SLOVENSKI STANDARD
SIST EN 12817:2019

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Nadomešča:
SIST EN 12817:2010

Oprema in pribor za utekočinjeni naftni plin (UNP) - Pregledi in periodični preskusi tlačnih posod za UNP s prostornino do vključno 13 m³

LPG Equipment and accessories - Inspection and requalification of LPG pressure vessels up to and including 13 m³

Flüssiggas-Geräte und -Ausrüstungsteile - Überprüfung und erneute Qualifizierung von Behältern für Flüssiggas (LPG) mit einem Fassungsraum bis einschließlich 13 m³

Équipements et accessoires GPL - Inspection et requalification des réservoirs de capacité inférieure ou égale à 13 m³ pour gaz de pétrole liquéfiés (GPL)

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LPG Equipment and accessories - Inspection and requalification of LPG pressure vessels up to and including 13 m^3

Équipements et accessoires GPL - Inspection et requalification des réservoirs de capacité inférieure ou égale à 13 m^3 pour gaz de pétrole liquéfiés (GPL)

Flüssiggas-Geräte und Ausrüstungsteile - Inspektion und wiederkehrende Prüfung von Druckbehältern für Flüssiggas (LPG) mit einem Fassungsraum bis einschließlich 13 m^3

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

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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

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European foreword

This document (EN 12817:2019) 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of an identical text or by endorsement, at the latest by September 2019, and conflicting national standards shall be withdrawn at the latest by September 2019.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 12817:2010.

EN 12817:2010 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.

Introduction

Inspection and requalification regimes for pressure vessels up to and including 13 m^3 have developed in various countries in different ways that range from defined to variable inspection periods with requalification regimes achieved by various methods. This document for inspection and requalification is based on European countries' legislation and codes of practice and industry 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 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 Technical Specification 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.

1 Scope

This document specifies requirements for:

a) routine inspection, periodic inspection and requalification of fixed LPG pressure vessels of sizes from 150 l up to and including 13 m^3, 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*

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

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
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 Leaks

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 a 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, 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.

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 visual inspections at the time of filling the pressure vessel.

6.1.3 Routine inspections shall include 7.1, 7.2, 7.3, 7.4, 7.5.2, 7.5.3, 7.7 and 7.11.

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 7.5.1, 7.5.3, 7.6, 7.8, 7.9 and 7.10.

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

6.3.1 Requalification for aboveground pressure vessels

Requalification intervals shall be specified in the written scheme. Requalification shall include 7.5.1, 7.9 and conform to either:

a) individual requalification of each pressure vessel, including an external visual inspection and at least one of the following:

   1) an internal visual inspection (see Annex A);

   2) a hydraulic pressure test (see Annex B);

   3) an acoustic emission test (see Annex C);

   4) thickness checks (see Annex D);

   5) other method agreed by the competent authority;

b) requalification of a production batch by sampling, for serially produced pressure vessels (Annex E).

Pressure vessel samples shall be subjected to an external visual inspection (see Annex A), and to the following tests:

— an internal visual inspection (see Annex A); and

— a hydraulic pressure test (see Annex B); and

— an ultrasonic thickness test (see Annex D); and