-language document.

Annex C shows figures related to the additional terminology given in Annex B.

Terms given in square brackets are not within the scope of this document. They are shown for information only.

Unless noted by exception, the use of the word "cylinder" in this document refers to cylinders as well as tubes and pressure drums.

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

Table 1 — Overview of terms for pressure receptacles and related containers which are not defined as pressure receptacles

Battery-vehicle[d]	Small receptacle containing gas (gas cartridge) and aerosol dispenser	MEGC (multiple-element gas container)	pressure receptacle							[Tank[a]]
			Cylinder	Tube	Pressure drum	Bundle of cylinders	Salvage pressure receptacle	[Closed cryogenic receptacle[b]]	[Metal-hydride storage system[c]]	

[a] In scope of CEN/TC 296 and CEN/TC 286.

[b] In scope of ISO/TC 220.

[c] In scope of ISO/TC 197.

[d] This designation is used in the ADR.

NOTE Within this document, for simplification, the use of the term “ADR” also includes similar regulations such as RID and ADN, where appropriate.

Gas cylinders — Vocabulary

1 Scope

This document defines terms for the manufacture and use of gas cylinders and other pressure receptacles and their fittings.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

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

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

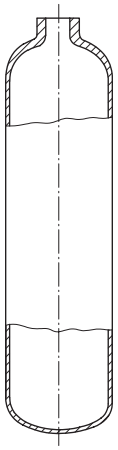
3.1 Terms related to pressure receptacles

3.1.1 All pressure receptacles

3.1.1.1
pressure receptacle
DEPRECATED: receptacle
transportable receptacle intended for holding substances under pressure including its closure(s) and other service equipment

Note 1 to entry: It is a collective term that includes cylinders, tubes, pressure drums, closed cryogenic receptacles, metal-hydride storage system, bundle of cylinders and salvage pressure receptacles.

EXAMPLE Seamless gas cylinder:



3.1.1.2
cylinder
gas cylinder
transportable pressure receptacle of a water capacity not exceeding 150 l with a test pressure volume product not exceeding 1,5 million bar[1)] litres

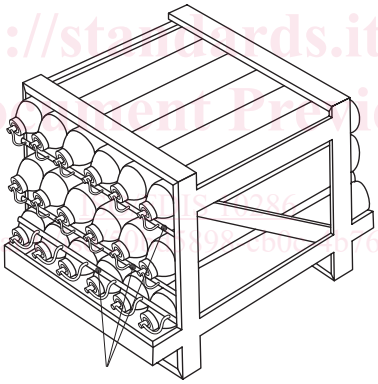
Note 1 to entry: In ISO/TC 58 standards, the term “gas cylinder” is frequently used for clarification.

3.1.1.3
tube
pressure receptacle of seamless or composite construction having a water capacity exceeding 150 l but not more than 3 000 l with a test pressure volume product not exceeding 1,5 million bar[2)] litres

3.1.1.4
pressure drum
welded pressure receptacle of a water capacity exceeding 150 l and of not more than 1 000 l

3.1.1.5
bundle of cylinders
DEPRECATED: cylinder bundle, cylinder pack
pressure receptacle comprising an assembly of cylinders or cylinder shells that are fastened together and which are interconnected by a manifold and transported as a unit, having a product of test pressure and total water capacity not exceeding 1,5 million bar^2 litres except that bundles intended for the transport of toxic gases are limited to 1 000 l total water capacity

EXAMPLE



Note 1 to entry: In ISO/TC 58 standards, the term “bundle” is frequently used for simplification.

3.1.1.6
salvage pressure receptacle
pressure receptacle having a total test pressure volume product not exceeding 1,5 million bar^2 litres into which are placed damaged, defective, leaking or non-conforming pressure receptacle(s) for the purpose of transport, e.g. for recovery or disposal

3.1.1.7
pressure receptacle shell
cylinder, tube, pressure drum or salvage pressure receptacle without its closures or other service equipment, but including any permanently attached device(s) (e.g. neck ring, foot ring etc.)

[SOURCE: UN Model Regulations]

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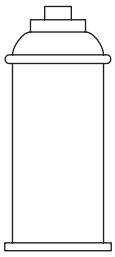
1) 1 bar = 0,1 MPa = 105 Pa; 1 MPa = 1 N/mm2.

2) 1 bar = 0,1 MPa = 105 Pa; 1 MPa = 1 N/mm2.

3.1.1.8
small receptacle containing gas
gas cartridge
non-refillable receptacle having a water capacity not exceeding 1 000 ml for receptacles made of metal and not exceeding 500 ml for receptacles made of synthetic material or glass, containing under pressure a gas or mixture of gases

3.1.1.9
aerosol
aerosol dispenser
non-refillable receptacle made of metal, glass or plastics and containing a gas, compressed, liquefied or dissolved under pressure, with or without a liquid, paste or powder and fitted with a release device allowing the contents to be ejected

EXAMPLE



Note 1 to entry: This note applies to the German language only.

3.1.1.10
metal hydride storage system
single complete hydrogen storage system, including a pressure receptacle shell, metal hydride, pressure relief device, shut-off valve, service equipment and internal components used for the transport of hydrogen only

Note 1 to entry: Metal hydride storage systems are covered by ISO/TC 197.

Note 2 to entry: See also Table 1.

[SOURCE: UN Model Regulations.]

3.1.1.11
closed cryogenic receptacle
transportable thermally insulated receptacle for refrigerated liquefied gases, of a water capacity of not more than 1 000 l

Note 1 to entry: Closed cryogenic receptacles are covered by ISO/TC 220.

Note 2 to entry: See also Table 1.

[SOURCE: UN Model Regulations]

3.1.1.12
MEGC
multiple-element gas container
multimodal assembly of cylinders, tubes or bundles of cylinders which are interconnected by a manifold and assembled within a framework, including service equipment and structural equipment necessary for the transport of gases

Note 1 to entry: ADR uses a different definition.

[SOURCE: UN Model Regulations]

3.1.1.13
battery-vehicle
vehicle containing elements which are linked to each other by a manifold and permanently fixed to a transport unit

Note 1 to entry: The following elements are considered to be elements of a battery-vehicle: cylinders, tubes, bundles of cylinders and pressure drums, as well as certain tanks destined for the carriage of gases with a capacity of more than 450 l.

Note 2 to entry: This term is used in the ADR only.

3.1.1.14
tank
portable tank, including a tank container, a road tank-vehicle, a rail tank-wagon or a receptacle to contain solids, liquids or gases, having a capacity of not less than 450 l when used for the transport of gases

Note 1 to entry: ADR uses a different definition.

[SOURCE: UN Model Regulations]

3.1.1.15
portable
capable of being carried by hand

Note 1 to entry: When used in connection with tanks, this means “transportable”.

3.1.1.16
user
entity (or individual) that operates and/or uses equipment

3.1.1.17
minimum design wall thickness
thickness of the metallic cylinder wall calculated from the design standard, taking into account the material properties and dimensions at time of manufacture

3.1.1.18
external coating
layer of material applied to the cylinder as a protective coating not intended to be removed or for cosmetic purposes

EXAMPLE Gel coat and paint.

Note 1 to entry: Not all composite cylinders will have an external coating.

3.1.1.19
precautionary label
label giving information on the recommended measures to minimize or prevent adverse effects resulting from exposure to content, which includes identification of content (UN Number, Proper Shipping Name), hazards of the content and precautions to be observed in the storage and use of the pressure receptacle and its contents

EXAMPLE

Note 1 to entry: See ISO 7225 for additional examples.

3.1.2 All gas cylinders

3.1.2.1
type 1
category of pressure receptacles that includes all metal pressure receptacles

3.1.2.2
composite cylinder
cylinder reinforced by continuous filaments held in a matrix

Note 1 to entry: Cylinders of type 2, type 3, type 4 and type 5 are composite cylinders.

3.1.2.3
type 2
category of pressure receptacles that refers to hoop wrapped pressure receptacle with a load-sharing metal liner and composite reinforcement on the cylindrical portion only

3.1.2.4
type 3
category of pressure receptacles that refers to fully wrapped pressure receptacle with a load sharing metal liner and composite reinforcement on both the cylindrical portion and the dome ends

3.1.2.5
type 4
category of pressure receptacles that refers to fully wrapped pressure receptacle with a non-load sharing liner and composite reinforcement on both the cylindrical portion and the dome ends

3.1.2.6
type 5
category of pressure receptacles that refers to composite pressure receptacle without a liner

3.1.2.7
acetylene cylinder
cylinder manufactured and suitable for the transport of acetylene, containing a porous material and solvent (where applicable) for acetylene with a valve and other accessories affixed to the cylinder

3.1.2.8
cylinder end
part of the cylinder either closing the cylindrical section or enabling the installation of a closure, e.g. valve

EXAMPLE Cylinder base, cylinder shoulder.

3.1.2.9
cylinder neck thread
axial hole with a tapered or parallel thread formed on the internal surface of a cylinder neck

Note 1 to entry: For parallel threads, this includes a thread formed on the internal surface including a sealing recess for the “O” ring and thread relief.

3.1.2.10
non-refillable cylinder
cylinder including a non-refillable sealing device that permits the cylinder to be filled only once

3.1.2.11
sleeve
transparent or non-transparent cover fitted to the outside surface of the cylinder

3.1.2.12
non-refillable sealing device
device permanently attached to the cylinder which, once activated, prevents the cylinder from being refilled

3.1.3 Composite gas cylinders

3.1.3.1
overwrap
reinforcement system of filament and matrix applied over the liner

3.1.3.2
matrix
material used to bind and hold the fibres in place

3.1.3.3
resin
polymer used for composite cylinders as a matrix or coating

3.1.3.4
liner
inner portion of a composite cylinder, comprising a metallic or non-metallic vessel, whose purpose is both to contain the gas and transmit the gas pressure to the overwrap

3.1.3.5
load-sharing liner
load-bearing liner
liner which has a burst pressure greater than or equal to 5 % of the nominal burst pressure of the finished composite cylinder

3.1.3.6
non load-sharing liner
non load-bearing liner
liner having a burst pressure less than 5 % of the nominal burst pressure of the finished composite cylinder

3.1.3.7
fibre
strand
roving
material provided as a filament or a bundle of filaments

3.1.3.8
translucent cylinder
cylinder that permits the passage of light

3.1.3.9
permanent protective attachment
integral part of the cylinder design permanently affixed to composite cylinders (type 2 to 5) covering part of or the entire surface of the cylinder, providing additional functions during handling, transport and use

3.1.4 Acetylene cylinders

3.1.4.1
porous material
single- or multiple-component material introduced to, or formed in, the cylinder shell, that, due to its porosity, allows the absorption of a solvent/acetylene solution

Note 1 to entry: The porous material can be either:

— monolithic, consisting of a solid product obtained by reacting materials or by materials connected together with a binder; or

— non-monolithic, consisting of granular, fibrous or similar materials without the addition of a binder.

3.1.4.2
top clearance
<acetylene cylinder> gap between the inside of the cylinder shoulder and the monolithic porous material

3.1.4.3
solvent
liquid absorbed by the porous material and is capable of dissolving and releasing acetylene

3.1.4.4
specified solvent content
weight of solvent that the acetylene cylinder nominally contains and that is established during prototype testing

3.1.4.5
maximum acetylene content
<single acetylene cylinder> specified maximum weight of acetylene including saturation acetylene in an acetylene cylinder

Note 1 to entry: Acetylene content can be calculated by subtracting tare A from the weight after filling.

3.1.4.6
maximum acetylene content
<acetylene cylinder bundle> specified maximum weight of acetylene including saturation acetylene in the bundle of cylinders

Note 1 to entry: Acetylene content can be calculated by subtracting tare A from the weight after filling.

3.1.4.7
maximum acetylene charge
maximum acetylene load
specified maximum quantity of acetylene minus the saturation acetylene

Note 1 to entry: The maximum acetylene charge is considered to be the maximum quantity of acetylene available for the end user.

Note 2 to entry: Acetylene charge can be calculated by subtracting tare S from the weight after filling.

3.1.4.8
residual gas
residual acetylene
<acetylene> weight of acetylene including the saturation acetylene contained in an acetylene cylinder returned for filling

3.1.4.9
saturation acetylene
saturation gas
acetylene that remains dissolved in the solvent in the acetylene cylinder at atmospheric pressure (1,013 bar[3)]) and at a temperature of 15 °C

3.1.4.10
tare A
sum of weights of the empty cylinder shell, the porous material, the specified solvent content, the valve, the coating and the valve guard, where applicable, and all other parts that are permanently attached to the acetylene cylinder when it is presented to be filled

3.1.4.11
tare S
tare A plus the weight of the saturation acetylene

3.1.4.12
tare F
tare A minus the specified solvent content

3) 1 bar = 0,1 MPa = 105 Pa; 1 MPa = 1 N/mm2.

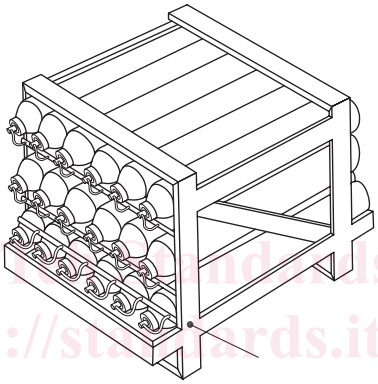
3.1.4.13
acetylene decomposition blocker
safety device that stops acetylene decomposition at a pressure of ≤25 bar[3]

Note 1 to entry: The decomposition blocker for high-pressure acetylene can optionally comprise other safety elements such as non-return valves or automatic quick-acting shut-off devices (see ISO 15615).

3.1.5 Bundles of cylinders, battery-vehicles and MEGC

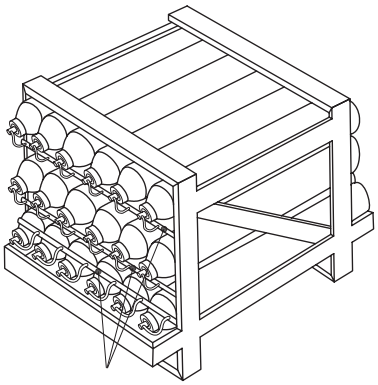
3.1.5.1
frame
structural and non-structural members of either a bundle, a MEGC or equivalent assembly which combine all other components together, while providing protection for the assembly's cylinders, valves and manifold, and which enable the assembly to be transported

EXAMPLE



3.1.5.2
manifold
piping system for connecting pressure receptacle(s) valves or cylinder fittings to the main valve(s) or the main connection(s)

EXAMPLE



3.1.5.3
main connection
means of making a gas connection to a bundle/battery-vehicle/MEGC