ICS 23.020.10 SLOVENSKÁ TECHNICKÁ NORMA September 2025

STN	**Navrhovanie a výroba na mieste stavaných vertikálnych valcových oceľových nádrží s plochým dnom na skladovanie schladených, skvapalnených plynov s prevádzkovými teplotami medzi 0 °C a -196 °C Časť 4: Izolačné komponenty**	**STN EN 14620-4** 69 8118

Design and manufacture of site built, vertical, cylindrical, flat-bottomed tank systems for the storage of refrigerated, liquefied gases with operating temperatures between 0 °C and -196 °C - Part 4: Insulation components

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 08/25

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EN 14620-4

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English Version

Design and manufacture of site built, vertical, cylindrical, flat-bottomed tank systems for the storage of refrigerated, liquefied gases with operating temperatures between 0 °C and -196 °C - Part 4: Insulation components

Conception et fabrication de réservoirs à fond plat, verticaux, cylindriques, construits sur site, destinés au stockage des gaz réfrigérés, liquéfiés, dont les températures de service sont comprises entre 0 °C et 196 °C - Partie 4 : Constituants isolants

Auslegung und Herstellung standortgefertigter, stehender, zylindrischer Flachboden-Tanksystemen für die Lagerung von tiefkalt verflüssigten Gasen bei Betriebstemperaturen zwischen 0 °C und -196 °C - Teil 4: Dämmung

This European Standard was approved by CEN on 27 January 2025.

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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 14620-4:2025) has been prepared by Technical Committee CEN/TC 265 “Metallic tanks for the storage of liquids”, the secretariat of which is held by BSI.

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 2025, and conflicting national standards shall be withdrawn at the latest by October 2025.

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 14620-4:2006.

EN 14620-4:2025 includes the following significant technical changes with respect to EN 14620-4:2006:

— General editorial update;

— Normative reference updated;

— Recent insulating materials European standards introduced and Annex B updated;

— Aspects related to insulating materials fire behaviour developed and clarified;

— Brittle material compressive behaviour clarified with the use of interleaving material;

— Requirements for Insulation for penetrations and internal piping introduced;

— New Annex C added about the recommendations for qualification compressive strength testing of tank insulation system made of brittle material;

— New Annex D for non-metallic TPS added;

— Annex about limit state theory for tank bottom insulation removed;

— New Annex E added, providing guidance for defining duties and responsibilities between various parties involved.

A list of all parts in the EN 14620 series, “*Design and manufacture of site built, vertical, cylindrical, flat-bottomed tank systems for the storage of refrigerated, liquefied gases with operating temperatures between 0 °C and −196 °C”*, can be found on the CEN website.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

1 Scope

This document specifies the requirements for materials, design and installation of the insulation of refrigerated liquefied gas (RLG) storage tank systems.

RLG storage tank systems store liquefied gas with a low boiling point, i.e. below normal ambient temperature.

The concept of storing such products in liquid form and in non-pressurized tanks therefore depends on the combination of latent heat of vaporization and thermal insulation.

Consequently, thermal insulation for RLG storage tank systems is not an ancillary part of the containment system (as for most ambient atmospheric hydrocarbon tanks) but it is an essential component and the storage tank system cannot operate without a properly designed, installed and maintained insulation system.

The main functions of the insulation in RLG storage tank systems are:

— to maintain the boil off due to heat in-leak at or below the specified limits;

— to limit the thermal loading of the outer tank components, so to prevent both their sudden damage and premature ageing (e.g. due to external condensation and ice formation);

— to prevent damage by frost heave of the foundation/soil beneath the tank base slab (in combination with the slab heating system for tanks resting at grade);

— to minimize condensation and icing on the outer surfaces of the tank.

A wide range of insulation materials is available. However, the material properties differ greatly amongst the various generically different materials and also within the same generic group of materials.

Therefore, within the scope of this document, only general guidance on selection of materials is given.

NOTE For general guidance on selection of materials, see Annex A.

This document deals with the design and manufacture of site built, vertical, cylindrical, flat-bottomed tank systems for the storage of refrigerated, liquefied gases with operating temperatures between 0 °C and −196 °C.

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 1363-1, *Fire resistance tests — Part 1: General requirements*

EN 1363-2, *Fire resistance tests — Part 2: Alternative and additional procedures*

EN 1993-1-2, *Eurocode 3 — Design of steel structures — Part 1-2: Structural fire design*

EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*

EN 13501-2, *Fire classification of construction products and building elements — Part 2: Classification using data from fire resistance and/or smoke control tests, excluding ventilation services*

EN 13381-4, *Test methods for determining the contribution to the fire resistance of structural members — Part 4: Applied passive protection to steel members*

EN 14303, *Thermal insulation products for building equipment and industrial installations — Factory made mineral wool (MW) products — Specification*

EN 14305:2015, *Thermal insulation products for building equipment and industrial installations — Factory made cellular glass (CG) products — Specification*

EN 14307, *Thermal insulation products for building equipment and industrial installations — Factory made extruded polystyrene foam (XPS) products — Specification*

EN 14308, *Thermal insulation products for building equipment and industrial installations — Factory made rigid polyurethane foam (PUR) and polyisocyanurate foam (PIR) products — Specification*

EN 14309, *Thermal insulation products for building equipment and industrial installations — Factory made products of expanded polystyrene (EPS) — Specification*

EN 14314, *Thermal insulation products for building equipment and industrial installations — Factory made phenolic foam (PF) products — Specification*

EN 14620-1:2024, *Design and manufacture of site built, vertical, cylindrical, flat-bottomed tank systems for the storage of refrigerated, liquefied gases with operating temperatures between 0 °C and —196 °C — Part 1: General*

EN 14620-3:2006, *Design and manufacture of site built, vertical, cylindrical, flat-bottomed steel tanks for the storage of refrigerated, liquefied gases with operating temperatures between 0 °C and -165 °C — Part 3: Concrete components*

EN 15599-1, *Thermal insulation products for building equipment and industrial installations — In-situ thermal insulation formed from expanded perlite (EP) products — Part 1: Specification for bonded and loose-fill products before installation*

EN ISO 1182, *Reaction to fire tests for products — Non-combustibility test (ISO 1182)*

EN ISO 1716, *Reaction to fire tests for products — Determination of the gross heat of combustion (calorific value) (ISO 1716)*

EN ISO 12624, *Thermal insulating products for building equipment and industrial installations — Determination of trace quantities of water-soluble chloride, fluoride, silicate, sodium ions and pH (ISO 12624)*

EN ISO 16534, *Thermal insulating products for building applications — Determination of compressive creep (ISO 16534)*

EN ISO 16535, *Thermal insulating products for building applications — Determination of long-term water absorption by immersion (ISO 16535)*

EN ISO 29469:2022, *Thermal insulating products for building applications — Determination of compression behaviour (ISO 29469:2022)*

ISO 3951-1, *Sampling procedures for inspection by variables — Part 1: Specification for single sampling plans indexed by acceptance quality limit (AQL) for lot-by-lot inspection for a single quality characteristic and a single AQL*

ASTM E84, *Standard Test Method for Surface Burning Characteristics of Building Materials*