SLOVENSKI STANDARD
kSIST-TP FprCEN/TR 14473:2018

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Premične plinske jeklenke - Porozni materiali za jeklenke za acetilen

Transportable gas cylinders - Porous materials for acetylene cylinders

Ortsbewegliche Gasflaschen - Poröse Materialien für Acetylenflaschen

Bouteilles à gaz transportables - Matériaux poreux pour bouteilles d'acétylène

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English Version

Transportable gas cylinders - Porous materials for acetylene cylinders

Bouteilles à gaz transportables - Matières poreuses pour bouteilles à acétylène

Ortsbewegliche Gasflaschen - Poröse Materialien für Acetylenflaschen

This draft Technical Report is submitted to CEN members for Vote. It has been drawn up by the Technical Committee CEN/TC 23.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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European foreword

This document (FprCEN/TR 14473:2018) has been prepared by Technical Committee CEN/TC 23 “Transportable gas cylinders”, the secretariat of which is held by BSI.

This document is currently submitted to the Vote on TR.

This document will supersede CEN/TR 14473:2014.

This third edition supersedes the second edition (CEN/TR 14473:2014) with the following main technical revisions:

a) data of further porous materials was added to the Technical Report;

b) data for porous materials for acetylene cylinders with TPED evaluation of conformity at time of manufacture (new sub-clause 6.1) was added;

c) data for porous materials for acetylene cylinders reassessed in accordance with TPED (new sub-clause 6.2) was added;

d) the Technical Report was aligned with the current principles and rules for the structure and drafting of CEN and CENELEC documents.

For amendments or changes to this report, an application will be made to the CEN/TC 23 Secretariat with a copy of the documentation based on which the acetylene cylinders are placed on the market (type approval by the competent authority or conformity assessment in accordance with Directive 2010/35/EU (TPED)).

Introduction

This report contains data and information about monolithic porous materials for acetylene cylinders.

This report does not contain information about non-monolithic porous materials.

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

In this European Technical Report 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 European Technical Report are given as gauge pressure (pressure exceeding atmospheric pressure) unless noted otherwise.

1 Scope

This Technical Report contains information about monolithic porous materials used in individual acetylene cylinders and in acetylene cylinder bundles. It does not claim to be exhaustive.

NOTE Where there is any conflict between this European Technical Report and any applicable regulation, the regulation always takes precedence.

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.

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

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

4 Source and nature of the data about the listed porous materials

The data contained in the tables in Clauses 6, 7 and 8 are derived from the documentation based on which the acetylene cylinders were placed or still are on the market (type approval by the competent authority or conformity assessment in accordance with TPED) and according to which they are operated. In some cases a type approval or a TPED-certificate might no longer be valid but the cylinders that are already on the market still may be used. For this purpose, information on old porous materials is provided.

NOTE 1 The documentation provided was examined carefully before including the according information into this Report. Nevertheless, there might be discrepancies to the actual approval, e.g. because more recent amendments exist which were not made available at the time of preparing this Report. In some cases not all information was available in the documents provided and consequently the according information is missing (for example the maximum top clearance or the working pressure).

Acetylene cylinders that were reassessed in accordance with TPED may be filled with the filling values conforming to the reassessment certificate throughout the EU. It should be noted that these values might deviate from those of prior national approvals which still apply to those cylinders that were not reassessed according to TPED.

Where no official documentation could be made available to CEN/TC 23/WG 31, no information is included in this technical report, meaning that the information is not exhaustive. This is of especial note in the case of reassessed acetylene cylinders, since every user can ask for a specific reassessment.

Clause 6 contains information on porous materials for acetylene cylinders approved or reassessed to TPED. It also contains information on filling conditions for acetylene cylinder bundles in accordance with EN ISO 13088. The same filling ratio applies for the whole EU.

Clause 7 contains information on porous materials used in individual acetylene cylinders that were type approved based on national regulations and/or standards.

Clause 8 contains information on porous materials used in acetylene cylinder bundles that were approved based on national regulations and/or standards.

If several years are indicated for the approval or certification they refer to according amendments in addition.

NOTE 2 The initial agreements of the French porous materials have been delivered on the basis of a data pair "porous material/cylinder manufacturer". Therefore, the name of the cylinder manufacturer has been detailed: Chevalier Bertrand (CB), Schneider Industrie (SI), Pecquet Tesson (PTC), Société Métallurgique de Gerzat (SMG) and Siebel (S).

NOTE 3 Every user (owner) of a cylinder can decide on its own commercial acetylene load, provided that this load is less or equal to the maximum load given in the agreement.

5 Country codes

In this Technical Report countries are identified in accordance with their distinguishing signs for motor vehicles according to the Vienna Convention on Road Traffic which is also the basis for marking of cylinders according to the ADR (see Annex A to the ADR, 6.2.2.7) as follows:

A	Austria	F	France	L	Luxembourg
B	Belgium	FIN	Finland	N	Norway
BG	Bulgaria	GB	United Kingdom	NL	Netherlands
CH	Switzerland	GR	Greece	P	Portugal
CZ	Czech Republic	H	Hungary	PL	Poland
D	Germany	HR	Croatia	RO	Romania
DK	Denmark	I	Italy	S	Sweden
E	Spain	IRL	Ireland	SK	Slovakia
				SLO	Slovenia

6 Data for porous materials for acetylene cylinders approved to TPED

6.1 Data for porous materials for acetylene cylinders with TPED evaluation of conformity at time of manufacture

Sub-clause 6.1 contains information on porous materials for pi-marked acetylene cylinders which were placed or still are on the market. Such porous materials are type tested in most cases according to EN ISO 3807, EN 1800 or ISO 3807-1. It also contains information on filling conditions for acetylene cylinder bundles in accordance with EN 12755 or EN ISO 13088.

NOTE 1 according to ADR:2015 EN 1800 was used for type approvals until December 2016. ISO 3807-1 is used for the type approval of UN-Cylinders and EN ISO 3807 is used for non-UN-Cylinders.

NOTE 2 EN 1800 and ISO 3807-1 were superseded by EN ISO 3807 in 2013. Nevertheless type approvals for the monolithic materials were conducted according to these standards.

NOTE 3 EN 12755 was superseded by EN ISO 13088 in 2012. Nevertheless type approvals for the monolithic materials were conducted according to these standards.

The following tables are ordered alphabetically according to the name of the porous material.

Column 1 gives the cylinder water capacities, in l, to which the filling conditions (solvent content, acetylene content, working pressure) as given in the subsequent columns are applicable.

Column 2 lists the specified solvent content, in kg/l, that the acetylene cylinder shall contain per litre water capacity in accordance with the type tests according to EN ISO 3807, EN 1800 or ISO 3807-1.

Column 3 lists the maximum acetylene content (including saturation acetylene), in kg/l, that the acetylene cylinder shall contain per litre water capacity in accordance with the type tests according to EN ISO 3807, EN 1800 or ISO 3807-1. Filling tolerances, especially depending on the scale, have to be taken into account to avoid overfilling.

Column 4 lists the working pressure (always given as gauge pressure [bar]) of the acetylene cylinder as calculated in accordance with EN ISO 3807, EN 1800 or ISO 3807-1. For bundles it gives the maximum no. of consecutive fillings before the bundle has to be dismantled and solvent has to be replenished in the individual cylinders.

Identification	**A-10W ECO**
Manufacturer	**Worthington Cylinders GmbH** **Beim Flaschenwerk 1, 3291 Kienberg bei Gaming, Austria**
Year and no. of type approval or EU-Certificate	**2005, 2006** **BAM-05-M01**
Time of manufacture	**2006 to 2013**
Type of porous material	**Monolithic, asbestos-free**
Density in kg/l	**0,270 ± 0,015**
Porosity in %	**90,5 ± 1,5**
Maximum top clearance in mm	**2**
Solvent	**Acetone**

Individual cylinders with acetone

Cylinder water capacity l	**Solvent content** kg/l	**Acetylene content** kg/l	**Working pressure** bar
< 20	0,310	0,180	18
20 to 60	0,310	0,200	19

Individual cylinders without solvent

Cylinder water capacity l	**Solvent content** kg/l	**Acetylene content** kg/l	**Working pressure** bar
≤ 60	—	0,020	19

Bundle cylinders based on EN 12755 or EN ISO 13088

Cylinder water capacity l	**Solvent content** kg/l	**Acetylene content** kg/l	**Maximum no. of consecutive fillings**
20 to 60	0,289 to 0,331	0,180	6

Identification	**A-10W ECO DMF**
Manufacturer	**Worthington Cylinders GmbH** **Beim Flaschenwerk 1, 3291 Kienberg bei Gaming, Austria**
Year and no. of type approval or EU-Certificate	**2005, 2006, 2009** **BAM-05-M02**
Time of manufacture	**2006 to 2013**
Type of porous material	**Monolithic, asbestos-free**
Density in kg/l	**0,270 ± 0,015**
Porosity in %	**90,5 ± 1,5**
Maximum top clearance in mm	**2**
Solvent	**DMF**

Individual cylinders with DMF

Cylinder water capacity l	**Solvent content** kg/l	**Acetylene content** kg/l	**Working pressure** bar
40 to 60	0,400	0,209	18

Bundle cylinders based on EN 12755 or EN ISO 13088

Cylinder water capacity l	**Solvent content** kg/l	**Acetylene content** kg/l	**Maximum no. of consecutive fillings**
40 to 60	0,385 to 0,410	0,189	100

Identification	**NORAL 2**
Manufacturer	**AIR LIQUIDE – ALFI IM – ZI Chemin de la Plaine F-89500 Villeneuve sur Yonne – France**
Year and no. of type approval or EU-Certificate[a]	**— 3,35 l to 50 l (SI and PTC)**[b] **acetone: French agreement "Arrêté of 22/04/2003 to May 2003"; — From June 2003 to May 2013: — ASAP 03/B/0034 (for a water capacity of 3,35 l); — ASAP 03/B/0036 (for a water capacity of 5,8 l to 50 l) — June 2013: APAVE — 5,8 l to 50 l acetone n°P00220130614182020; — September 2013: APAVE — 3,35 l acetone n°P00220130918121314**
Time of manufacture	**Since 2003**
Type of porous material	**Monolithic, asbestos-free**
Density in kg/l	**0,29 ± 5 %**
Porosity in %	**90,5 ± 2,5**
Maximum top clearance in mm	**1 (for a water capacity of < 20 l); 2 (for a water capacity of > 20 l and < 40 l); 2 (for a water capacity of > 40 l)**
Solvent	**Acetone**

Individual cylinders with acetone

Cylinder water capacity l	**Solvent content** kg/l	**Acetylene content** kg/l	**Working pressure** bar
3,35 5,8 l to 50	0,310 0,292	0,171 0,188	18 18

Bundle cylinders based on EN 12755 or EN ISO 13088

Cylinder water capacity l	**Solvent content** kg/l	**Acetylene content** kg/l	**Maximum no. of consecutive fillings**
41,5 to 50	0,273 to 0,311	0,188	18

[a] Certificates could not be checked, but over the years the use has been proven to be safe. In this situation refer to the data (mainly TARE A/S) marked on the shoulder.

[b] The initial agreements of the French porous materials have been delivered on the basis of a data pair "porous material/cylinder manufacturer". Therefore, the name of the cylinder manufacturer has been detailed: Schneider Industrie (SI), Pecquet Tesson (PTC).

Identification	**SIAD AF**
Manufacturer	**Societa Acetilene e Derivati, Site Sabbio, Bergamo, Italy**
Year and no. of type approval or EU-Certificate	**2003, BAM-TPED-2003/019; 2013/2014, 01 202 322/B-130015-T**
Time of manufacture	
Type of porous material	**Monolithic, asbestos-free**
Density in kg/l	**0,260 to 0,280**
Porosity in %	**89 to 92**
Maximum top clearance in mm	
Solvent	**Acetone**

Individual cylinders with acetone

Cylinder water capacity l	**Solvent content** kg/l	**Acetylene content** kg/l	**Working pressure** bar
<20	0,310	0,180	18
20 to 50	0,310	0,200	19

Bundle cylinders based on EN 12755 or EN ISO 13088

Cylinder water capacity l	**Solvent content** kg/l	**Acetylene content** kg/l	**Maximum no. of consecutive fillings**
≤ 50	0,289 to 0,331	0,180	6

Identification	**SIAD AF DMF**		
Manufacturer	**Societa Acetilene e Derivati, Site Sabbio, Bergamo, Italy**		
Year and no. of type approval or EU-Certificate	**2013/2014, 01 202 322/B-130014-T**		
Time of manufacture			
Type of porous material	**Monolithic, asbestos-free**		
Density in kg/l	**0,260 to 0,280**		
Porosity in %	**89 to 92**		
Maximum top clearance in mm			
Solvent	**DMF**		
Individual cylinders with acetone			
Cylinder water capacity l	**Solvent content** kg/l	**Acetylene content** kg/l	**Working pressure** bar
<20 20 to 50	0,400 0,400	0,180 0,2175	16 19
Bundle cylinders based on EN 12755 or EN ISO 13088			
Cylinder water capacity l	**Solvent content** kg/l	**Acetylene content** kg/l	**Maximum no. of consecutive fillings**
	0,385 to 0,412	0,19575	100