

ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 and EN 15804+A2 

Lithotherm Deutschland GmbH **Lithotherm Formplatte Kalksplitt**



LITHOTHERM®
nachhaltig bauen – wohngesund heizen

Owner of the declaration

Lithotherm Deutschland GmbH
Am Grenzgraben 15
55545 Bad Kreuznach
Germany

Product

Lithotherm Formplatte Kalksplitt

Declared product / Functional unit

1 m² of Lithotherm Formplatte Kalksplitt

This declaration is based on Product Category Rules

EN 15804:2012 + A2:2019,
NPCR 020 PART B for concrete and
concrete elements (v3.0)

Program operator:

EPD Norway
Majorstuen P.O. Box 5250
N-0303 Oslo
Norway

Declaration number

NEPD-10118-10118-2

Registration number

NEPD-10118-10118-2

Issue date

09.05.2025

Valid to

08.05.2030

EPD Software

Emidat EPD Tool v1.0.0

General Information

Product

Lithotherm Formplatte Kalksplitt

Program Operator

EPD Norway

Majorstuen P.O. Box 5250

N-0303 Oslo

Norway

Phone: +47 23 08 80 00

Email: post@epd-norge.no

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Statements

The owner of the declaration shall be liable for the underlying information and evidence. EPD Norway shall not be liable with respect to manufacturer, life cycle assessment data and evidences.

Functional unit

1 m² of Lithotherm Formplatte Kalksplitt with a reference service life of 50 years

General information on verification of EPD from EPD tools

Independent verification of data, other environmental information and the declaration according to ISO 14025:2010, § 8.1.3 and § 8.1.4. Verification of each EPD is made according to EPDNorway's guidelines for verification and approval requiring that tools are i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPD-Norway, and iii) the process is reviewed annually by an independent third party verifier. See Appendix G of EPD-Norway's General Programme Instructions for further information on EPD tools.

Verification of EPD tool

Charlotte Merlin, FORCE Technology
(no signature required)

Owner of the declaration

Lithotherm Deutschland GmbH

Contact person

j.kynast@lithotherm-system.de

Phone

06712041790

Email

j.kynast@lithotherm-system.de

Manufacturer

Lithotherm Deutschland GmbH

Am Grenzgraben 15

55545 Bad Kreuznach, Germany

Place of production

St. Veit an der Glan, Austria

Management system

-

Issue date

09.05.2025

Valid to

08.05.2030

Year of study

2024

Comparability

EPDs of construction products may not be comparable if they do not comply with EN 15804 and are not seen in a building context. EPD data may not be comparable if the datasets used are not developed in accordance with EN 15804 and if the background systems are not based on the same database (including primary and secondary data).

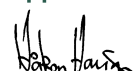
Development and verification of EPD

The declaration was created using the Emidat EPD tool v1.0, developed by Emidat GmbH. The EPD tool has been approved by EPD Norway.

Developer of EPD: Joshua Kynast

Reviewer of company-specific input data and EPD: Lars Schröder

Approved



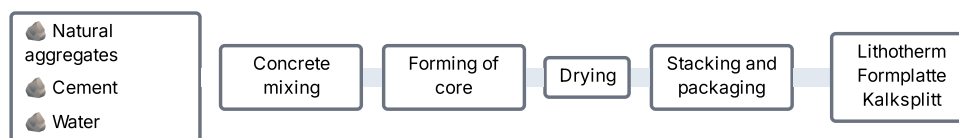
Håkon Hauan, CEO EPD-Norge

Product

Product description

Lithotherm Formplatte is a dry screed element made of natural stone, which is produced off-site and is used in the floor structure underneath the floor coverings.

The molded panels have integrated grooves for laying heating pipes.



LITHOTHERM molded panels is used in the floor structure directly underneath the floor covering as a support plate for heating pipes.

This mass not only serves as a heat accumulator during the main heating period - it also helps to reduce noise and impact sound. The LITHOTHERM molded panels are simply laid floating in drywall construction and joined together using tongue and groove. This shortens the working time considerably.

Product specification

Name of ingredient	Share of total weight	Country of origin
Cement	10 - 25 %	Austria
Natural aggregates	80 - 100 %	Austria
Water	2 - 10 %	Austria

Technical data

	Unit	Value
Compressive Strength (Cylinder)	N / mm ²	9.74
Density	kg / m ³	1737.0
Total mass	kg	74.16

Market

Austria

LCA: Calculation rules

Functional unit

1 m² of Lithotherm Formplatte Kalksplitt

Reference service life

50 years

Data quality

The foreground data are based on extensive and detailed data collection at the production site of the manufacturer, covering key processes such as raw material sourcing, formulation, and manufacturing. These foreground data are fully linked with corresponding datasets from the background database (ecoinvent 3.10) or with EN15804+A2-compliant EPDs, ensuring consistency, reliability, and maintaining alignment with the latest industry standards. As a result, the overall quality of both foreground and background data can be assessed as very good.

System boundaries (X=included, MND=module not declared)

	Production			Installation		Use stage							End-of-Life				Next product system
	Raw material supply	Transport	Manufacturing	Transport	Installation Process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	Demolition	Transport	Waste Processing	Disposal	Benefits and loads beyond the system boundary
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	x	x	x	x	x	x	MND	MND	MND	MND	MND	MND	x	x	x	x	x
Geography			AT	AT	AT	AT	MND	MND	MND	MND	MND	MND	AT	AT	AT	AT	AT

For the geographies modeled in A1 and A2, refer to *Product specification*.

Type of EPD: cradle to gate with options A4-A5, B1, C1-C4 and module D

Stage of Material Production and Construction

Module A1: Extraction and processing of raw materials

Module A2: Transportation of raw materials to the plant

Module A3: Precast concrete production at the plant and waste treatment

Module A4: Transportation to installation site

Use Stage

Module B1: Carbonation during the utilization phase

Disposal Stage

Module C1: Demolition/Dismantling

Module C2: Transportation of concrete demolition waste for processing

Module C3: Sorting of waste components and recycling of concrete and other contained components

Module C4: Landfilling of concrete and other contained components

Credits and burdens outside the system boundaries

Module D: Credits and burdens from recycling as a replacement for primary materials

Cut-off criteria

Environmental impacts of the following processes are considered to be negligible: minor auxiliary materials used during installation (sealants, adhesives, or fasteners), minor water use for cleaning precast concrete elements .

Allocation

Elementary flows (energy and fuels, ancillary materials and waste) data was collected on production-process-level. Using the total output of the production process in 2024, elementary flows are assigned to 1 declared unit based on mass.

LCA: Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD.

Transport to the building site (A4)	Value	Unit
Transported mass	74.16	kg
Distance by truck	250.00	km
Fuel consumption (truck)	0.17	l / 100 km

Installation into the building (A5)	Value	Unit
Energy consumption: Diesel	3.20	MJ
Auxiliary materials: Lubricating oil	1.63e-03	kg
Waste: Mineral oil	1.63e-03	kg
Water consumption	-	kg
Formwork	-	kg
Falsework	-	kg

Installation-related material losses are considered negligible, as the precast concrete elements are delivered fully assembled from the factory. The energy consumption during installation is associated with the energy required by a crane to lift them into place. The crane is powered by generators driven by a diesel engine and an alternator. Assuming an average of 12 minutes of crane operating per tonne of precast concrete (2 to 5 minutes for lifting and positioning, and 7 to 10 minutes for installation and adjustments), we use the ecoinvent dataset 'machine operation, diesel, >= 18.64 kW and < 74.57 kW, steady-state (GLO)' to get the stated assumptions for A5.

Use of the installed product (B1)	Value	Unit
Reference use period	50.00	years
Application	Building, inside, with paint or wallpaper	
Degree of carbonation (Dc)	0.40	-
Cement absorption factor	0.34	kg CO ₂ / kg Cement
k-factor	11.60	mm / √year
Correction factor	1.00	-
Surface area of concrete	0	m ²

Calculation of carbonization according to EN 16757. k-factor results from the concrete's compressive strength and its application. The cement absorption factor (maximum theoretical CO₂ uptake) depends on the average clinker content in cement. The correction factor results from cement substitutes in the recipe.

End of life (C1-C4)	Value	Unit
Material for recycling (total)	56.36	kg
Distance to waste recycling facility	50.00	km
Material for landfill (total)	17.80	kg
Distance to waste landfill facility	50.00	km
Concrete to recycling	56.36	kg
Diesel required to demolish 1 kg of concrete	0.06	MJ / kg
PM 10 emissions during the demolishment of 1 kg of concrete	6.00e-05	kg / kg
PM 2.5 emissions during the demolishment of 1 kg of concrete	1.70e-05	kg / kg

Carbonation during waste processing is not considered. Recycling rate for concrete of 76% reflects the modeled country. Source: https://environment.ec.europa.eu/document/download/22239ead-82d4-42fb-86dc-d202d5f40507_en?filename=2011_CDW_Report_0.pdf.

Reuse, recovery and/or recycling potentials (D)	Value	Unit
Amount of secondary material that the system takes in	0	kg
Avoided gravel production	56.36	kg

Calculation of benefits and loads per EN 15804+A2.

LCA: Results

Core environmental impact indicators

Indicator	Unit	A1-3	A4	A5	B1	C1	C2	C3	C4	D
GWP-total	kg CO ₂ -eq.	5.88e+00	1.92e+00	3.28e-01	0	4.55e-01	3.84e-01	3.46e-01	1.11e-01	-1.15e-01
GWP-fossil	kg CO ₂ -eq.	5.78e+00	1.92e+00	3.28e-01	0	4.54e-01	3.84e-01	3.46e-01	1.11e-01	-1.12e-01
GWP-biogenic	kg CO ₂ -eq.	9.84e-02	9.63e-04	3.98e-05	0	4.54e-05	1.93e-04	3.45e-05	1.15e-05	-3.06e-03
GWP-luluc	kg CO ₂ -eq.	1.18e-03	6.82e-04	2.97e-05	0	3.95e-05	1.36e-04	3.00e-05	5.78e-05	-1.26e-05
ODP	kg CFC-11-Eq	2.44e-08	4.00e-08	5.06e-09	0	6.96e-09	8.00e-09	5.29e-09	3.22e-09	-1.58e-09
AP	mol H ⁺ -Eq	1.32e-02	4.53e-03	2.91e-03	0	4.10e-03	9.07e-04	3.12e-03	7.89e-04	-9.68e-04
EP-freshwater	kg P-Eq	6.46e-04	1.35e-04	1.02e-05	0	1.32e-05	2.70e-05	1.01e-05	9.24e-06	-4.95e-06
EP-marine	kg N-Eq	3.89e-03	1.19e-03	1.35e-03	0	1.90e-03	2.38e-04	1.45e-03	3.00e-04	-3.83e-04
EP-terrestrial	mol N-Eq	4.42e-02	1.29e-02	1.47e-02	0	2.08e-02	2.57e-03	1.58e-02	3.28e-03	-4.48e-03
POCP	kg NMVOC-Eq	1.26e-02	7.87e-03	4.44e-03	0	6.21e-03	1.57e-03	4.72e-03	1.18e-03	-1.28e-03
ADPE	kg Sb-Eq	1.90e-05	5.49e-06	1.39e-07	0	1.63e-07	1.10e-06	1.24e-07	1.77e-07	-1.15e-06
ADPF	MJ, net calorific value	2.60e+01	2.88e+01	4.30e+00	0	5.94e+00	5.76e+00	4.52e+00	2.73e+00	-1.63e+00
WDP	m ³ world Eq deprived	6.18e-01	1.45e-01	1.10e-02	0	1.46e-02	2.90e-02	1.11e-02	7.63e-03	-7.88e-02

GWP-total: Global Warming Potential - total **GWP-fossil:** Global warming potential - fossil **GWP-biogenic:** Global Warming Potential - biogenic **GWP-luluc:** Global Warming Potential - luluc **ODP:** Depletion potential of the stratospheric ozone layer **AP:** Acidification potential, Accumulated Exceedance **EP-freshwater:** Eutrophication potential - freshwater **EP-marine:** Eutrophication potential - marine **EP-terrestrial:** Eutrophication potential - terrestrial **POCP:** Photochemical Ozone Creation Potential **ADPE:** Abiotic depletion potential - non-fossil resources **ADPF:** Abiotic depletion potential - fossil resources **WDP:** Water (user) deprivation potential

Additional indicators

Indicator	Unit	A1-3	A4	A5	B1	C1	C2	C3	C4	D
PM	disease incidence	1.07e-07	1.87e-07	8.24e-08	0	6.61e-07	3.74e-08	5.08e-07	1.79e-08	-2.65e-08
IRP	kBq U235-Eq	2.21e-01	3.50e-02	2.12e-03	0	2.66e-03	7.00e-03	2.02e-03	1.74e-03	-1.88e-02
ETP-fw	CTUe	5.71e+00	6.83e+00	6.08e-01	0	8.42e-01	1.37e+00	6.40e-01	3.73e-01	-8.09e-01
HTP-c	CTUh	6.93e-09	1.23e-08	1.27e-09	0	1.78e-09	2.46e-09	1.35e-09	5.03e-10	-1.82e-09
HTP-nc	CTUh	3.85e-08	1.90e-08	6.05e-10	0	8.06e-10	3.80e-09	6.13e-10	4.90e-10	-1.06e-09
SQP	dimensionless	1.04e+01	2.90e+01	3.04e-01	0	4.16e-01	5.80e+00	3.17e-01	5.37e+00	-3.69e+00

PM: Potential incidence of disease due to PM emissions **IRP:** Potential Human exposure efficiency relative to U235 **ETP-fw:** Potential Comparative Toxic Unit for ecosystems **HTP-c:** Potential Comparative Toxic Unit for humans - cancer effects **HTP-nc:** Potential Comparative Toxic Unit for humans - non-cancer effects **SQP:** Potential Soil quality index

IRP: This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

ETP-fw, HTP-c, HTP-nc and SQP: The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with these indicators.

Use of resources

Indicator	Unit	A1-3	A4	A5	B1	C1	C2	C3	C4	D
PERE	MJ	3.12e+00	4.57e-01	2.83e-02	0	3.64e-02	9.15e-02	2.77e-02	2.53e-02	-5.35e-01
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	3.12e+00	4.57e-01	2.83e-02	0	3.64e-02	9.15e-02	2.77e-02	2.53e-02	-5.35e-01
PENRE	MJ	2.60e+01	2.88e+01	4.30e+00	0	5.94e+00	5.76e+00	4.52e+00	2.73e+00	-1.63e+00
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	2.60e+01	2.88e+01	4.30e+00	0	5.94e+00	5.76e+00	4.52e+00	2.73e+00	-1.63e+00
SM	kg	0	0	0	0	0	0	0	0	5.64e+01
RSF	MJ	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0
FW	m³	1.10e-01	4.19e-03	2.94e-04	0	3.86e-04	8.38e-04	2.94e-04	2.83e-03	-8.01e-02

PERE: Primary energy resources - renewable: use as energy carrier **PERM:** Primary energy resources - renewable: used as raw materials **PERT:** Primary energy resources - renewable: total **PENRE:** Primary energy resources - non-renewable: use as energy carrier **PENRM:** Primary energy resources - non-renewable: used as raw materials **PENRT:** Primary energy resources - non-renewable: total **SM:** Use of secondary material **RSF:** Renewable secondary fuels **NRSF:** Non-renewable secondary fuels **FW:** Net use of fresh water

Waste flows

Indicator	Unit	A1-3	A4	A5	B1	C1	C2	C3	C4	D
HWD	kg	1.10e-01	4.19e-02	4.84e-03	0	6.64e-03	8.38e-03	5.05e-03	3.03e-03	-7.35e-03
NHWD	kg	3.31e+00	8.39e-01	6.75e-02	0	9.08e-02	1.68e-01	6.90e-02	1.79e+01	-7.58e-02
RWD	kg	5.56e-05	8.66e-06	5.23e-07	0	6.53e-07	1.73e-06	4.96e-07	4.24e-07	-4.05e-06

HWD: Hazardous waste disposed **NHWD:** Non hazardous waste disposed **RWD:** Radioactive waste disposed

Output flows

Indicator	Unit	A1-3	A4	A5	B1	C1	C2	C3	C4	D
CRU	kg	0	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	5.64e+01	0	0
MER	kg	0	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0	0

CRU: Components for re-use **MFR:** Materials for recycling **MER:** Materials for energy recovery **EEE:** Exported electrical energy **EET:** Exported thermal energy

Name	Value	Unit
Biogenic carbon content in product	0	kg C
Biogenic carbon content in accompanying packaging	0	kg C

Additional requirements

Greenhouse gas emissions from the use of electricity in the manufacturing phase

Electricity consumption in the manufacturing phase is composed from the sources below certified by Guarantee of Origin. Electricity is represented by data in ecoinvent 3.10 regionalised for Austria.

Electricity	Unit	Value
Solar	kg CO ₂ -eq. / kWh	0.10
Wind	kg CO ₂ -eq. / kWh	0.03
Hydro	kg CO ₂ -eq. / kWh	0.33
On-site electricity, PV	kg CO ₂ -eq. / kWh	0.11

Dangerous substances

The product contains no substances given by the REACH candidate list.

Additional environmental information

Additional environmental impact indicators required in NPCR Part A for construction products

Indicator	Unit	A1-3	A4	A5	B1	C1	C2	C3	C4	D
GWP-IOBC	kg CO ₂ -eq.	5.78e+00	1.92e+00	3.28e-01	0	4.55e-01	3.84e-01	3.46e-01	1.11e-01	-1.12e-01

GWP-IOBC: Global Warming Potential - Instantaneous oxidation of biogenic carbon

Bibliography

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DIN CENTR 15941:2010-11	Sustainability of construction works - Environmental product declarations - Methodology for selection and use of generic data
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	ILCD Handbook: https://epica.jrc.ec.europa.eu/uploads/ILCD-Handbook-LCIA-Background-analysis-online-12March2010.pdf

 epd-norway Global Program Operator	Program Operator	Phone	+47 23 08 80 00
	EPD Norway	Email	post@epd-norge.no
	Majorstuen P.O. Box 5250, N-0303 Oslo Norway	Web	www.epd-norge.no
 epd-norway Global Program Operator	Publisher	Phone	+47 23 08 80 00
	The Norwegian EPD Foundation	Email	post@epd-norge.no
	Post Box 5250 Majorstuen, 0303 Oslo Norway	Web	www.epd-norge.no
 LITHOTHERM® nachhaltig bauen – wohngesund heizen	Owner of the declaration	Phone	06712041790
	Lithotherm Deutschland GmbH	Email	j.kynast@lithotherm-system.de
	Am Grenzgraben 15, 55545 Bad Kreuznach Germany	Web	none
 LITHOTHERM® nachhaltig bauen – wohngesund heizen	Author of the life cycle assesment	Phone	06712041790
	Lithotherm Deutschland GmbH	Email	j.kynast@lithotherm-system.de
	Am Grenzgraben 15, 55545 Bad Kreuznach Germany	Web	none
 ECO PLATFORM EPD VERIFIED	ECO Platform	Web	www.eco-platform.org
	ECO Portal	Web	ECO Portal
 EMIDAT	Developer of EPD generator	Phone	+49 176 56 96 77 91
	Emidat GmbH	Email	epd@emidat.com
	Sandstraße 33, 80335 München Germany	Web	www.emidat.com