SLOVENSKI STANDARD
oSIST prEN 14063-1:2016

01-oktober-2016

Toplotnoizolacijski materiali in proizvodi - Proizvodi iz ekspandiranega glinenega agregatnega proizvoda (LWA), oblikovani na mestu vgradnje - 1. del: Specifikacija za vezane in razsute proizvode pred vgradnjo

Thermal insulation products for buildings - In-situ formed expanded clay lightweight aggregate products - Part 1: Specification for the loose-fill products before installation

Wärmedämmstoffe für Gebäude - An der Verwendungsstelle hergestellte Wärmedämmung aus Blähton-Leichtzuschlagsstoffen - Teil 1: Spezifikation für die Schüttdämmstoffe vor dem Einbau

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Produits isolants thermiques destinés aux applications du bâtiment - Isolation thermique formée en place à base de granulats légers d'argile expansée - Partie 1 : Spécification des produits en vrac avant la mise en œuvre

Ta slovenski standard je istoveten z: prEN 14063-1

ICS:

91.100.60	Materiali za toplotno in zvočno izolacijo	Thermal and sound insulating materials

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2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 14063-1

August 2016

ICS 91.100.60

Will supersede EN 14063-1:2004

English Version

Thermal insulation products for buildings - In-situ formed expanded clay lightweight aggregate products - Part 1: Specification for the loose-fill products before installation

Produits isolants thermiques pour le bâtiment - Isolation thermique formée en place à base de granulats légers d'argile expansée - Partie 1 : Spécification des produits en vrac avant la mise en oeuvre

Wärmedämmstoffe für Gebäude - An der Verwendungsstelle hergestellte Wärmedämmung aus Blähton-Leichtzuschlagsstoffen - Teil 1: Spezifikation für die Schüttdämmstoffe vor dem Einbau

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 88.

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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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EUROPEAN COMMITTEE FOR STANDARDIZATION
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European foreword

This document (prEN 14063-1:2016) has been prepared by Technical Committee CEN/TC 88 “Thermal insulating materials and products”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association and supports basic requirements for construction works of the EU Construction Products Regulation (Regulation (EU) No 305/2011).

For relationship with EU Regulation, see informative Annex ZA, which is an integral part of this document.

This document will supersede EN 14063-1:2004.

Annexes A, B and C are normative. Annex D is informative.

The most significant changes compared to the previous edition include:

a) Amending terminology and Annex ZA to be consistent with the Construction Products Regulation;

b) Replacement of references to clauses and test method annex of former separate parts of the EN 13055-series with normative references to new, merged EN 13055;

c) Amending aggregate specific clauses in alignment with other expanded clay related standards;

d) Adding a new clause and test method regarding compressibility and confined compressive strength;

e) Adding a new general clause on dangerous substances.

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No changes to existing technical classes and/or threshold levels have been made.

EN 14063 *Thermal insulation products for buildings — In-situ formed expanded clay lightweight aggregate products*, consists of the following parts:

— Part 1: *Specification for the loose-fill products before installation*

— Part 2: *Specification for the installed products*

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1 Scope

This document specifies the requirements for loose-fill expanded clay lightweight aggregate products for in-situ installation in roofs, ceilings, floors and ground floors.

This document is a specification for the insulation products before installation.

This document also describes the product characteristics and includes procedures for testing, marking and labelling.

This document does not specify the required level of a given property to be achieved by a product to demonstrate fitness for purpose in a particular application. The levels required for a given application are to be found in regulations or non-conflicting standards.

This document does not specify performance requirements for airborne sound insulation and for acoustic absorption applications.

2 Normative references

The following referenced documents are indispensable for the application 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 932-1, *Tests for general properties of aggregates — Part 1: Methods for sampling*

EN 932-2, *Tests for general properties of aggregates — Part 2: Methods for reducing laboratory samples*

EN 933-1, *Tests for geometrical properties of aggregates — Part 1: Determination of particle size distribution — Sieving method*

EN 1097-3, *Tests for mechanical and physical properties of aggregates — Part 3: Determination of loose bulk density and voids*

EN 1097-5, *Tests for mechanical and physical properties of aggregates — Part 5: Determination of the water content by drying in a ventilated oven*

EN 1097-10, *Tests for mechanical and physical properties of aggregates — Part 10: Determination of water suction height*

EN 1097-11, *Tests for mechanical and physical properties of aggregates — Part 11: Determination of compressibility and confined compressive strength of lightweight aggregates*

EN 12667:2001, *Thermal performance of building materials and products — Determination of thermal resistance by means of guarded hot plate and heat flow meter methods — Products of high and medium thermal resistance*

EN 13055:2016, *Lightweight aggregates*

EN 13172, *Thermal insulation products — Evaluation of conformity*

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

EN 13820, *Thermal insulating materials for building applications - Determination of organic content*

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EN 14063-2, *Thermal insulation products for buildings — In-situ formed expanded clay lightweight aggregate products — Part 2: Specification for the installed products*

EN ISO 10456, *Building materials and products — Hygrothermal properties — Tabulated design values and procedures for determining declared and design thermal values (ISO 10456)*

ISO 12491, *Statistical methods for quality control of building materials and components*

3 Terms, definitions, symbols, units and abbreviated terms

3.1 Terms and definitions

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

3.1.1
expanded clay lightweight aggregate
insulation material or product composed of lightweight granular material having a cellular structure formed by expanding clay minerals by heat

[Source: EN ISO 9229]

3.1.2
settlement
decrease of installed insulation thickness with time, expressed as a percentage of the initial installed thickness (after compaction if prescribed)

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3.1.3
compaction
mechanical compression (e.g. by vibrator) of the installed insulation layer, expressed as a percentage of the initial untreated layer thickness

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3.1.4
level
given value, which is the upper or lower limit of a requirement. The level is given by the declared value of the characteristic concerned

3.1.5
class
combination of two levels of the same property, between which the performance shall fall, where the levels are given by the declared value of the characteristic concerned

3.2 Symbols, units and abbreviated terms

For the purposes of this document, the following symbols and units apply.

H	is the water suction height	mm
k	is a factor related to the number of test results available	–
$\lambda_{10,\,dry}$	is the thermal conductivity at 10 °C mean temperature after drying at (110 ± 5) °C	W/(m·K)
$\lambda_{90/90}$	is the 90 % fractile with a confidence level of 90 % for the thermal conductivity	W/(m·K)
λ_D	is the declared thermal conductivity	W/(m·K)

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λ_i	is one test result of thermal conductivity	W/(m·K)
λ_{mean}	is the mean thermal conductivity	W/(m·K)
n	is the number of test results	–
s_λ	is the estimate of the standard deviation of the thermal conductivity	W/(m·K)
d	is the lower sieve size	mm
D	is the upper sieve size	mm
LD	is the declared level for loose bulk density	Mg/m³
AS	is the declared level for aggregate size	mm
CR	is the declared level for crushing resistance	N/mm²
CS(10)	is the declared level of compressive strength at 10% deformation	N/mm²
CS(2)	is the declared level of compressive strength at 2% deformation	N/mm²
WH	is the declared level for water suction height	mm

Abbreviated terms used in this standard:

LWA is **L**ight**w**eight **A**ggregate

PTD is **P**roduct-**T**ype **D**etermination

PTT is **P**roduct-**T**ype **T**esting

DoP is **D**eclaration **o**f **P**erformance

FPC is **F**actory **P**roduction **C**ontrol

AVCP is **A**ssessment and **V**erification of **C**onstancy of **P**erformance

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4 Product characteristics

4.1 General

Product characteristics shall be assessed in accordance with Clause 5. To conform with this document, products shall meet the requirements of 4.2, and the requirements of 4.3 as appropriate.

This document gives requirements for two different groups of applications:

— roof, ceiling and floor insulation;

— insulation in ground floors.

The main difference between the two applications lies in the requirement for water suction height in ground floors, whereas there should be no requirement for water suction height when the products are used for roof, ceiling and floor insulation.

4.2 For all applications

4.2.1 Thermal resistance and thermal conductivity

Thermal resistance and thermal conductivity shall be based upon measurements carried out in accordance with EN 12667.

The thermal values shall be determined in accordance with Annex A and declared, according to the following:

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— the reference mean temperature shall be 10 °C;

— the measured values shall be expressed with three significant figures;

— the declared thermal values, shall be given as limit values representing at least 90 % of the production determined with a confidence level of 90 %;

— the declared thermal resistance, R_D, shall be calculated from the insulation thickness and the declared thermal conductivity, λ_D (see NOTE 1);

— the value of thermal conductivity $\lambda_{90/90}$ shall be rounded upwards to the nearest 0,001 W/(m·K) and declared as λ_D in levels with steps of 0,001 W/(m·K);

— the value of thermal resistance, R_D, shall be rounded downwards to the nearest 0,05 m²·K/W and declared in levels with steps of 0,05 m²·K/W.

NOTE 1 The declaration of the installed thermal resistance for loose fill expanded clay LWA is described in EN 14063–2.

NOTE 2 A correlation between thermal conductivity and loose bulk density / particle size distribution, specific to the production and each product, can be used for indirect testing (see A.4).

4.2.2 Loose bulk density

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Loose bulk density shall be measured in accordance with EN 1097-3 and declared in classes with steps of 5 kg/m³ (0,005 Mg/m³) up to a density of 400 kg/m³ (0,400 Mg/m³) and thereafter with steps of 10 kg/m³ (0,010 Mg/m³) and shall be in the range of ±15 % of the declared value. The value shall be expressed in kg/m³ (Mg/m³).

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NOTE The dry loose bulk density for expanded clay LWA products will normally be in the range 150 kg/m³ (0,150 Mg/m³) to 800 kg/m³ (0,800 Mg/m³).

4.2.3 Aggregate size

4.2.3.1 General

Aggregate sizes shall be determined using a pair of sieve sizes selected from the basic sets specified in Table 1 of EN 13055:2016 and the upper and lower sizes declared as product designation.

NOTE 1 The declaration accepts the presence of some particles, which will be retained on the upper sieve (referred to as (D)) and some, which will pass the lower sieve (referred to as (d)).

NOTE 2 Normally the aggregate size for expanded clay LWA products will be in the range 0 mm to 32 mm.

4.2.3.2 Undersize

The quantity of the undersize passing the lower sieve (d) shall not exceed 15 % by mass.

4.2.3.3 Oversize

The quantity of the oversize retained on the upper sieve (D) shall not exceed 10 % by mass. When required, the sieve through which 100 % of the aggregate passes shall be declared.

4.2.3.4 Grading

When required, the particle size distribution shall be determined in accordance with EN 933-1 without washing and a grading declared.

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4.2.4 Reaction to fire

Reaction to fire classification (Euroclass) shall be determined in accordance with EN 13501-1.

NOTE Expanded clay LWA as described in 3.1.1 is classified without testing as a class A1 product in accordance with Commission Decision 96/603/EC as amended by Commission Decision 2000/605/EC.

4.2.5 Durability characteristics

4.2.5.1 General

The appropriate durability characteristics have been considered and are covered in 4.2.5.2, 4.2.5.3 and 4.2.5.4.

4.2.5.2 Durability of reaction to fire against ageing/degradation

The reaction to fire performance of expanded clay does not change with time. The product is classified without testing as a class A1 product in accordance with EN 13501-1.

4.2.5.3 Durability of thermal resistance against ageing/degradation

The thermal conductivity (4.2.1) of the product does not change with time and neither does the insulation thickness since any settlement (4.3.5) is negligible.

4.2.5.4 Durability of compressive strength against ageing/degradation

The compressive strength of expanded clay does not change with time. The product is a clay mineral product burnt to clinkers in a stable structure.

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4.3 For specific applications

4.3.1 General

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If there is no requirement for a characteristic, described in 4.3, for a product in use, then the characteristic need not be determined and declared.

4.3.2 Specific heat capacity

When required, the specific heat capacity shall be determined in accordance with EN ISO 10456.

NOTE In accordance with EN ISO 10456, a typical value for specific heat capacity of 1 000 J/(kg K) can be used.

4.3.3 Crushing resistance

When required, the bulk crushing resistance shall be determined in accordance with EN 13055:2016, Annex C, shall be expressed in N/mm² and declared in levels with steps of 0,05 N/mm² up to 1,0 N/mm² and thereafter with steps of 0,1 N/mm².

4.3.4 Compressibility and confined compressive strength

When required, the compressibility and the compressive strength CS(10) shall be determined in accordance with EN 1097-11 and values declared. A stiffness modulus shall be given as the tangent to the stress-strain relationship curve and related to the level of deformation.

NOTE The compressive strength at 10 % strain is not a design value, it is used as a reference value for material characterization only. For characterization of material properties the stiffness modulus and the load at a strain level at maximum 2 % (CS(2)) is more relevant.