SLOVENSKI STANDARD
SIST EN 12542:2002/A1:2005

01-januar-2005

Stabilne, varjene, jeklene valjaste posode serijske proizvodnje za skladiščenje utekočinjenega naftnega plina (UNP) za nadzemno postavitev, katerih prostornina ni večja od 13 m3 - Konstruiranje in proizvodnja

Static welded steel cylindrical tanks, serially produced for the storage of Liquefied Petroleum Gas (LPG) having a volume not greater than 13 m3 and for installation above ground - Design and manufacture

Ortsfeste, geschweißte zylindrische Behälter aus Stahl, die serienmäßig für die Lagerung von Flüssiggas (LPG) hergestellt werden, mit einem Fassungsvermögen bis zu 13 m3 für oberirdische Aufstellung - Gestaltung und Konstruktion

Réservoirs cylindriques fixes, aériens, en acier soudé, fabriqués en série pour le stockage de gaz de pétrole liquéfiés (GPL) ayant un volume inférieur ou égal a 13 m3 - Conception et fabrication

Ta slovenski standard je istoveten z: EN 12542:2002/A1:2004

ICS:

23.020.10	Nepremične posode in rezervoarji	Stationary containers and tanks

SIST EN 12542:2002/A1:2005 en

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 12542:2002/A1

November 2004

ICS 23.020.30

English version

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This amendment A1 modifies the European Standard EN 12542:2002; it was approved by CEN on 10 September 2004.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This amendment 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, 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 12542:2002/A1:2004: E

Foreword

This document (EN 12542:2002:A1:2004) has been prepared by Technical Committee CEN/TC 286 “Liquefied Petroleum Gas equipment and accessories”, the secretariat of which is held by NSAI.

This Amendment to the European Standard EN 12542:2002 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2005, and conflicting national standards shall be withdrawn at the latest by May 2005.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

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

Page 7, clause 2

Replace references to EN 10204, prEN 13445-2 and prEN 13445-3 with the following:

EN 10204:2004, *Metallic products — Types of inspection documents.*

EN 13445-2, *Unfired pressure vessels — Part 2: Materials.*

EN 13445-3, *Unfired pressure vessels — Part 3: Design.*

Page 7, clause 3

Delete text and replace with the following:

“3 Terms and definitions

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

3.1
PED
Directive 97/23/EC of the European Parliament and of the Council of 29 May 1997 on the approximation of the laws of the Member States concerning pressure equipment

3.2
yield strength
upper yield strength R_{eH} or, for steels that do not exhibit a definite yield, the 0,2 % proof stress

NOTE These properties are equivalent to those specified by the symbol $R_{e/t}$, in the PED.

3.3
serially produced tanks
more than one tank manufactured in the same factory to a common design using the same material and manufacturing procedure and produced with no major interruption within a given period of time

3.4
production-batch
group of pressure parts or finished tanks, made consecutively by the same manufacturer using the same manufacturing techniques to the same design, nominal size and material specifications on the same production machinery and subject to the same heat treatment conditions

NOTE In this context, consecutively need not imply continuous production.

3.5
cold forming
forming at temperatures not less than 25 °C below the maximum permissible temperature for stress relieving in accordance with the material specification

3.6
hot forming
forming at temperatures above the maximum permissible temperature for stress relieving in accordance with the material specification

3.7
climatic area
geographic area agreed or defined by the relevant national authorities, or other bodies, responsible for defining the design conditions for LPG storage tanks, in the country(ies) where the tank is intended to be operated. The area is used to define the reference temperature for design pressure and filling

3.8
design pressure
gauge pressure used in design formulae

NOTE For tanks made to this standard, the design pressure is equal to the “Maximum allowable pressure”, PS, in the PED.

3.9
manufacturer
manufacturer of the tank unless otherwise specified

3.10
Ar_3
critical point, on the iron – iron carbide equilibrium diagram, representing the temperature at the end of transformation of austenite to ferrite on cooling of the steel

NOTE The actual temperature varies with composition of the steel.”

Page 8 subclause 4.1, 4th bullet point

Replace “prEN 13445-2” with “EN 13445-2”

Page 8 subclause 4.1, 5th bullet point,

Delete text and replace with the following:

“steels in sub-group 2.2 shall have a carbon equivalent limited to 0,43 %, maximum, when calculated in accordance with EN 10028-5.”

Page 9, subclause 4.2, 1st paragraph

Delete text and replace with the following:

“Materials for pressure parts, other than shells and ends, shall conform to the appropriate harmonised European Standard for the material, or a similar specification which has European materials approval or particular material appraisal.”

Page 10, subclause 4.4, 1st paragraph

Delete text and replace with the following:

“The welding consumables shall be such that they are capable of giving consistent welds with properties at least equal to those specified for the parent materials of the finished tank.”

Page 10, subclause 4.5

Delete text and replace with the following:

“The tank manufacturer shall obtain certificates showing the chemical analysis and details of the mechanical properties of the steel supplied for the construction of the pressure retaining parts of the tank. The certificates shall be in accordance with EN 10204:1991, certificate Type 3.1.B, together with material manufacturers’ documented affirmation of compliance to the material specification.”

Page 10, subclause 5.1, 2nd paragraph

Add a comma after "ISO 9162"

Page 10, subclause 5.1, 4th paragraph

Delete text and replace with the following:

“The appropriate weld joint coefficient for the material used and the level of non-destructive testing to be adopted shall be selected in accordance with Table 2.”

Page 10, subclause 5.1

Add new final paragraph as follows:

“A fully detailed, dimensional drawing shall be produced.”

Page 10, subclause 5.2

Replace “prEN 13445-2” with “EN 13445-2”

Page 10, subclause 5.3

Delete text and replace with the following:

“The design pressure, *p* (see 3.8), shall not be less than the maximum pressure reached in service, in accordance with annex A. It shall be selected taking into account the maximum pressure of the LPG.”

Page 11, subclause 5.4

Delete text and replace with the following:

“The tank shall be designed to withstand a minimum internal pressure of 0,3 bar absolute.

NOTE 1 This can be demonstrated by calculation in accordance with EN 13445-3.

NOTE 2 This requirement should ensure that the tank will withstand vacuum conditions generated by the product during operation or normal maintenance.”

Page 11, subclause 5.5

Delete text and replace with the following:

“5.5 Support loadings

The tank shall be designed to withstand the load from its supports when the tank is filled with water. This shall be demonstrated by calculation in accordance with EN 13445-3 or by experimental testing.”

Page 11, subclause 5.6

Replace “prEN 13445-3” with “EN 13445-3”

Page 11, subclause 5.7

Delete this clause completely.

Page 11, subclause 6.3

Delete text and replace with the following:

“The welds of openings shall be clear of longitudinal and circumferential welds and welds of other openings by a minimum of 40 mm between the weld edges.”

Page 11, subclause 7.1, 1st paragraph

Delete text and replace with the following:

“Tanks shall be manufactured according to drawings and specifications in accordance with the requirements of this standard and sound engineering practice.”

Page 12, subclause 7.2, 2nd paragraph

Delete reference to 5.7

Page 12, subclause 7.2, final paragraph

Delete text and replace with the following:

"Records of the welding consumables used shall be retained."

Page 12, subclause 7.4.2.1 c)

Delete text and replace with the following:

" c) on completion of the welding the weld shall have a smooth profile and shall fill the groove to the full thickness of the plate being joined."

Page 12, subclause 7.2.2.3

Subclause incorrectly numbered. Renumber to 7.4.2.3.

Page 13, subclause 7.5.1, 2nd paragraph

Delete text and replace with the following:

“Ends shall be made from one piece of plate.”

Page 13, subclause 7.5.2.1, 1st paragraph

Delete text and replace with the following:

“Cold formed ends shall be heat treated after forming, unless it can be demonstrated that the properties specified in 4.1 are met, or a burst test on a prototype tank demonstrates that the formed component is not the weakest part of the tank.”

Page 13, subclause 7.5.3, 1st paragraph

Delete text and replace with the following:

“For cold-formed parts not subject to heat treatment, no mechanical tests are required in respect of the forming operation except where required by 7.5.2.1 for ends."

Page 14, subclause 7.5.4, 2nd paragraph, 1st bullet point

Delete text and replace with the following:

“where the tensile or bend test fails, the test shall be repeated with two further specimens taken from the test piece. These two results shall then conform to the specification;”

Page 14, subclause 7.5.4, 2nd paragraph, 2nd bullet point, 1st sentence

Delete text and replace with the following:

“where one of the three impact tests fail, three further test specimens shall be taken from the test piece and tested.”

Page 14, subclause 7.5.4, 3rd paragraph

Delete text and replace with the following:

“Any pressure part, which fails to conform to the specification, shall be rejected. The testing shall be repeated on two other formed parts of the same production-batch where the test results shall conform to the specification.”

Page 14, subclause 7.5.4, 5th paragraph

Delete text and replace with the following:

“If any of the tests on the re-heat treated parts fail, the formed parts or production-batch shall be rejected.”

Page 14, subclause 7.5.5, 1st sentence

Delete “delivery” and replace with “delivered”

Page 14, subclause 7.5.6

Delete text and replace with the following:

“Formed parts shall be marked in such a manner that the material and the manufacturer of the formed parts can be identified during manufacture of the tank. In the case of production-batch testing, individual formed parts shall be traceable to the production-batch.”

Page 15, subclause 7.6.6, 1st paragraph

Delete text and replace with the following:

”After each weld run, any slag shall be removed and, where necessary, the weld cleaned and any surface defects removed."

Page 15, subclause 7.6.8.1, 1st paragraph

Delete “preheat” and replace with “preheating”

Page 17, Table 2, title

Delete and replace with the following:

"Table 2 — Extent of non-destructive testing on longitudinal welds and weld joint coefficients"

Page 17, Table 2, column 1 row 3

Replace “Weld joint factor” with “Weld joint coefficient”.

Page 17, subclause 9.2.4

Delete text and replace with the following:

“10 % of the aggregate length of all welds attaching nozzles, branches and compensating plates to the shell and ends and 10 % of all other attachment welds to pressure components shall be examined for imperfections by magnetic particle and/or penetrant techniques, see 9.3.4 or 9.3.5.”

Page 17, subclause 9.3.2, 1st paragraph

Delete “prEN 1435” replace with “EN 1435”

Page 18 subclause 9.5 NOTE

Delete text and replace with the following:

"NOTE For tanks required to conform to the PED Categories III and IV, it will be necessary for testing personnel qualifications to be approved by a third party organisation, recognised by a member state.”