



SLOVENSKI STANDARD

SIST EN 14763:2005

01-november-2005

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LPG equipment and accessories - Transportable refillable composite cylinders for Liquefied Petroleum Gas (LPG) - Procedure for checking before, during and after filling

iTeh STANDARD PREVIEW

Flüssiggas-Geräte und Ausrüstungsteile - Ortsveränderliche, wiederbefüllbare Flaschen aus Verbundwerkstoffen für Flüssiggas (LPG) - Kontrollverfahren vor, während und nach dem Füllen

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Équipements pour gaz de pétrole liquéfiés et leurs accessoires - Bouteilles en matériau composite, transportables et rechargeables pour gaz de pétrole liquéfiés - Mode opératoire de vérification avant, pendant et après le remplissage

Ta slovenski standard je istoveten z: EN 14763:2005

ICS:

23.020.30

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Pressure vessels, gas cylinders

SIST EN 14763:2005

en

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EUROPEAN STANDARD

EN 14763

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2005

ICS 23.020.30

English Version

LPG equipment and accessories - Transportable refillable composite cylinders for Liquefied Petroleum Gas (LPG) - Procedure for checking before, during and after filling

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This European Standard was approved by CEN on 22 July 2005.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This European Standard (EN 14763:2005) has been prepared by Technical Committee CEN/TC 286 “Liquefied Petroleum Gas equipment and accessories”, the secretariat of which is held by NSAI.

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 March 2006, and conflicting national standards shall be withdrawn at the latest by March 2006.

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

Photographs presented in Annex B are in colour in order to improve pictorial guidance.

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

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Introduction

This European Standard calls for the use of substances and procedures that can be injurious to health if adequate precautions are not taken. It refers only to technical suitability and does not absolve the user from legal obligations relating to health and safety at any stage.

It has been assumed in the drafting of this European Standard that the execution of its provisions is entrusted to appropriately qualified and experienced people. Where judgements are called for it has been assumed that they are made by competent persons who have been trained specifically for the tasks.

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1 Scope

This European Standard specifies the procedures to be adopted when checking transportable refillable composite LPG cylinders before, during and after filling.

This European Standard applies to transportable refillable composite LPG cylinders of water capacity from 0,5 l up to and including 150 l.

This European Standard does not apply to cylinders permanently installed in vehicles, or to plant and filling equipment.

This European Standard is applicable to transportable refillable composite cylinders manufactured in accordance with EN 14427.

NOTE This European Standard may also be used for composite cylinders manufactured in accordance with other equivalent standards.

2 Normative references

The following referenced documents are indispensable for the application of this European Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 13952, *LPG cylinders — Filling procedures*

EN 14427:2004, *Transportable refillable fully wrapped composite cylinders for Liquefied Petroleum Gas — Design and Construction*

prEN 14767, *LPG equipment and accessories — Transportable refillable composite cylinders for Liquefied Petroleum Gas (LPG) — Periodic inspection*

prEN 14894, *LPG Equipment and accessories - Cylinder and drum marking*

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

3.1

LPG (liquefied petroleum gas)

mixture of predominantly butane or propane with traces of other hydrocarbon gases classified in accordance with UN number 1965, hydrocarbon gases mixture, liquefied, NOS or UN number 1075, petroleum gases, liquefied

NOTE In some countries, UN numbers 1011 and 1978 may also be designated LPG.

3.2

competent person

person who, by a combination of training, experience and supervision, is able to make objective judgements on the subject

EN 14763:2005 (E)**3.3****competent body**

person or corporate body defined by the national authority, which by combination of appropriate qualification, training, experience and resources is able to make objective judgements on the subject

3.4**cylinder**

transportable, refillable pressure receptacle with a water capacity from 0,5 l up to and including 150 l

3.5**filling ratio**

ratio of the mass of gas introduced into a cylinder to the mass of water at 15 °C that would fill the same cylinder fitted ready for use

NOTE See Annex A for filling ratio.

3.6**reference temperature**

temperature used for the calculation of the safe filling quantity

NOTE See Annex A for reference temperatures.

3.7**filled to a level**

filled to a fixed level using a fixed liquid level device

3.8**filled by volume**

filled with a fixed volume of LPG

3.9**filled by mass**

filling with LPG using a weighing machine

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3.10**filling plant**

establishment where filling and checking of LPG cylinders take place

3.11**periodic inspection**

activities carried out at defined intervals, such as examining, measuring, testing or gauging the characteristics of a cylinder, comparing these with specified requirements as defined in prEN 14767 and marking to attest conformity

3.12**tare weight**

sum of the mass of the empty cylinder, the mass of the valve including a dip tube where fitted, and the mass of all other parts that are permanently attached to the cylinder when it is being filled, e.g. fixed valve guard

3.13**casing**

permanently attached sleeve covering part of or the whole of the pressure containing envelope usually incorporating a foot ring and a shroud

NOTE Permanently attached means that casing cannot be removed during service without destruction, or by using special tools.

4 Segregation of cylinders prior to filling

4.1 General

Cylinders shall be checked and segregated into the categories specified in 4.2 to 4.4.

A flow diagram of the checks before, during and after filling is given in Annex C.

4.2 Cylinders suitable for filling

The cylinder shall be deemed suitable for filling, when the:

- a) design code/specification is identifiable;
- b) tare indication and water capacity are marked;
- c) allowed quantity and identification of the product (butane, propane or mixtures thereof, the properties of which were considered for the design of the cylinder) are indicated;
- d) cylinder is within the test date as determined from the marked manufacturer or periodic inspection date;
- e) cylinder does not have defects as described in 4.4;
- f) cylinder does not show any physical evidence of misuse; and
- g) cylinder is fitted with a pressure relief valve.

4.3 Cylinders for periodic inspection

A cylinder shall be set aside for periodic inspection in accordance with prEN 14767 when either of the following conditions apply.

- a) The cylinder is out of test date; or
- b) The cylinder cannot be confirmed to be within test date.

4.4 Cylinders requiring further assessment

A cylinder with any of the following defects shall be set aside for further assessment, e.g. re-taring, disposal, etc. (see Clause 5):

- a) The indication of tare weight of a cylinder, filled by mass, is missing or illegible.
- b) A cylinder, is faulty or defective, e.g. damage to the shroud, carrying handles, foot-ring, dents or fire damage;
- c) A cylinder, valve or pressure relief device (if fitted) is damaged or has been previously identified as leaking; and
- d) A cylinder whose required permanent markings are obscured and not easily identified.

EN 14763:2005 (E)**5 Reassessment of cylinders****5.1 General**

Cylinders that have been set aside (see 4.4) shall be examined by a competent person who shall decide whether they are suitable for filling or shall be sent for disposal.

Cylinders that are intended to be filled by mass and where the indication of tare weight is missing or illegible shall be reassessed and have the indication of the tare weight applied in accordance with prEN 14894.

Leaking cylinders and cylinders with damaged or leaking valves shall be safely vented. Leaking or damaged valves shall be repaired or replaced. Cylinders leaking through the body shall be sent for disposal.

Valves can be removed and refitted safely from and to a pressurized LPG cylinder, provided the facility includes dedicated equipment. This equipment shall be operated only by competent personnel working in accordance with a written procedure.

5.2 Establishment of rejection criteria**5.2.1 General**

The owner of the cylinder (or his authorized representative) shall provide the filler with rejection criteria for the physical and material defects and heat damage to the cylinder/casing.

These criteria shall be at least those established by the manufacturer, taking into account the design conditions of the cylinder (e.g. nature of the casing if any, nature and type of the fibre and of the resin system).

The descriptions for defects on cylinders are shown in Table 1.

5.2.2 Procedure

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The rejection criteria for the defects described in Table 1 shall be established in accordance with the following procedure for each design of cylinder as defined in EN 14427.

- For each defect, 4 cylinders with the same defect shall be tested. The size of this defect is recorded. If the defects of the cylinders are different sizes, the size of the smaller defect shall be recorded.
- Two cylinders shall be submitted to the burst test as described in EN 14427 and two cylinders shall be submitted to the pressure cycle test as described in EN 14427.
- If the cylinders pass the tests, the defect is acceptable. The rejection limit can then be defined by the size of that defect.
- When all rejection criteria have been established for a design of cylinder as defined in EN 14427:2004, Table 1 shall be completed by the owner/manufacturer of the cylinder. Annex B shows an example of a completed table.

Table 1 — Rejection criteria

Defect	Description	Rejection limit
Abrasion damage or damage from cuts	Abrasion damage caused by wearing, grinding or rubbing material away by friction. Cuts or gouges caused by contact with sharp objects in such a way as to cut into the composite, reducing its thickness at that point.	See 5.2.2
Delamination and impact damage	Inter-laminar delamination where there is a separation of layers of strands. Intra-laminar delamination where there is a separation between strands within the same layer. Impact damage appearing as hairline cracks in the resin or delamination or cuts of the composite material.	See 5.2.2
Chemical damage	Chemical attack appearing as the dissolution of the resin matrix surrounding the fibres, where the cylinder surface is sticky. If the casing is not drainable, chemical attack might appear inside the casing.	See 5.2.2
Damage of casing	<p style="text-align: center;">SIST EN 14763:2005 https://standards.iteh.ai/catalog/standards/sist/a77b7e960782/sist-en-14763-2005</p>	Minor damage that does not affect the protecting function of the casing is acceptable. If it cannot be established that the cylinder is unaffected, the cylinder shall be put aside for further investigation. Unacceptable damage is, for example, a broken casing. The casing is then to be removed and the cylinder inspected underneath. A damaged cylinder shall be rejected. If the cylinder is not damaged, a new casing can be assembled.
Heat/fire damage of casing or cylinder	Heat or fire damage evident by discolouration, scarring or burning of the composite overwrap, casing, labels and non-metallic components of the valve.	See 5.2.2
Other defects		See 5.2.2, if applicable
NOTE 1 Inter-laminar delamination is a separation of layers of strands, while intra-laminar delamination is separation between strands within the same layer.		
NOTE 2 For cylinders with liners, an area with no adhesion between liner and composite is not to be regarded as delamination.		