SLOVENSKI STANDARD
SIST EN 12820:2002

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Pregledi in periodični preskusi rezervoarjev za utekočinjeni naftni plin (UNP) podzemne izvedbe z notranjo prostornino nad 13 m3

Inspection and requalification of LPG tanks greater than 13 m3 underground

Instandhaltung und wiederkehrende Prüfung von Behältern für Flüssiggas (LPG) mit einem Fassungsraum über 13 m3 in unterirdischer Aufstellung

Inspection et requalification de réservoirs enterrés de capacité supérieure a 13 m3 pour gaz de pétrole liquéfiés (GPL)

Ta slovenski standard je istoveten z: **EN 12820:2002**

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Inspection and requalification of LPG tanks greater than 13 m³ underground

Inspection et requalification de réservoirs enterrés de capacité supérieure à 13 m³ pour gaz de pétrole liquéfiés (GPL)

Instandhaltung und wiederkehrende Prüfung von Behältern für Flüssiggas (LPG) mit einem Fassungsraum über 13 m³ in unterirdischer Aufstellung

This European Standard was approved by CEN on 25 October 2001.

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 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 Management Centre 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, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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Foreword

This document EN 12818:2002 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of an identical text or by endorsement, at the latest by November 2002, and conflicting national standards shall be withdrawn at the latest by November 2002.

Users of this EN, prepared in the field of application of Article 118A of the EC Treaty, should be aware that standards have no formal legal relationship with Directives that may have been made under Article 118A of the Treaty. In addition, national legislation in the Member states may contain more stringent requirements than the minimum requirements of a Directive based on Article 118A. Information on the relationship between the national legislation implementing Directives based on Article 118A and this EN may be given in a national foreword of the national standard implementing this EN.

In this standard annexes A, B, C, D, E, F, G and ZA are informative.

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, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

Periodic inspection and requalification regimes for underground LPG tanks greater than 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 standard for periodic 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 routine periodic inspection and requalification in different ways for each application.

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 execution of its provisions is entrusted to appropriately qualified and experienced people.

1 Scope

This European Standard specifies requirements for:

a) routine inspection, periodic inspection and requalification of underground and mounded LPG storage tanks of sizes greater than 13 m^3, and associated fittings;

b) marking tanks and/or keeping records, as appropriate, as a result of routine inspection, periodic inspection and requalification.

This European Standard excludes refrigerated storage.

2 Terms and definitions

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

2.1
periodic inspection
external inspection of the visible parts of a tank and its fittings

2.2
routine inspection
external inspection of the visible parts of a tank and its fittings, carried out more frequently than periodic inspections

2.3
requalification
inspection/test carried out at intervals, typically at the time of a periodic inspection, in order to confirm that a tank is fit for a further period of service

2.4
competent body
person or corporate body, defined by a national competent authority, that, by appropriate qualification, training, experience and resources, is able to make objective judgements related to inspection and testing of pressure equipment in LPG service

2.5
competent person
person who, by qualification, training, experience, and resources, is able to make objective judgements related to inspection and testing of pressure equipment in LPG service

2.6
national competent authority
organization, recognised or appointed by a member state, which oversees safe operation of LPG pressure equipment

2.7
written scheme
document, prepared by a competent body, containing inspection information

2.8
commissioning
preparation for safe service

2.9
decommissioning
removing from service and safe preparation for inspection/test

3 Safety

3.1 Safety precautions

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

3.2 Unsafe conditions

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

3.3 Leaks

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

4 Written scheme

4.1 Each tank and its fittings shall be included in a written scheme taking into account clauses 5 to 7.

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

4.3 Intervals between inspections shall be determined by consideration of the following:

— the design specification of the tank and its equipment;

— the corrosion protection system on the tank;

— 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 tank or its fittings;

— the level of control over filling and maintenance of the tank.

NOTE The maximum period between requalifications should not normally be greater than 12 years, and if conditions are not satisfactory the period should be reduced.

4.4 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 before they can be put back into service;

— the requirements for relief valves (see 6.5);

— the name of the competent body preparing the written scheme;

— the date of the preparation of the written scheme.

5 Tank inspection and requalification

5.1 Routine inspection

5.1.1 Each tank and its fittings shall be routinely inspected at intervals defined in the written scheme.

5.1.2 An inspection or exception report shall be produced if repairs are required.

5.1.3 Routine inspections shall include visual inspections at the time of filling the tank.

5.1.4 Routine inspections shall include 6.1, 6.2, 6.3, 6.4, 6.5.2, 6.5.3, 6.7, 6.14, and clause 7.

5.2 Periodic inspection

5.2.1 Each tank and its fittings shall be periodically inspected at intervals defined in the written scheme.

5.2.2 Periodic inspections shall include 5.1.4, 6.5.4, 6.6, 6.8, 6.12, and 6.13.

5.3 Requalification

5.3.1 Requalification intervals shall be specified in the written scheme. Each tank shall be requalified, with at least one test from group 1 and one from group 2 of Table 1.

Table 1 — Requalification tests

Group 1	Group 2
Internal visual inspection (see annex A) Hydraulic pressure test (see annex B) Acoustic emission test (see annex C) Ultrasonic thickness test (see annex D) Other equivalent method	External visual inspection (i.e. excavation) Cathodic protection monitoring (see annex E or F)

5.3.2 At commissioning, leak checks shall be carried out at connections. Gaskets that have been removed when breaking connections shall not be reused.

6 Inspection of tank and tank fittings

6.1 Tank

The visible part of the tank shall be checked for external corrosion or damage.

6.2 Tank fittings and immediate pipework

The fittings and immediate pipework shall be checked for the following:

— severe corrosion;

— damage;

— inoperative or leaking filler valves;

— worn or damaged filler valve thread or connection;

— damaged or lifting relief valve;

— inoperative fixed liquid level gauge.

6.3 Valve cover

There shall be a check that the valve covers (if fitted) are in place, undamaged and able to be locked.

6.4 Bonding

6.4.1 The electrical bonding between the tank and earth point shall be visually checked.

6.4.2 There shall be a check that the road tanker bonding tag (if applicable) is undamaged.

6.5 Pressure relief valves

6.5.1 There shall be either:

a) a test of the set pressure of the relief valve and, for an external relief valve, a check on the condition of the spring; or

b) the relief valve shall be replaced with a new or reconditioned valve if required.

WARNING Do not remove a relief valve from a pressure relief valve manifold or check-device while a tank is under pressure, unless a serviceable replacement is available for immediate fitting. Do not remove a relief valve mounted in a tank under pressure unless the type and construction of the check device can be identified and the manufacturer's instructions for safe removal are complied with. A check device shall include positive means of confirming that the check device has closed before the relief valve is unscrewed to an otherwise dangerous stage.

6.5.2 The relief valve drain hole shall be checked to ensure it is clear.

6.5.3 There shall be a check that rain caps are present and in good condition. Stack pipes shall be inspected for corrosion. Relief valves shall also be externally inspected if corrosion is found in the stack pipes.

6.5.4 Ensure that multiport mechanisms move freely into position when operated.

WARNING After testing, the mechanism shall be positioned so that pressure relief valve inlets are not obstructed.

6.6 Pressure gauge

Pressure gauges shall be checked against a test gauge or replaced.

6.7 Contents gauges

Gauging devices or contents gauges that bleed to the atmosphere (e.g. rotary tubes, fixed tubes or slip tubes) shall be tested when filling the tank. Other types of contents gauges shall be checked as required (e.g. during product transfer to or from the tank).

6.8 Shut-off valves

Shut-off valves shall be tested for correct function.

WARNING When checking the function of a valve do not shut off the gas supply unless the user has been informed. Do not restore a gas supply before checking that appliance valves are closed.

Blanked or plugged liquid phase valves shall be checked for external leakage.

6.9 Studs, bolts, nuts, and washers

Studs, bolts, nuts, and washers shall be checked for damage or severe corrosion and replaced if required.

6.10 Emergency valves

Excess flow valves and non-return valves shall be checked for correct operation.

6.11 Gaskets

Gaskets between any separated connections shall be renewed before reconnecting.

6.12 Pressure switch

Pressure switches (if fitted) shall be checked for correct operation using a calibrated test pressure gauge.

6.13 Temperature gauge

The accuracy of temperature gauges shall be checked using a calibrated instrument.