Environmental Product Declaration

according to ISO 14025 and EN 15804

This declaration is for:

IZOVAT thermal Insulation (Light), 25-45 kg/m3

Provided by:

LLC “OBIO” (IZOVAT)

program operator

Stichting MRPI®

publisher

Stichting MRPI®

www.mrpi.nl

MRPI® registration

1.1.00122.2020

EPD registration

00001220

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PROGRAM OPERATOR

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PRODUCT

IZOVAT thermal Insulation (Light), 25-45 kg/m3

MRPI® REGISTRATION

1.1.00122.2020

EPD REGISTRATION

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DATE OF ISSUE

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DECLARED UNIT/FUNCTIONAL UNIT

The production of 1 ton of Izovat basalt wool for insulation applications

SCOPE OF DECLARATION

This MRPI®-EPD certificate is verified by **Niels Jonkers, Ecochain.**
The LCA study has been done by **Bob Roijen, SGS INTRON.**
The certificate is based on an LCA-dossier according to ISO14025 and NEN-EN15804+A1. It is verified according to the 'EPD-MRPI® verification protocol May 2017.v3.1'. EPDs of construction products may not be comparable if they do not comply with NEN-EN15804+A1. Declaration of SVHC that are listed on the 'Candidate List of Substances of Very High Concern for authorisation' when content exceeds the limits for registration with ECHA.

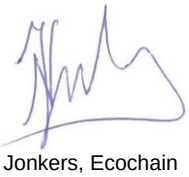
VISUAL PRODUCT

DESCRIPTION OF PRODUCT

Fireproofing, soundproofing and insulation (Thermal) insulation

MORE INFORMATION

www.izovat.ua

DEMONSTRATION OF VERIFICATION
CEN standard EN15804 serves as the core PCR[a]
Independent verification of the declaration and data, according to EN ISO 14025:2010: internal: external: X
(where appropriate[b]) Third party verifier:  Niels Jonkers, Ecochain
[a] Product Category Rules [b] Optional for B-to-B communication, mandatory for B-to-C communication (see EN ISO 14025:2010, 9.4).

DETAILED PRODUCT DESCRIPTION

Basalt rock is used as the main raw material for production of non-combustible IZOVAT thermal insulation. The main components of this insulation material are mentioned in the table below. In this EPD only the production of bulk product is considered. Packaging materials and additives are included.

COMPONENT (> 1%)	Light
Raw materials, e.g. basalt, dolomite, slag (wt. %)	93
Binder, phenolic resin (wt. %)	6
Additives, (wt. %)	1
Packaging (kg/t)	65

(*) > 1% of total mass

SCOPE AND TYPE

The basalt wool in this EPD is produced at the production location of OBIO in Zhytomyr, Ukraine.

The Basalt wool serves as thermal insulation material, mainly used for construction purposes for fireproofing or even soundproofing . Since the wool is a semi-finished product, only the production of the basalt wool is included in the LCA.

The LCA is compiled using the "Bepalingsmethode milieuprestaties gebouwen en GWW werken v3.0" as PCR, Ecoinvent v3.4 for background processes, SimaPro 8,5 LCA software. The main impact categories have been calculated with the characterization factors in "SBK Bepalingsmethode version May 25th 2018".

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport gate to site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA

X = Module assessed

MNA = Module not assessed

REPRESENTATIVENESS

Not applicable. In this study a specific product is considered, produced at a specific production site.

ENVIRONMENTAL IMPACT per functional unit or declared unit

	UNIT	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
ADPE	kg Sb-eq.	1.66 E -3	2.60 E -4	1.44 E -4	2.06 E -3	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
ADPF	MJ	1.66 E -3	2.60 E -4	1.50 E -4	2.07 E -3	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
GWP	kg CO2-eq.	4.81 E +2	1.05 E +2	1.84 E +3	2.42 E +3	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
ODP	kg CFC11-eq.	4.06 E -5	1.68 E -5	1.17 E -4	1.75 E -4	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
POCP	kg ethene-eq.	6.58 E -1	8.86 E -2	1.73 E +0	2.48 E +0	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
AP	kg SO2-eq.	1.96 E +0	6.23 E -1	5.23 E +0	7.82 E +0	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
EP	kg (PO4)3--eq.	3.58 E -1	1.29 E -1	6.86 E -1	1.17 E +0	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Toxicity indicators (Dutch market)																			
HTP	kg DCB-eq.	9.75 E +2	3.80 E +1	6.75 E +2	1.69 E +3	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
FAETP	kg DCB-eq.	5.18 E +1	7.78 E -1	1.83 E +1	7.09 E +1	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
MAETP	kg DCB-eq.	1.27 E +4	2.91 E +3	5.80 E +4	7.36 E +4	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
TETP	kg DCB-eq.	5.90 E -1	1.72 E -1	1.82 E +0	2.58 E +0	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Environmental Cost Indicator (Dutch market)																			
ECI	Euro	1.28 E +2	1.30 E +1	1.91 E +2	3.32 E +2	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

INA = Indicator Not Assessed
ADPE = Abiotic Depletion Potential for non-fossil resources
ADPF = Abiotic Depletion Potential for fossil resources
GWP = Global Warming Potential
ODP = Depletion potential of the stratospheric ozone layer
POCP = Formation potential of tropospheric ozone photochemical oxidants
AP = Acidification Potential of land and water
EP = Eutrophication Potential

HTP = Human Toxicity Potential
FAETP = Fresh water aquatic ecotoxicity potential
MAETP = Marine aquatic ecotoxicity potential
TETP = Terrestrial ecotoxicity potential
ECI = Environmental Cost Indicator

RESOURCE USE per functional unit or declared unit

	UNIT	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	2.04 E +2	2.36 E +1	1.25 E +2	3.53 E +2	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
PERM	MJ	1.58 E +2	1.03 E +1	8.86 E +1	2.57 E +2	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
PERT	MJ	3.62 E +2	3.39 E +1	2.14 E +2	6.10 E +2	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
PENRE	MJ	1.20 E +4	1.52 E +3	2.43 E +4	3.78 E +4	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
PENRM	MJ	0.00	0.00	0.00	0.00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
PENRT	MJ	1.20 E +4	1.52 E +3	2.43 E +4	3.78 E +4	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
SM	kg	0.00	0.00	0.00	0.00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
RSF	MJ	0.00	0.00	0.00	0.00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
NRSF	MJ	0.00	0.00	0.00	0.00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
FW	m3	2.69 E +0	3.07 E -1	2.37 E +0	5.37 E +0	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

INA = Indicator Not Assessed
PERE = Use of renewable energy excluding renewable primary energy resources
PERM = Use of renewable energy resources used as raw materials
PERT = Total use of renewable primary energy resources
PENRE = Use of non-renewable primary energy resources excluding non-renewable energy resources used as raw materials
PENRM = Use of non-renewable primary energy resources used as raw materials
PENRT = Total use of non-renewable primary energy resources
SM = Use of secondary materials
RSF = Use of renewable secondary fuels
NRSF = Use of non renewable secondary fuels
FW = Use of net fresh water

OUTPUT FLOWS AND WASTE CATEGORIES per functional unit or declared unit

	UNIT	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	kg	1.68 E -2	2.00 E -2	4.46 E -2	8.14 E -2	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
NHWD	kg	3.33 E +1	4.02 E +1	7.75 E +1	1.51 E +2	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
RWD	kg	1.16 E -2	9.54 E -3	3.24 E -2	5.35 E -2	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
CRU	kg	0.00	0.00	0.00	0.00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
MFR	kg	0.00	0.00	0.00	0.00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
MER	kg	0.00	0.00	0.00	0.00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
EEE	MJ	0.00	0.00	0.00	0.00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
ETE	MJ	0.00	0.00	0.00	0.00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

INA = Indicator Not Assessed
HWD = Hazardous Waste Disposed
NHWD = Non Hazardous Waste Disposed
RWD = Radioactive Waste Disposed
CRU = Components for reuse
MFR = Materials for recycling
MER = Materials for energy recovery
EEE = Exported Electrical Energy
ETE = Exported Thermal Energy

CALCULATION RULES

Virtually no materials or processes have been excluded from the study (cut-off rule is well below 1%).
Data collected in 2019 from base year 2018.
Longterm emissions in Ecoinvent processes have been exluded from the LCA calculations.

SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

Raw materials used to produce stone wool are stone of volcanic origin (dolomite and basalt). The remaining content is generally a thermosetting resin binder (an adhesive), consisting of phenol, and a little oil. The rock is molten within a melting unit, fueled with the help of coke and hot blast air. Spinner wheels rotate with high speed after which the rock is cooled with water. During this spinning, a binder solution is spread from spray nozzles on the wool. At the binder plant, a binder mix is pumped from the binder tank to the spinning machine. The formed mineral wool mat enters the curing oven where the process of resin polycondensation takes place. After curing, the mineral wool mat enters the cooling table and is then brought to the cutting zone. After cutting, the mineral wool slabs are transported by conveyor to the stacker unit, from which they enter the packaging zone. This zone consists of 2 packing streams with shrinkage tunnels. After the packing process, all packs are labeled and deposited on wooden pallets.

DECLARATION OF SVHC

No substances that are listed in the latest "Candidate List of Substances of Very High Concern for authorisation" are included in the product that exceeds the limit for registration.

REFERENCES

• Stichting Bouwkwaliteit, Bepalingsmethode Milieuprestatie Gebouwen en GWW Werken v3.0.
• D. de Graaf, B. Roijen, SGS INTRON report, A895850/R20190217 07-11-2019

REMARKS

Mineral wool fibres produced by OBIO LLC do not contain any substances on the ECHA Candidate List of Substances of very high concern for Authorisation / the Technical Checklist A20 (BREEAM NOR 2016 Technical Manual SD5075NOR V.1.2.).