



# SLOVENSKI STANDARD SIST EN 12819:2019

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Nadomešča:  
SIST EN 12819:2010

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**Oprema in pribor za utekočinjeni naftni plin (UNP) - Pregledi in periodični preskusi tlačnih posod za UNP s prostornino nad 13 m<sup>3</sup>**

LPG equipment and accessories - Inspection and requalification of LPG pressure vessels greater than 13 m<sup>3</sup>

Flüssiggas-Geräte und Ausrüstungsteile - Inspektion und wiederkehrende Prüfung von Druckbehältern für Flüssiggas (LPG) mit einem Fassungsraum größer als 13 m<sup>3</sup>

Équipements et accessoires GPL - Inspection et requalification des réservoirs GPL d'un volume supérieur à 13 m<sup>3</sup> pour gaz de pétrole liquéfiés (GPL)

**Ta slovenski standard je istoveten z: EN 12819:2019**

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**ICS:**

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EUROPEAN STANDARD

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## LPG equipment and accessories - Inspection and requalification of LPG pressure vessels greater than 13 m<sup>3</sup>

Équipements et accessoires GPL - Inspection et  
requalification des réservoirs de capacité supérieure à  
13 m<sup>3</sup> pour gaz de pétrole liquéfiés (GPL)

Flüssiggas-Geräte und Ausrüstungsteile - Inspektion  
und wiederkehrende Prüfung von Druckbehältern für  
Flüssiggas (LPG) mit einem Fassungsraum größer als  
13 m<sup>3</sup>

This European Standard was approved by CEN on 9 December 2018.

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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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## European foreword

This document (EN 12819:2019) 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 September 2019, and conflicting national standards shall be withdrawn at the latest by September 2019.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 12819:2009.

This document was thereby technically revised.

In using this document, prepared in the field of application of Article 153 of the treaty on the functioning of the European Union, users are aware that standards have no formal legal relationship with Directives that may have been made under Article 153 of the treaty on the functioning of the European Union. In addition, national legislation in the Member states may contain more stringent requirements than the minimum requirements of a Directive based on Article 153. Information on the relationship between the national legislation implementing Directives based on Article 153 and this EN may be given in a national foreword of the national standard implementing this EN.

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

**EN 12819:2019 (E)****Introduction**

Inspection and requalification regimes for pressure vessels greater than 13 m<sup>3</sup> have developed in various countries in different ways that range from defined to variable inspection periods with requalification regimes achieved by various methods. This European Standard for inspection and requalification is based on European countries' legislation and codes of practice and industries' codes of practice. In addition, use of LPG in different applications has encouraged the industry to approach the requirements for inspection and requalification in different ways for each application.

This document 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.

Protection of the environment is a key political issue in Europe and elsewhere, for CEN/TC 286 this is covered in CEN/TS 16765 [1], and this document should be read in conjunction with this standard.

It has been assumed in the drafting of this document that execution of its provisions is entrusted to appropriately qualified and experienced people.

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## 1 Scope

This document specifies requirements for:

- a) routine inspection, periodic inspection and requalification of fixed LPG pressure vessels of sizes greater than 13 m<sup>3</sup>, and associated fittings;
- b) marking pressure vessels and/or keeping records, as appropriate, as a result of routine inspection, periodic inspection and requalification.

This document excludes refrigerated storage.

## 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.

EN 1330-9, *Non-destructive testing - Terminology - Part 9: Terms used in acoustic emission testing*

EN 13477-1, *Non-destructive testing - Acoustic emission - Equipment characterisation - Part 1: Equipment description*

EN 13477-2, *Non-destructive testing - Acoustic emission - Equipment characterisation - Part 2: Verification of operating characteristic*

EN 13554, *Non-destructive testing - Acoustic emission testing - General principles*

EN 14129, *LPG Equipment and accessories - Pressure relief valves for LPG pressure vessels*

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EN 14584, *Non-destructive testing - Acoustic emission testing - Examination of metallic pressure equipment during proof testing - Planar location of AE sources*

EN 16631, *LPG equipment and accessories - Pressure relief valves for LPG pressure vessels - Reconditioning requirements*

## 3 Terms and definitions

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

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>

### 3.1

#### **periodic inspection**

external inspection of the visible parts of a pressure vessel and its fittings at defined intervals

### 3.2

#### **routine inspection**

external inspection of the visible parts of a pressure vessel and its fittings, carried out more frequently than periodic inspections

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**3.3 requalification**  
test carried out at defined intervals, as part of the scheme, to confirm that a pressure vessel is fit for a further period of service

**3.4 inspection body**  
independent inspection and testing body approved by the competent authority

**3.5 competent person**  
person which by combination of appropriate qualification, training, experience, and resources, is able to make objective judgments on the subject

**3.6 competent authority**  
authority or authorities or any other body or bodies designated as such in each State and in each specific case in accordance with domestic law

**3.7 commissioning**  
preparation for safe service

**3.8 decommissioning**  
removing from service and preparing safely for inspection/test

**3.9 Liquefied Petroleum Gas LPG** <https://standards.iteh.ai/catalog/standards/sist/f80cd84c-0d89-4bdf-9d73-8f4218d95abc/sist-en-12819-2019>

low pressure liquefied gas composed of one or more light hydrocarbons which are assigned to UN 1011, UN 1075, UN 1965, UN 1969 or UN 1978 only and which consists mainly of propane, propene, butane, butane isomers, butene with traces of other hydrocarbon gases

**4 Safety****4.1 Safety precautions**

Appropriate safety precautions shall be taken during decommissioning, commissioning and inspection/requalification of a pressure vessel and its fittings.

**4.2 Unsafe conditions**

Any unsafe condition observed by a competent person on the site of an LPG storage pressure vessel shall be reported to the person responsible for safe operation of the pressure vessel /site, as appropriate, and action taken.

**4.3 Leak**

Any leak discovered from the pressure vessel or its fittings shall be reported immediately to the person responsible for safe operation of the pressure vessel.

Action to make the pressure vessel or its fittings safe shall be taken by a competent person.

NOTE Methods for detecting leaks include:

- visual inspection;
- smell;
- listening;
- use of gas detectors;
- leak detection fluid.

## 5 Written scheme

**5.1** Each pressure vessel and its fittings shall be included in a written scheme, prepared by a competent person, containing inspection and testing information, taking into account the requirements of Clauses 6 to 8.

**5.2** If duties are shared between different parties then the written scheme shall clearly identify the respective areas of responsibility.

**5.3** Intervals between inspections shall be parts of the written scheme and shall be determined by consideration of the following:

- the design specification of the pressure vessel and its equipment;
- the corrosion protection system on the pressure vessel,
- the system used to ensure that the LPG quality conforms to its specifications/standards, and that it does not contain components damaging to the material of the pressure vessel or its fittings;
- the maintenance program of the pressure vessel.

NOTE The requirements for the written scheme can also be determined by national regulations.

**5.4** The written scheme shall contain the following information:

- the maximum interval between inspections;
- the parts to be inspected;
- the nature of the inspection;
- the critical parts that, if modified or repaired, shall be inspected by a competent person/body before they can be put back into service;
- the requirements for pressure relief valves (see 7.5.1);
- the name of the competent person preparing the written scheme;
- the date of issue of the written scheme.

**EN 12819:2019 (E)****6 Pressure vessel inspection, requalification and recommissioning****6.1 Routine inspection**

**6.1.1** Each pressure vessel and its fittings shall be routinely inspected at intervals defined in the written scheme.

**6.1.2** Routine inspections shall include 7.1, 7.2, 7.3, 7.4, 7.5.2, 7.5.3, 7.5.4, 7.7, 7.14 and 7.16.

**6.2 Periodic inspection**

**6.2.1** Each pressure vessel and its fittings shall be periodically inspected at intervals defined in the written scheme.

**6.2.2** Periodic inspections shall include 6.1.2, 7.6, 7.8, 7.12, 7.13 and 7.15.

**6.2.3** For aboveground pressure vessels, a visual inspection of external surfaces shall be carried out (see Annex A). If pressure vessels are provided with fixed passive fire protection, which prevents the full external visual inspection according to Annex A, the written scheme shall specify alternative techniques to identify the presence of defects (e.g. the presence of corrosion).

NOTE Periodic inspection can also be referred to as intermediate inspection.

**6.3 Requalification**

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**6.3.1 Requalification of aboveground pressure vessels**

Requalification intervals shall be specified in the written scheme. Requalification shall include 7.5.1, 7.9, 7.10, 7.11, an external visual inspection, and at least one of the following:

- an internal visual inspection (see Annex A);
- a hydraulic pressure test (see Annex B);
- an acoustic emission test (see Annex C);
- an ultrasonic thickness test (see Annex D);
- any other method agreed by the competent authority.

**6.3.2 Requalification of underground pressure vessels**

Requalification intervals shall be specified in the written scheme. Requalification shall include 7.5.1, 7.9, 7.10, 7.11 with at least one test from group 1 and one test from group 2 of Table 1.