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SIST EN 12755:2001

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

EN 12755

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English version

## Transportable gas cylinders - Filling conditions for acetylene bundles

Bouteilles à gaz transportables - Conditions de remplissage pour cadres d'acétylène

Ortsbewegliche Gasflaschen - Abfüllbedingungen für Acetylen-Bündel

This European Standard was approved by CEN on 14 November 1999.

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.

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

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IUPAC  
 INTERNATIONAL UNION OF PURE AND APPLIED CHEMISTRY  
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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of an identical text or by endorsement, at the latest by July 2000, and conflicting national standards shall be withdrawn at the latest by July 2000.

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.

This European Standard has been submitted for reference into the RID and/or in the technical annexes of the ADR. Therefore in this context the standards listed in the normative references and covering basic requirements of the RID/ADR not addressed within the present standard are normative only when the standards themselves are referred to in the RID and/or in the technical annexes of the ADR.

The annexes A, B and C of this European standard are normative.

## Introduction

This standard is necessary for harmonization of the different filling conditions in the European countries with regard to safety, the use of approved porous masses and the conditions for the simultaneous filling of acetylene cylinder bundles.

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## 1 Scope

This European Standard specifies the requirements for the filling conditions of acetylene cylinder bundles with different porous masses and different solvents including cylinders without solvent where each cylinder in the bundle has the same mass and solvent.

## 2 Normative references

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  
Transportable gas cylinders - Acetylene cylinders - Basic requirements and definitions

EN 1801  
Transportable gas cylinders - Filling conditions for single acetylene cylinders

## 3 Definitions

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

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### 3.1 acetylene bundle

Transportable unit consisting of 2 cylinders up to usually not more than 16 cylinders permanently manifolded together and contained within a rigid frame equipped with all necessary equipment for filling and use.

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### 3.2 acetylene cylinder

Cylinder containing a porous mass with or without solvent for the storage of acetylene.

### 3.3 cylinder tare weights

**3.3.1** 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]

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

### 3.4 bundle tare weights

3.4.1 For acetylene bundles with solvent the following tare weights are used,

TARE BA<sub>max</sub> is the sum of the TARE A weights of all cylinders manifolded together containing the maximum weight of solvent including the amount of the positive solvent operating range (see B.3.2) plus the weight of the rigid frame and the weight of all equipment.

TARE BS<sub>max</sub> is the sum of the TARE S weights of all cylinders manifolded together containing the maximum weight of solvent including the amount of the positive solvent operating range (see B.3.2) plus the weight of the rigid frame and the weight of all equipment.

TARE BA<sub>min</sub> is the sum of the TARE A weights of all cylinders manifolded together containing the maximum weight of solvent less the amount of the negative solvent operating range (see B.3.2) plus the weight of the rigid frame and the weight of all equipment.

TARE BS<sub>min</sub> is the sum of the TARE S weights of all cylinders manifolded together containing the maximum weight of solvent less the amount of the negative solvent operating range (see B.3.2) plus the weight of the rigid frame and the weight of all equipment.

3.4.2 For solvent free acetylene bundles the following tare weight is used,

TARE BF is the sum of the TARE F weights of all cylinders manifolded together plus the weight of the rigid frame and the weight of all equipment.

### 3.5 maximum gross weight

For acetylene bundles with solvent, the maximum gross weight is TARE BA<sub>max</sub> plus the weight of the maximum acetylene content.

For solvent free acetylene bundles, the maximum gross weight is TARE BF plus the weight of the maximum acetylene content. <https://standards.iteh.ai/catalog/standards/sist/5cba111c-c22a-46a0-8fcb-d266ccad61d9/sist-en-12755-2001>

### 3.6 maximum acetylene content

The specified maximum weight of acetylene in the cylinder bundle.

### 3.7 solvent

Liquid which is absorbed by the porous mass and is capable of dissolving and releasing the acetylene (e. g. acetone, DMF<sup>1)</sup>).

### 3.8 solvent operating range

The specified range of weight of solvent contained in a bundle.

### 3.9 working pressure

The maximum settled pressure in bar (gauge) at a uniform temperature of 15°C in an acetylene bundle containing the maximum acetylene content and the specified mass of solvent content. It is equal to the working pressure which is stamped on the individual cylinder.

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<sup>1)</sup> DMF : Dimethylformamide

### 3.10 maximum filling pressure

Highest pressure which is allowed in an acetylene bundle manifold during filling.

### 3.11 home station of the bundle

The location (contact details for the company) where the documentation is held.

## 4 Basic requirements for filling conditions for acetylene bundles

### 4.1 General

Acetylene cylinders which have been approved in accordance with EN 1800 may be used without further approval in acetylene bundles. They may be filled simultaneously, provided that the conditions specified in 4.2 to 4.5 and annex B are fulfilled.

The bundle manifold and its support structure shall be designed in accordance with a recognized code of practice agreed between the parties (eg see Bibliography).

Each of the cylinders within the bundle shall be fitted with a valve. If there is a main valve on the bundle the cylinder valves shall be left open during storage and shipping. The main valve of the bundle shall be closed.

### 4.2 Tare weight

When acetylene cylinders are used in bundles, each cylinder may have an additional quantity of solvent, which will increase its tare weight. This revised tare weight shall be shown on the cylinder by the addition of a plastic or metal ring or label or other suitable means. This tare weight shall include any changes to the individual tare weight, which might have resulted from the removal or addition of the various fixed components (caps or guards etc.). For this purpose the original cylinder stamp marking shall not be changed. For cylinders with solvent both TARE A and TARE S shall be shown. For solvent free cylinders, TARE F shall be shown.

### 4.3 Filling conditions

The maximum acetylene content for a cylinder in a bundle should be reduced to approximately 90% of the amount approved for the individual cylinder.

The bundle shall only be filled without dismantling if the total residual solvent content of the bundle has been checked in accordance with clause 7. It shall lie within the permitted solvent operating range as shown in figure B.1.

The maximum number of times ( $N$ ) the bundle may be filled before it is dismantled and the cylinders individually checked and replenished with solvent is a function of the acetylene content and solvent operating range and shall be determined in accordance with annex B.

In practice the number of times that a bundle with acetone as solvent may be filled should generally not exceed 6 and shall depend on the operating conditions. The number of fillings may be more or less, but in all cases the permitted solvent operating range shall not be exceeded.

In the case of a bundle with DMF as solvent, the need to dismantle the bundle to replenish the solvent will usually coincide with the periodic inspection of the cylinders for this bundle. The number of fills before the bundle is dismantled shall not exceed 100.

### 4.4 Maximum acetylene content

The maximum acetylene content of the bundle ( $G_{\text{bund}}$ ) as described in annex B is a function of the selected acetylene/ solvent ratio and shall be determined as described in annex B.



#### 4.5 Acetylene/solvent ratio

The procedure for determining the acetylene/solvent ratio shall be as described in annex B. The procedure is based on the approved data for each individual cylinder's acetylene/solvent ratio, as defined in EN 1800.

NOTE: The range of acetylene and solvent content can be increased if further testing (backfire etc.) is carried out. The modifying of the range will require the consent of the appropriate authority according to the results from these additional tests.

### 5 Requirements for assembling and marking of acetylene bundles

**5.1** Acetylene cylinders may be manifolded in a bundle provided they have the same dimensions, the same water capacity, the same porous mass and porous mass type approval, the same solvent and the same working pressure.

**5.2** Before assembling or reassembling the cylinders in a bundle the solvent shall be replenished to the maximum permitted content.

**5.3** The maximum tare weight for each individual cylinder used in a bundle shall be shown on the cylinder (see 4.2).

**5.4** An identification plate shall be permanently fixed to the bundle frame and shall include the data listed below

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a) Bundle filling data: [SIST EN 12755:2001](#)

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- 1) The gas name ("Acetylene, dissolved"), identification number (UN-number 1001) and the chemical formula. In the case of solvent free acetylene bundles see 12.1 b).
- 2) The maximum acetylene content of the bundle in kg.
- 3) The working pressure as stamped on each cylinder.
- 4) The type of solvent or solvent free, as appropriate.
- 5) The last inspection date (year and month) of that cylinder within the bundle which is first due for periodic inspection.
- 6) TARE BA<sub>min</sub>/TARE BS<sub>min</sub> and TARE BA<sub>max</sub>/TARE BS<sub>max</sub> in kg. For acetylene cylinders without solvent, instead of TARE BA and TARE BS, TARE BF.
- 7) Date (year) of the next periodic inspection.

b) Other information

- 1) The type approval number of the bundle, if appropriate.
- 2) The manufacturer of the bundle.
- 3) The name or identification of the owner.
- 4) A unique identification number of the bundle.