SLOVENSKI STANDARD
SIST EN 12972:2002

01-maj-2002

Rezervoarji za transport nevarnega blaga - Preskuġanje, nadzor in oznaļevanje kovinskih rezervoarjev

Tanks for transport of dangerous goods - Testing, inspection and marking of metallic tanks

Tanks für die Beförderung gefährlicher Güter - Prüfung, Inspektion und Kennzeichnung von Metalltanks

Citernes destinées au transport de marchandises dangereuses - Essai, épreuve, inspection et marquage des citernes métalliques

Ta slovenski standard je istoveten z: **EN 12972:2001**

ICS:

13.300	Varstvo pred nevarnimi izdelki	Protection against dangerous goods
23.020.20	Posode in vsebniki, montirani na vozila	Vessels and containers mounted on vehicles

SIST EN 12972:2002 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 12972

April 2001

ICS 13.300; 23.020.20

English version

Tanks for transport of dangerous goods - Testing, inspection and marking of metallic tanks

Citernes destinées au transport de matières dangereuses - Epreuve, inspection et marquage des citernes métalliques

Tanks für die Beförderung gefährlicher Güter - Prüfung, Inspektion und Kennzeichnung von Metalltanks

This European Standard was approved by CEN on 22 February 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, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Ref. No. EN 12972:2001 E

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 296 "Tanks for transport of dangerous goods", the secretariat of which is held by AFNOR.

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 October 2001, and conflicting national standards shall be withdrawn at the latest by October 2001.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports the objectives of the framework Directives on Transport of Dangerous Goods.

The standard has been submitted for reference into the RID[1]) and/or in the technical annexes of the ADR[2]).

Therefore the standards listed in the normative references and covering basic requirements of the RID/ADR not addressed within the present standard are normative only when the standards themselves are referred to in the RID and/or in the technical annexes of the ADR.

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

Introduction

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

1 Scope

This European Standard specifies testing, inspection and marking for the type approval, initial inspection, periodic inspection, intermediate inspection and exceptional check of metallic tanks (shell and equipment) of road tank vehicles, rail tank wagons, portable tanks and tank containers for the transport of dangerous goods with a capacity of more than 450 litres.

This European Standard is not applicable to

– receptacles including gas cylinders,

– battery-vehicles and battery-wagons comprising cylinders, tubes, pressure drums, bundles of cylinders, and multiple element gas cylinders (MEGC), and

– intermediate bulk containers (IBCs).

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[1]) May be purchased from: Zentralamt für den internationalen Eisenbahnverkehr OCTI, Gryphenhübeliweg, CH-3006 Bern

[2]) May be purchased from United Nations Sales Section, Geneva, or bookstores and distributors of United Nations Publications.

2 Normative references

This European standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European standard only when incorporated in it or by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 287–1 : 1992
Approval testing of welders - Fusion welding - Part 1: Steels

EN 287–2 : 1992
Approval testing of welders - Fusion welding - Part 2: Aluminium and aluminium alloys

prEN 287–3 : 1995
Approval testing of welders - Fusion welding - Part 3: Copper and copper alloys

prEN 287–4 : 1995
Approval testing of welders - Fusion welding - Part 4: Nickel and nickel alloys

EN 288–1
Specification and approval of procedures for welding metallic materials - Part 1: General rules for fusion welding

EN 288–2
Specification and approval of procedures for welding metallic materials - Part 2: Welding procedure specification for arc welding

EN 288–3
Specification and approval of procedures for welding metallic materials - Part 3: Welding procedure tests for the arc welding of steel

EN 837–2
Pressure gauges – Part 2: Selection and installation recommendations for pressure gauges

prEN 12266-1 : 1999
Industrial valves - Testing of valves - Part 1: Tests, test procedures and acceptance criteria to be fulfilled by every valve

EN 12561-1
Railway applications - Tank wagons - Part 1: Marking of tank wagons for the carriage of dangerous goods

3 Terms and definitions

The definition of terms used in this standard shall be taken as those given by the relevant regulations concerning the transport of dangerous goods unless otherwise stated.

For the purposes of this European standard, the following additional terms and definitions apply:

3.1
inspector
individual or a body approved by the competent authority to perform designated inspections and tests

3.2
intermediate inspection
inspection carried out between the initial and the first periodic inspection or between two periodic inspections

3.3
portable tank
multimodal tank meeting the design and construction requirements defined in chapter 6.7 of the UN Model Regulations on the transport of dangerous goods. These requirements are reproduced in chapter 6.7 of the technical annexes of ADR and RID

3.4
tank container
multimodal tank meeting the design and construction requirements defined in chapter 6.8 of the technical annexes of ADR and RID

3.5
protective lining or coating
lining or coating protecting the metallic tank material against the corrosive attack by the substances to be transported

This does not apply to lining or coating used only to protect the substance to be transported.

3.6
repair
correction of a defect which may have impaired the safety of the tank or the equipment. It does not include normal service and maintenance operations of the shell or service equipment or replacement of gaskets or service equipment to the same specification.

3.7
technical code
code according to which the tank has been designed and constructed

4 Types of tank inspection

4.1 Inspection for type approval

4.1.1 General

The inspection for type approval shall be carried out on a single tank for an individual approval or approval of a range of tanks.

A type approval which includes a range of tanks will allow the following variations to the design without requiring a new approval, if there are no other conflicting technical or legal requirements:

– a decrease in the initial design temperature range;

– a decrease in the maximum gross mass;

– a reduction in volume only resulting from variations in diameter (not applicable to non-cylindrical tanks) and length; the approval file includes a calculation for each proposed diameter, length and number of compartments of the tank under the most unfavourable conditions, i.e.:

· greatest density of goods,
· greatest tank length and diameter,
. greatest tank front compartment,
. greatest tank rear compartment;

– a variation in the grade of the material used; in the case of austenitic steels and aluminium alloys different grades may be allowed with the following reserves:

. use of the same qualified welding procedure;
. calculation is carried out in the most unfavourable case, in particular the mechanical characteristics selected are for each element the lowest values of the grades used;
. the instruction manual specifies the alternatives for the compatibility with the substances being transported;

– movement or modification of nozzles and manholes provided that the same level of protection is afforded and the tank strength calculation takes into account the most unfavourable case;

– an increase of the number of baffles and surge plates;

– an increase of the wall thickness provided the same welding procedures are used;

– a decrease of the maximum (allowable) working pressure (not valid for portable tanks subject to the IMDG Code);

– an increase in the thickness of the insulation used for additional protection;

– an increase in the effectiveness of the thermal insulation of the tank;

– use of alternative service equipment if there is no change in the technical specification of the equipment and it is placed in the same location.

4.1.2 Content of inspection

The inspection for type approval shall be carried out in accordance with the following clauses:

– examination of documents (see 5.2.);

– verification of the tank against the design (see 5.3);

– inspection of the tank interior (see 5.4);

– inspection of the tank exterior (see 5.5);

– hydraulic pressure test (see 5.6);

– vacuum test (see 5.7, for tanks which fall within the scope of directive 94/63 EC);

– leakproofness test (see 5.8);

– determination of water capacity (see 5.9);

– inspection of service equipment (see 5.10);

– inspection of frame or other structural equipment of portable tanks (see 5.11).

4.1.3 Documentation

The results of the inspection for type approval shall be recorded by the inspector in a test report.

A preliminary report may be issued after examination of the documents.

In addition to the test report it is recommended that the inspector submits a data sheet to assist the issuing of type approval. It is recommended that this data sheet form an annex to the type approval certificate.

4.2 Initial inspection

4.2.1 Content of inspection

The initial inspection shall be carried out in accordance with the following clauses:

– examination of documents (see 5.2.2);

– verification of the tank against the design (see 5.3);

– inspection of the tank interior (see 5.4);

– inspection of the tank exterior (see 5.5);

– hydraulic pressure test (see 5.6);

– leakproofness test (see 5.8);

– determination of water capacity (see 5.9);

– inspection of service equipment (see 5.10);

– inspection of frame or other structural equipment of portable tanks (see 5.11).

4.2.2 Documentation, certification and marking

The results of the initial inspection shall be recorded by the inspector in a certificate. This certificate shall mention any significant defect found and the related repairs carried out. It is acceptable for the certificate of initial inspection of a tank which has been tested for type approval to be completed using the results of the inspection for type approval. For certification and marking 5.12 shall be applied.

4.3 Periodic inspection

4.3.1 Content of inspection

The periodic inspection shall be carried out in accordance with the following clauses:

– examination of documents (see 5.2.3);

– inspection of the tank interior (see 5.4);

– inspection of the tank exterior (see 5.5);

– hydraulic pressure test (see 5.6);

– leakproofness test (see 5.8);

– inspection of service equipment (see 5.10);

– inspection of frame or other structural equipment of portable tanks (see 5.11).

For vacuum insulated tanks the inspection of the tank interior and the hydraulic pressure test are not required provided that a satisfactory vacuum is confirmed by measurement.

4.3.2 Documentation, certification and marking

The results of the periodic inspection shall be recorded by the inspector in a certificate. This certificate shall mention any significant defect found and the related repairs carried out. For certification and marking 5.12 shall be applied.

4.4 Intermediate inspection

4.4.1 Content of inspection

The intermediate inspection shall be carried out in accordance with the following clauses:

– examination of documents (see 5.2.4);

– inspection of the tank interior (see 5.4; only where required by regulation);

– inspection of the tank exterior (see 5.5);

– leakproofness test (see 5.8);

– inspection of service equipment (see 5.10).

– inspection of frames or other structural equipment of portable tanks (see 5.11; only where required by regulation).

4.4.2 Documentation, certification and marking

The results of the intermediate inspection shall be recorded by the inspector in a certificate. This certificate shall mention any significant defect found and the related repairs carried out. For certification and marking 5.12 shall be applied.

4.5 Exceptional checks

4.5.1 Exceptional check after damage or repair of the tank

The exceptional check after damage of the tank which may have impaired the safety of the shell, or after repair, shall be carried out in accordance with the applicable clauses as listed:

– examination of documents (see 5.2.5);

– verification of the tank against the design (see 5.3);

– inspection of the tank interior (see 5.4);

– inspection of the tank exterior (see 5.5);

– hydraulic pressure test (see 5.6);

– leakproofness test (see 5.8);

– inspection of service equipment (see 5.10).

4.5.2 Exceptional check after repair or replacement of service equipment

The exceptional check after repair or replacement of the service equipment shall be carried out in accordance with the applicable clauses as listed:

– examination of documents (see 5.2.5);

– verification of the tank against the design (see 5.3);

– leakproofness test (see 5.8);

– inspection of service equipment (see 5.10).

4.5.3 Exceptional check after replacement of service equipment involving the application of heat

The exceptional check after exchange of the service equipment involving the application of heat (for instance welding, cutting) which may have impaired the safety of the tank or the service equipment shall be carried out in accordance with the applicable clauses as listed:

– examination of documents (see 5.2.5);

– verification of the tank against the design (see 5.3);

– hydraulic pressure test (see 5.6);

– leakproofness test (see 5.8);

– inspection of service equipment (see 5.10).

4.5.4 Exceptional check after alteration to the tank

If there is an alteration to the tank not in accordance with the type approval the applicable units of the inspection for type approval shall be reassessed.

4.5.5 Exceptional check after exchange or repair of frame or structural equipment

The exceptional check after exchange or repair of frame or structural equipment shall be carried out in accordance with the applicable clauses as listed:

– examination of documents (see 5.2.5);

– verification of the tank against the design (see 5.3);

– inspection of frame or other structural equipment of portable tanks (see 5.11).

The requirements of this subclause can be considered to be fulfilled if the tank container which is covered by the International Convention for Safe Containers (CSC) has been examined and/or tested in accordance with the requirements of CSC.

4.5.6 Exceptional check before and after repair or replacement of the protective lining or coating

The exceptional check before and after repair or replacement of the protective lining or coating whose defect may impair the safety of the tank shall be carried out in accordance with the applicable clauses as listed:

– examination of documents (see 5.2.5);

– inspection of the tank interior (see 5.4)

4.5.7 Exceptional check to allow amendment of the type approval

The exceptional check to allow the amendment of the type approval shall be carried out as a reassessment of the respective applicable items of the inspection for type approval.

4.5.8 Documentation, certification and marking

The results of the exceptional check shall be recorded by the inspector in a certificate. This certificate shall mention any significant defects found and the related repairs carried out. For certification and marking 5.12 shall be applied.

A preliminary report can be issued after examination of documents.

5 Units used for tank inspection

5.1 General

A tank which fails one or more units of inspection shall, once the reason for failure has been corrected, be retested in accordance with the requirements of those units. The retest shall consider the need for additional testing if the repair may affect the validity of the result of other previous tests.

Depending on the result of the inspections additional inspections may be necessary.

The tanks to be internally inspected shall be empty, clean, certified gas-free and safe to enter at the time of inspection. This is also a requirement when necessary for the safety of the inspecting personnel and any other persons in the vicinity even when other inspections are carried out.

Gas-free means that the concentration of gases in the tank which may influence the health or safety of the inspecting personnel and any other persons in the vicinity is within the allowed limits of the national regulations applicable to them.