SINTEF Technical Approval

TG 2051

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Amended:
Valid until 01.11.2031
Provided listed on
www.sintefcertification.no

SINTEF confirms that

Leca ISO 8/20

has been found to be fit for use in Norway and to meet the provisions regarding product documentation given in the regulation relating to the marketing of products for construction works (DOK) and regulations on technical requirements for building works (TEK), with the properties, fields of application and conditions for use as stated in this document

1. Holder of the approval

Leca Norge AS
Årnesvegen 1
NO-2009 Nordby
www.leca.no

2. Product description

Leca ISO 8/20 is a lightweight aggregate of expanded clay pellets. The grading diameter has a range from 8 mm to 20 mm, with an upper tolerance of +10 % and a lower tolerance of -15 %. Dry density is 250 kg/m³ ±15 %. The pellets have a water repellent and dust binding surface treatment.

3. Fields of application

Leca ISO 8/20 can be used as a thermal insulating, capillarity breaking and draining layer in floors on the ground and creating height structures on floors. The aggregate can also be used to protect wall foundations and other substructures against frost in the ground, and as a thermal insulating and draining backfill against external basement walls. Leca ISO 8/20 as compensating foundation gives reduced weight on the underground and reduced earth pressure. Leca ISO 8/20 is especially well suited for insufflation directly from a truck.

4. Product performance

Load-carrying capacity, strength and stiffness, stability

Characteristic value for load bearing capacity at 2 % deformation is 300 kN/m², measured in accordance with EN 13055-2:2004, Annex A.

Crushing strength for Leca ISO 8/20 is minimum 800 kN/m², measured in accordance with EN 13055, Annex C.

Installation blowing and levelling gives a compression of approx. 6 – 10 % of the layer thickness.

Geotechnical calculations with Leca ISO 8/20 shall be carried out the same way as for other friction materials. A characteristic friction angle φ_k=39° and attraction=0 shall be used. See the manufacturer's guidelines for further information.

Properties related to fire

Leca ISO 8/20 is noncombustible and classified as A1 in accordance with EN 13501-1.

Thermal insulation

Declared thermal conductivity for Leca ISO 8/20 is λ_D = 0.10 W/(mK) determined according to EN ISO 14063-1. Table 1 shows design thermal conductivity λ_d depending on field of application.

Table1
Design thermal conductivity for Leca ISO 8/20

Field of application	λ_d W/(mK)
In normal building structures	0.10
In floors on the ground above the capillarity breaking layer	0.10
As a capillarity breaking and draining layer	0.15
As a frost protecting, drained layer	0.12 [1)]

[1)] Frost capacity for the relevant moisture content is included

Properties related to moisture

Capillary suction height is maximum 75 mm measured according to EN 1097-10. Moisture content at delivery is normally 5 – 15 % by weight.

Durability

Leca ISO 8/20 has good frost resistance and is a ceramic material with high resistance to elevated temperatures and chemicals such as solvents, petrol and other oil-based products.

5. Environmental aspects

Substances hazardous to health and environment

The product contains no hazardous substances with priority in quantities that pose any increased risk for human health and environment. Chemicals with priority include CMR, PBT or vPvB substances.

Effect on soil, surface water and ground water

The leaching properties of the product are evaluated to have no negative effects on soil or water.

Waste treatment/recycling

Clean aggregate of LECA ISO 8/20 is 100 % reusable. Leca Iso 8/20 that shall not be reused, shall be sorted as clay-based material on demolition site and be delivered to an authorized waste treatment plant for material recovery.

Environmental declaration
An environmental declaration (EPD) has been worked out according to EN 15804+A2 for Leca ISO 8/20. For complete documentation see EPD nr. NEPD-7605-6985-EN, www.epd-norge.no.

6. Conditions of use

Installation
See the manufacturer's website and brochures.

Transport and storage
Leca ISO 8/20 may be stored outdoors but will be able to soak up some moisture. Extra moisture will give the product a somewhat higher density and can at subzero temperatures cause ice formation. For the simplest possible handling of the product, storage under roof is recommended.

Thermal insulation under floors on the ground
U-values for floors on the ground are shown in Building Research Design Guide No. 521.112 *Golv på grunnen med ringmur. Telesikring og varmeisolering av oppvarmede bygninger.* Table 2 shows equivalent thicknesses for insulation materials with a design thermal conductivity λ_d = 0.038 W/(mK) and a drained layer of Leca ISO 8/20 in order to achieve the same thermal resistance. The performance of the Leca ISO 8/20 layer is based on the design thermal conductivities shown in Table 1. Leca ISO 8/20 can be used together with other insulation materials.

Table 2
Equivalent insulation thicknesses for materials with design thermal conductivity λ_d = 0,038 W/(mK) and Leca ISO 8/20 in floors on the ground

Thickness, mm		Thermal resistance R m^2K/W
Insulation material λ_d = 0,038 W/(mK)	Leca ISO 8/20	
50	160	1.32
100	300	2.63
150	450	3.95
200	590	5.26
250	730	6.60
300	870	7.92

Other conditions
The application shall otherwise be in accordance with the recommendations in the following Building Research Design Guides (only available in Norwegian):

- 514.221 *Fuktsikring av konstruksjoner mot grunnen*
- 521.111 *Golv på grunnen med ringmur. Utførelse*
- 521.112 *Golv på grunnen med ringmur. Telesikring og varmeisolering av oppvarmede bygninger.*
- 521.811 *Telesikring av uoppvarmede bygninger og konstruksjoner. Dimensjonering og utførelser.*

7. Product and factory production control
Leca ISO 8/20 is produced by Leca Danmark A/S, Randersvej 75 Hinge, 8940 Randers, Denmark.

The holder of the approval is responsible for maintaining the factory production control in order to ensure that Leca ISO 8/20 is produced in accordance with the preconditions applying to this approval.

The manufacturing of Leca ISO 8/20 is subject to continuous surveillance of the factory production control in accordance with the contract regarding SINTEF Technical Approval.

The producer has a quality management system certified according to EN ISO 9001 and EN ISO 14001.

8. Basis for the approval
The product's characteristics are documented in reports issued by independent bodies. The technical documentation serves as the basis for SINTEF's product assessment with respect to the product standard EN 14063-1 and recommendations as outlined in SINTEF Building Research Design Guides.

9. Marking
Consignment notes at delivery shall include name of the product, production time, specification of the product, and name of the manufacturer.

Leca ISO 8/20 is CE-marked in accordance with EN 14063-1.

The approval mark for SINTEF Technical Approval TG 2051 may also be used.

10. Liability
The holder/manufacturer has sole product liability according to current law. Claims can only be made against SINTEF under general law or other special grounds.

for SINTEF

Hans Boye Skogstad
Approval Manager