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EUROPEAN STANDARD

EN 1801

NORME EUROPÉENNE

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Descriptors: gas cylinders, acetylene, filling, operating requirements, porosity, determination of content, solvents, verification, marking

English version

Transportable gas cylinders - Filling conditions for single acetylene cylinders

Bouteilles à gaz transportables - Conditions de remplissage pour les bouteilles d'acétylène individuelles

Ortsbewegliche Gasflaschen - Abfüllbedingungen für einzelne Acetylen-Gasflaschen

This European Standard was approved by CEN on 16 October 1998.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

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ACHTEN! V ANTIKORNE
 SIEBE SIND VERBODEN OP
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Foreword

This European Standard has been prepared by 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of an identical text or by endorsement, at the latest by June 1999, and conflicting national standards shall be withdrawn at the latest by June 1999.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies the requirements for filling individual acetylene cylinders with different porous masses and different solvents including individual cylinders without solvent.

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2 Normative references

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This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 1800 : 1998 Transportable gas cylinders - Acetylene cylinders - Basic requirements and definitions.

3 Definitions

For the purpose of this European Standard the following definitions apply:

3.1 acetylene cylinder

Cylinder containing a porous mass with or without solvent for the storage of acetylene.
[EN 1800:1998]

3.2 tare weight

3.2.1 For acetylene cylinders with solvent the tare weight is expressed by indicating two weights (in kilogrammes) TARE A and TARE S,

TARE A is the sum of the empty weight of the cylinder shell, the weight of the porous mass, the specified weight of solvent content, the weight of the valve and the weight of all other parts which are permanently attached (e.g. by clamping or nut bolt fixing) to the cylinder when it is going to be filled,

TARE S is TARE A plus the weight of the acetylene required to saturate the solvent at atmospheric pressure at 15 °C. [EN 1800:1998]

3.2.2 For solvent free acetylene cylinders the tare weight is expressed by indicating a TARE F, where TARE F is TARE A minus the weight of solvent. [EN 1800:1998]

3.2.3 If the tare weight as defined in 3.2.1 or 3.2.2 includes permanently attached parts other than the valve (normally the fixed guard), the total weight of these parts is indicated by stampmarking in front of the letters "TARE" (e.g. 2.3 TARE 75.1/75.6 KG). [EN 1800:1998]

3.3 total weight

For cylinders with solvent, total weight is TARE A plus the weight of the maximum acetylene content.

For solvent free cylinders, total weight is TARE F plus the weight of the maximum acetylene content. [EN 1800:1998]

3.4 maximum acetylene content

The specified maximum weight of acetylene in the cylinder (in kilogrammes). When a solvent is used, it includes the weight of saturation gas. [EN 1800:1998]

3.5 porous mass

Single or multi-component material introduced or formed in the cylinder in order to fill it and which due to its porosity allows the absorption of the solvent/acetylene gas solution.

NOTE: The porous mass may 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 addition of a binder.

[EN 1800:1998]

4.3 Documentation

For cylinders examined in 4.2 documentation shall be available to determine:

- the filling conditions for the cylinder;
- the residual gas and hence to obtain the solvent content.

Documentation may be in form of tables, graphics or other suitable means.

4.4 Prefill check

The prefill check of an acetylene cylinder and its valve shall ensure that they are both in a serviceable condition for filling.

5 Determination of solvent content

5.1 Before filling a cylinder the solvent content shall be determined by calculating the residual gas from pressure and temperature and using the appropriate documentation.

NOTE: Acetylene cylinders need time to reach temperature equilibrium. Special care should be taken, if the temperature is very low and the pressure is very high.

Calculation of acetylene in cylinders shall be in accordance with annex B. (Solvent free cylinder see clause 8.)

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5.2 If the weight of the incoming acetylene cylinder, after deduction of the residual gas, is below the appropriate tare weight which is stamped on the cylinder, the loss of solvent shall be replaced.

5.3 If the weight of the incoming cylinder after allowing for residual gas content exceeds the appropriate tare weight, the cylinder shall be examined and the reason for overweight shall be determined before further handling.

6 Simultaneous filling of acetylene cylinders

Acetylene cylinders which are to be filled simultaneously shall have the same solvent or be separated by a protection system to prevent cross contamination with solvents.

Special care shall be taken with cylinders having different porous masses or high amounts of residual gas.

7 Postfill check

After the cylinder has been filled its weight shall be checked to ensure that it does not exceed the total weight (see 3.3).

NOTE: As the solvent content has been verified as correct in clause 5, there is no need for control of the working pressure of each individual cylinder because of the acetylene to solvent ratio established during the type approval.

8 Filling of solvent free acetylene cylinders

8.1 A solvent free cylinder shall not be filled with acetylene, unless it meets the following requirements:

- it is clearly identified with the words "solvent free", stamped with the value of TARE F in kg and the letters "FS";
- it is checked by weight that it was not previously filled with solvent;
- the appropriate requirements of clause 4 are fulfilled;
- the working pressure is identified;
- if it contains no residual acetylene, the cylinder shall be evacuated before filling.

Solvent free acetylene cylinders shall not be filled simultaneously with acetylene cylinders containing a solvent.

8.2 After filling a solvent free acetylene cylinder, a postfill check shall be carried out in accordance with clause 7.

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The settled pressure shall be checked after filling and shall not exceed the working pressure which is stamped on the cylinder.