



SLOVENSKI STANDARD
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Oprema in pribor za utekočinjeni naftni plin (UNP) - Pregledi in preskušanje cestnih cistern za utekočinjeni naftni plin (UNP)

LPG equipment and accessories - Inspection and testing of LPG road tankers

Flüssiggas-Geräte und Ausrüstungsteile - Inspektion und Prüfung von Straßentankwagen für Flüssiggas (LPG)

Équipements pour GPL et leurs accessoires - Inspection et essais des véhicules citernes routiers pour GPL

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ICS:

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

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ICS 43.080.10

Will supersede EN 14334:2014

English Version

LPG equipment and accessories - Inspection and testing of LPG road tankers

Équipements pour GPL et leurs accessoires - Inspection
et essais des véhicules citernes routiers pour GPL

Flüssiggas-Geräte und Ausrüstungsteile - Inspektion
und Prüfung von Straßentankwagen für Flüssiggas
(LPG)

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 286.

If this draft becomes a European Standard, 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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Contents	Page
European foreword	3
Introduction	4
6.1 General.....	8
6.2 Inspection of the necessary documents.....	8
6.3 Inspection of the interior of the pressure vessel.....	8
6.4 Inspection of the exterior of the pressure vessel.....	9
6.4.1 External visual inspection	9
6.4.2 Inspection of earthing	9
6.4.3 Pressure vessel inspection procedures	9
6.4.4 Inspection criteria	9
6.5 Inspection of the vehicle LPG equipment and accessories	10
6.5.1 Inspection	10
6.5.2 Satisfactory operation.....	10
6.5.3 Hose end couplings and transfer couplings	10
6.5.4 Emergency Shut-Down system (ESD)	10
6.5.5 Sun shields.....	10
6.5.6 Metering systems	11
6.6 Hydraulic pressure testing.....	11
6.6.1 General.....	11
6.6.2 Hydraulic test pressure	11
6.6.3 Hydraulic pressure test liquid	11
6.6.4 Pressurization.....	11
6.6.5 Test duration	11
6.6.6 Measurement.....	11
6.6.7 Evaluation of the test	12
6.6.8 Alternatives to the periodic hydraulic test.....	12
6.7 Leakproofness test	13
6.7.1 General.....	13
6.7.2 Leakproofness test pressure	13
6.7.3 Extent of test	14
6.7.4 Evaluation of the test.....	14
6.8 Testing of the vehicle LPG equipment and accessories.....	14
6.8.1 Testing of PRVs	14
6.8.2 Testing of the Emergency Shut-Down system (ESD)	14
6.8.3 Testing of hose assemblies.....	14
6.9 Inspection and testing of pressure vessel or structural equipment after repair	14
6.10 Re-inspection.....	15
7.1 Certification of periodic, intermediate inspection and exceptional check.....	15
7.2 Marking	15
Annex A (informative) Road tanker inspection/check certificate.....	16
Bibliography	17

European foreword

This document (prEN 14334:2022) has been prepared by Technical Committee CEN/TC 286 “Liquefied petroleum gas equipment and accessories”, the secretariat of which is held by NSAI.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 14334:2014.

In comparison with the previous edition, the following technical modifications have been made:

- Removal of the Annex on the Environmental checklist, addition of a reference to CEN/TS 16765;
- Where possible, the terms in Clause 3 were substituted with a reference to CEN/TS 16769;
- The definitions for test and inspection from EN ISO 10286 “Gas cylinders — Terminology” are adopted and included to Clause 3;
- The clause on initial inspection and testing is taken from EN 12252 and the document is re-structured; with the new Clause 4 “Initial inspection and testing” and Clause 5 “In-service inspection and testing”;
- Table 1 on the frequency of required inspections and tests is updated;
- The proposal from J. Ferreira and C. Moreira (doc. no. 333) is introduced with modifications as 6.5 “Inspection of the vehicle LPG equipment and accessories”;
- 6.7.2 “Leakproofness test pressure” is updated;
- 6.8 “Testing of the vehicle LPG equipment and accessories” is thoroughly revised;
- The term “inspectors” was substituted with “inspection body”, where appropriate;
- Requirements on the inspection of necessary documents were simplified;
- A recommendation for the use of gas detectors was added;
- The test of earthing connections was clarified;
- Acoustic emission testing was added as possible method.

This document will be submitted for reference in

- the RID and/or
- the technical annexes of the ADR.

NOTE These regulations take precedence over any clause of this standard. It is emphasized that RID/ADR are being revised regularly at intervals of two years which can lead to temporary non-compliances with the clauses of this standard.

Introduction

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.

The frequencies of the different types of pressure vessel inspection are given by the relevant international regulations concerning the transport of dangerous goods.

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 document. This Technical Specification provides guidance on the environmental aspects to be considered regarding equipment and accessories produced for the LPG industry and the following is addressed:

- a) design;
- b) manufacture;
- c) packaging;
- d) use and operation; and
- e) disposal.

It is recommended that companies using this document develop an environmental management policy. For guidance, see EN ISO 14001 [3].

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

All pressures are gauge pressures unless otherwise stated.

NOTE This document requires measurement of material properties, dimensions and pressures. All such measurements are subject to a degree of uncertainty due to tolerances in measuring equipment etc. It might be beneficial to refer to the leaflet "measurement uncertainty leaflet" SP INFO 2000 27 [4].

1 Scope

This document specifies minimum requirements for the inspection and testing of the LPG road tanker, which includes its pressure vessel, accessories and vehicle LPG equipment.

This document does not apply to compartmented road tankers.

NOTE 1 There is no upper size limit for the pressure vessel as this will be determined by the gross vehicle weight limitation.

NOTE 2 For further information on inspection and testing requirements of equipment other than the pressure vessel, accessories and vehicle LPG equipment, see applicable regulations.

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.

CEN/TS 16769, *LPG equipment and accessories - Terminology*

EN 837-1:1996, *Pressure gauges - Part 1: Bourdon tube pressure gauges - Dimensions, metrology, requirements and testing*

EN 837-3:1996, *Pressure gauges - Part 3: Diaphragm and capsule pressure gauges - Dimensions, metrology, requirements and testing*

EN 1762, *Rubber hoses and hose assemblies for liquefied petroleum gas, LPG (liquid or gaseous phase), and natural gas up to 25 bar (2,5 MPa) - Specification*

EN 12252, *LPG equipment and accessories - Equipping of LPG road tankers*

EN 12493, *LPG equipment and accessories - Welded steel pressure vessels for LPG road tankers - Design and manufacture*

EN 13109, *LPG equipment and accessories - LPG tanks and drums - Disposal*

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

EN 14025, *Tanks for the transport of dangerous goods - Metallic pressure tanks - Design and construction*

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

EN ISO 3452-1, *Non-destructive testing - Penetrant testing - Part 1: General principles (ISO 3452-1)*

EN ISO 5579, *Non-destructive testing - Radiographic testing of metallic materials using film and X- or gamma rays - Basic rules (ISO 5579)*

EN ISO 9712, *Non-destructive testing - Qualification and certification of NDT personnel (ISO 9712)*

EN ISO 17636-2, *Non-destructive testing of welds - Radiographic testing - Part 2: X- and gamma-ray techniques with digital detectors (ISO 17636-2)*

EN ISO 17638, *Non-destructive testing of welds - Magnetic particle testing (ISO 17638)*

prEN 14334:2022 (E)

EN ISO 17640, *Non-destructive testing of welds - Ultrasonic testing - Techniques, testing levels, and assessment (ISO 17640)*

EN ISO 17643, *Non-destructive testing of welds - Eddy current examination of welds by complex plane analysis (ISO 17643)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in CEN/TS 16769 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1 test

technical operation(s) for determining one or more characteristics according to a specified procedure to identify differences between specified, expected and actual results

[SOURCE: EN ISO 10286:2021]

3.2 inspection

evaluation of conformity by observation and judgment accompanied as appropriate by measurement, examination, testing or gauging

[SOURCE: EN ISO 10286:2021]

4 Initial inspection and testing

Pressure vessels of road tankers and their equipment shall undergo, either together or separately, an initial inspection and testing before being put into service by inspection bodies approved by the competent authority. These inspections and tests shall include:

- a check of conformity to the approved type in accordance with 6.2;
- a check of the design characteristics;
- an examination of the internal and external conditions in accordance with 6.3 and 6.4;
- a hydraulic pressure test in accordance with 6.6;
- a leakproofness test in accordance with 6.7;
- a check of satisfactory operation of the equipment.

NOTE For the pressure vessels of road tankers and their equipment, the inspections and the tests in 6.6 and 6.7 conforming to the requirements of ADR see 6.8.2.4 of ADR.

5 In-service inspection and testing

The requirements for in-service inspection and testing, as detailed below, shall apply to pressure vessels designed and manufactured in accordance with EN 12493 or EN 14025 and equipped in accordance with EN 12252, but can also be used for existing pressure vessel designs.

All service equipment including every permanently attached hoses shall be inspected in the mounted position for correct functioning and satisfactory condition (e.g. regarding wear).

The following inspections/tests/checks shall be carried out, under the supervision of the inspector, in accordance with Table 1.

NOTE According to ADR testing, inspection and certification duties are allocated to either the competent authority or to inspection bodies. ADR includes detailed requirements on the qualification, obligations, accreditation and approval of these inspection bodies as well as the frequency for inspections and tests.

Table 1 — Frequency of required inspections/tests

Description	Clauses	Intermediate Inspection	Periodic Inspection
Necessary documents	6.2	Inspection	Inspection
Interior of the pressure vessel	6.3	—	Inspection
Exterior of the pressure vessel	6.4	Inspection	Inspection
Hydraulic pressure	6.6	—	Test
Leakproofness	6.7	Test	Test
Contents gauge	6.5	Inspection	Inspection
Pressure gauge	6.5	Inspection	Inspection
Foot valve	6.5	Inspection	Inspection
External stop-valve	6.5	Inspection	Inspection
Blanking flange or cap	6.5.1	Inspection	Inspection
Drain valves	6.5	Inspection	Inspection
Temperature gauge ^a	6.5	Inspection	Inspection
Pressure relief valve ^a (PRV)	6.8.1	Inspection	Test
Sun shield ^a	6.5.5	Inspection	Inspection
Pipework	6.6.4, 6.7	Test	Test
Emergency shut-down system	6.8.2	Test	Test
Hose assemblies	6.8.3	Inspection	Test
Thermal expansion valves	6.5.1, 6.5.2	Inspection	Inspection
Valves	6.5	Inspection	Inspection
Compressor ^a	6.5.1, 6.5.2	Inspection	Inspection
Pump ^a	6.5.1, 6.5.2	Inspection	Inspection
Hose reel ^a	6.5.1, 6.5.2	Inspection	Inspection
Metering system ^a	6.5.6	Inspection	Inspection

prEN 14334:2022 (E)

Earth connection	6.4.2	Inspection	Inspection
Earth reel ^a	6.5	Inspection	Inspection
Filters and strainers ^a	5.6	Inspection	Inspection
^a Optional equipment according to EN 12252, Table 1.			

An exceptional check shall be required when there is a possibility that the safety of the accessories, vehicle LPG equipment, the pressure vessel, or structural equipment has been impaired as a result of repairs, alterations or accidents.

If an exceptional check fulfilling the requirements of a periodic inspection has been performed, then the exceptional check may be considered to be a periodic inspection. If an exceptional check fulfilling the requirements of an intermediate inspection has been performed, then the exceptional check may be considered to be an intermediate inspection.

6 Inspection and testing requirements

6.1 General

Additional inspections/tests/checks can be required, subject to the results of the inspections/tests/checks required by this clause.

Precautions shall be taken for the safety of the inspectors, and any other personnel in the vicinity of the road tanker, when inspections/tests are carried out. Training for work in confined spaces should be considered for inspectors.

6.2 Inspection of the necessary documents

The following documents shall be provided for the inspection:

- certificate of the last inspection (initial inspection, intermediate inspection, periodic inspection or exceptional check). <https://standards.iteh.ai/catalog/standards/sist/3ac632ea-4f22-4ddf-a558-ce82d049fe3c/osist-pren-14334-2022>

The documents shall be inspected to ensure that they are relevant to the pressure vessel, accessories and vehicle LPG equipment, and that they are satisfactory. Additional requirements and remarks in these documents shall be taken into account.

6.3 Inspection of the interior of the pressure vessel

The pressure vessel shall be empty, clean, verified gas-free and safe to enter at the time of inspection. Suitable methods for gas freeing are described in EN 13109. In order to verify that a pressure vessel is gas-free, a gas detector should be used.

A complete visual internal inspection shall be performed.

The entire surface of the pressure vessel shall be inspected for:

- surface defects such as dents, cuts, gouges, bulges, cracks;
- other defects indicating possible abnormal operating conditions.

NOTE In case of doubt, appropriate non-destructive methods can be used.

Surface defects deemed to impair the integrity of the pressure vessel shall be repaired or the pressure vessel shall be rejected from service and disposed of safely in accordance with EN 13109.