Environmental product declaration

ROCKWOOL®
Stone Wool Thermal Insulation for buildings

EPD according to EN 15804 and ISO 14025 and 3rd party verified
ROCKWOOL Group EPD rules and LCA model

Manufacturer: ROCKWOOL,a.s. (CZ), Rockwool Hungary Kft., Rockwool Polska Sp. z o. o.

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Life Cycle Assessment study:
This environmental product declaration is based on a Life Cycle Assessment (LCA) background study according to EN 15804:2012+A1:2013 carried out by:

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Verification:

CEN standard EN 15804 serves as the core PCR (product category rule)	
Independent verification of the "Rules for LCAs / EPDs for ROCKWOOL products" and the underlying LCA model described in the rules, in accordance with EN ISO 14025:2010, EN 15804: 2012+A1:2013, with prEN 16783 serving as the PCR: External	Independent verification of the calculation and this declaration, in accordance with EN ISO 14025:2010 Internal
Third-party verifier: Dr. Frank Werner 13 November 2018	Remark: this EPD is issued by ROCKWOOL International and has been internally reviewed by senior experts. The externally reviewed "Rules for LCAs / EPDs for ROCKWOOL products" and LCA model have been applied.

Environmental Product Declarations (EPDs) may not be comparable if they do not comply with the EN15804:2012+A1: 2013 Clause 5.3

Product

Declared unit

1 m^2 ROCKWOOL stone wool thermal insulation product with a thermal resistance of RD =1 m^2 K/W.

A product of 28 kg/m^3 density and a notional thickness of 39mm thick fulfils the declared unit specification and provides a base dataset from which product specific data can be calculated.

Intended application of the Environmental Product Declaration

This EPD is intended to be available to ROCKWOOL Polska Sp.z o.o., ROCKWOOL, a.s., Czech Republic and ROCKWOOL Hungary Kft. customers. The market covered by this EPD is supplied by four different factories in Cigacice (PL), Malkinia (PL), Bohumin (CZ) or Tapolca (HU) within the ROCKWOOL Group. The EPD is based on LCA inventory data from the 4 plants. The reference flow is a weighted average based on the distribution of production between the 4 plants.
This EPD can be used in markets that receive products from these four factories. Such markets include but are not limited to: Poland, Belarus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Romania, and Slovakia.

Product description

Stone wool is a widely used building material and mainly used for thermal insulation. ROCKWOOL insulation products contribute to energy-efficient and fire safe buildings with good acoustics and a comfortable indoor climate.

Stone wool is available with different densities and thermal conductivities and is applicable in all areas of the building, ranging from roofs, loft, walls, floors, foundation, to fire-prevention solutions, HVAC systems and sub-sea pipelines. The products considered in this EPD are boards used for general building insulation, ETICS and flat roofs. The specific product referred to in the declared unit is 39 mm thick and has a density of 28 kg/m^3.

The packaging is included in the assessment. Any facings that may be applied to the products, such as glass fleece, aluminium foil or other laminations, are excluded in this EPD. If relevant for a product, their environmental parameter values should be added.

Product specification

ROCKWOOL stone wool insulation is a firesafe[1] material for insulation against heat, cold, fire, vibrations and noise. It is traditionally made from volcanic rock (typically basalt or dolomite), an increasing proportion of recycled material, and a few percent resin binder (typically 2–3% w/w for external wall and pitched roof products and slightly more for ETICS and flat roof products). The product is wrapped with PE-foil and placed on wooden - or stone wool pallets for further distribution.
The resin binder polymerizes into solid resin during production of the final stone wool product.

Reference service life

ROCKWOOL products are extremely durable and usually provide effective performance for the lifetime of the building or host structure. A service life of 50 years has been agreed as the basis of EN 13162 (the product standard for stone wool thermal insulation) but this could be adapted if a longer service life is assumed for a particular building element in which ROCKWOOL insulation products are applied. In some calculations, a service life equivalent to the lifetime of the building element can be applied.

1 - A1 when tested according to EN 13501-1 (Euroclasses)

Technical information

The product standards that apply are EN 13162:2012+A1:2015 Thermal insulation products for buildings – Factory made mineral wool (MW) products – Specification,
EN 14303:2009+A1: 2013 Thermal insulation products for building equipment and industrial installations - Factory made mineral wool (MW) products – Specification,
EN 14064-1:2010 Thermal insulation products for buildings – In-situ formed loose-fill mineral wool (MW) products – Part 1: Specification for the loose-fill products before installation.

Specific characteristics and additional functionalities shall be taken into account when applying the EPDs in the building context:

- Most ROCKWOOL stone wool material is classified as non-combustible (Euroclass A1), the best reaction to fire class according to EN13501-1.
- ROCKWOOL stone wool products are often applied because of their acoustic properties. For example, a well-constructed wall using ROCKWOOL stone wool insulation can help comply with any acoustic regulation requirements in average building typologies.
- ROCKWOOL stone wool products are durable without any ageing of the thermal performance. They are dimensional stable and both water repellent and moisture resistant. Moisture and nutrient are necessary conditions for mould growth. Since more than 95% of the mass of mineral wool products is inorganic, there is little nutrient source to allow fungi/mould growth [ref. Eurima-health-safety].

More specific product information can be found on www.rockwool.pl or through the local ROCKWOOL sales organizations.

Guidance on safe and effective installation could be provided through the local organization and at the end of this EPD.

ROCKWOOL stone wool is recyclable. For waste ROCKWOOL material that may be generated during installation or at end of life, the local organization is happy to discuss the individual requirements of contractors and users considering returning these materials to ROCKWOOL factories for recycling.

ROCKWOOL stone wool waste is classified as non-hazardous. ROCKWOOL insulation waste is covered by the non-hazardous entry (17 06 04) in the List of Wastes of the European Waste Catalogue. Leaching tests of mineral wool waste by Eurima demonstrate that they comply with the criteria for acceptance of waste at a landfill for non-hazardous waste and with the criteria for acceptance of waste at a landfill for inorganic waste with low organic content [ref. Hjelmer 2004, Abdelghafour, 2004].

Technical data

The environmental impacts and indicators given in the section “Life Cycle Assessment: Results” of this EPD are for 1m^2 of product, providing a thermal resistance of R_D=1 m^2 K/W (the declared unit). The reference product is 39 mm thick ROCKWOOL stone wool with a density of 28 kg/m^3.

For other specific ROCKWOOL products, the environmental impacts and indicators are determined by applying the appropriate scaling factors and products R_D-value. (Applying simply refers to multiplying the environmental impacts with the scaling factor in the table below and the R_D-value as indicated on the sold product.

The R_D-values used for scaling give a very good indication of the amount of materials needed to achieve the desired insulation effect of other product types, but it is not an exact measure.

Product specification
Composition of delivered product

Material	% of total weight
Non-scarce natural stone and secondary raw materials	89 %
Binder (resin)	3 %
Oils	< 0,2 %
Packaging	8 %

Scaling factors for other products

Product	Scale factor
AIRROCK HD	2,2
AIRROCK HD FB1	2,2
AIRROCK LD	1,4
AIRROCK ND	1,6
AIRROCK ND FB1	1,6
AIRROCK XD	3,0
ALU LAMELLA MAT	1,5
CEILINGROCK	1,7
CONLIT MAT	3,0
CONLIT PLUS	6,7
CONLIT 150	5,4
DACHROCK	5,6
DACHROCK MAX	5,7
DELTAROCK	1,2
DUROCK	5,7
FIREROCK	2,8
FRONTROCK SUPER	2,8
FRONTROCK PLUS	2,6
FRONTROCK S	3,7
FRONTROCK L	2,9
FIXROCK	1,1
GRANROCK SUPER	1,5
GRANROCK	1,5
GRANROCK PREMIUM	2,0
INDUSTRIAL BATTS BLACK 60	2,0
INDUSTRIAL BATTS BLACK 80	2,6
LAROCK 32 ALS	1,2
LAROCK 40 ALS	1,5
LAROCK 65 ALS	2,5
KLIMAFIX	1,5
HARDROCK MAX	5,7
ROCKFALL	5,6
MONROCK MAX	4,6

Product	Scale factor
MONROCK MAX E	4,5
MONROCK PRO	4,1
MULTIROCK	1,0
PROROX WM 950 ALU	2,8
ROCKLIT	6,3
ROCKMIN PLUS	1,1
ROCKMIN	1,0
ROCKROLL	0,9
ROCKROLL PLUS	1,0
ROCKROLL SUPER	1,3
ROCKSLAB	1,1
ROCKSLAB ACOUSTIC	1,6
ROCKSLAB SONIC	1,6
ROCKSLAB SUPER	1,3
ROCKSONIC SUPER	1,6
ROCKTERM	2,0
ROCKTON PREMIUM	1,7
ROCKTON SUPER	1,4
ROCKWOOL 800	3,0
ROOFROCK 30E	3,3
ROOFROCK 40	4,0
ROOFROCK 60 (20-30mm)	5,3
ROOFROCK 60 (60-200mm)	4,8
ROOFROCK 80	6,1
ROOFROCK 50 (40-50mm)	5,0
ROOFROCK 50 (60-200mm)	4,3
SPANROCK L	4.4
SPANROCK M	3.8
SPANROCK S	3.3
SPANROCK XL	4.6
SPANROCK XS	3.2
SPANROCK XXS	2.6
STALROCK	0,9

Product	Scale factor
STALROCK MAX	1,7
STALROCK MAX F	1,8
STEPROCK SUPER	4,8
STEPROCK PLUS	3,8
STEPROCK HD	4,7
STEPROCK ND	3,9
STROPROCK G	2,6
SUPERROCK PREMIUM	1,2
SUPERROCK	1,2
TECHROCK 40 ALS	1,3
TECHROCK 60 ALS	2,0
TECHROCK 80 ALS	2,6
TECHROCK 60 FB	2,0
TECHROCK 80 FB	2,6
TECHROCK 100 FB	3,2
TOPROCK PREMIUM	1,3
TOPROCK SUPER	1,1
TOPROCK PLUS	1,0
TOPROLL SUPER	1,3
VENTIROCK SUPER	2,3
VENTIROCK F SUPER	2,3
VENTIROCK PLUS	1,7
VENTIROCK F PLUS	1,7
VENTIROCK	1,3
VENTIROCK F	1,3
WINDROCK	6,1
HARDROCK MF PLUS	4,5
STEELROCK 035	1,6
STEELROCK PLUS 035	1,6
STEELROCK 040	1,5
STEELROCK PLUS 040	1,5
SF-50	1,6
SF-165	5,6

Life Cycle Assessment: Calculation rules

EPD type

Cradle-to-grave. Included are all relevant life cycle stages.

ROCKWOOL stone wool insulation products do not require maintenance (B2), repair (B3), replacement (B4), or refurbishment (B5) during use in standard conditions.

They do not use energy (B6) or water (B7) during use of the building.

EPD type

Cradle-to-grave and module D (A, B, C and D). All relevant life cycle stages are included.

System boundaries

The product stage **A1-A3** includes:

- Provision of preliminary products and energy
- and relevant upstream processes
- Transporting the raw materials and preliminary materials to the plant
- Production process in the plant including energy inputs and emissions
- Electricity consumption
- Waste processing up to the end-of-waste state or disposal of waste residues, during the production stage.
- Production of packaging
- Manufacturing of products and co-product

In the product system under assessment, the slags, alumina and ashes are considered by-products from the steel and coal fired electricity production respectively with the application of economic allocation so their environmental impact is accounted for. Recycled stone wool comes free of environmental burden, as it enters the product system as waste. Recycled fuels also come free of environmental burden, but their transport to the factory is accounted for. During the melting of raw materials pig iron is created in the cupola furnace. Pig iron is a co-product, which is subsequently sold to the market and economic allocation is applied.
Modules A1, A2 and A3 are be declared as an aggregated Module A1-3.
The Construction Stage **A4-A5** includes:

- A4 transport to the building site
- A5 installation to the building

The transport in A4 is modelled by volume, as the most conservative approach. The default vehicle is the truck and all the values are based on annual average delivery data

In A5 the default installation is assumed to be manual, therefore, no energy consumption or ancillary equipment is needed. The product waste from installation is assumed to be 2% and according to the modularity principle of EN15804 its impacts are fully allocated to A5. The A5 stage includes also waste processing up to the end-of-waste state or disposal of final residues during the construction process stage and impacts and aspects related to product losses during installation. Finally, the A5 module includes also the corresponding end-of-life considerations for packaging. The credits from heat and electricity recovery from incineration, or material recycling from module A5 are attributed to module D.

For the use-stage **B1-B7**, the impacts in stages B2-B7 are zero. ROCKWOOL stone wool insulation products do not require maintenance (B2), repair (B3), replacement (B4), or refurbishment (B5) during use in standard conditions. They do not use energy (B6) or water (B7) during use of the building related to the building fabric. Stages B2-B7 are thus not assessed.

The End-of-life stage **C1-C4** includes:

- C1 de-construction, demolition;
- C2 transport to waste processing;
- C3 waste processing for reuse, recovery and/or recycling;
- C4 disposal.

These stages also include provision and all transport, provision of all materials, products and related energy and water use. Manual deconstruction is assumed for C1, therefore no impacts are assigned. All recycling processes and avoided raw materials are part of the manufacturing of the new stone wool, no process is considered in C3 since the processing of waste wool takes place in the factory. The credits from disposal (heat or electricity recovery) are assigned to module D. The landfill scenario for stone wool is considered here.

Module D includes reuse, recovery and/or recycling potentials expressed as net impacts and benefits. Here the credits for the packaging disposal in A5 and the recycling potential of ROCKWOOL material in C3 and C4 are considered.

Below a schematic representation of the system boundaries is shown.

Flow diagram and system boundaries

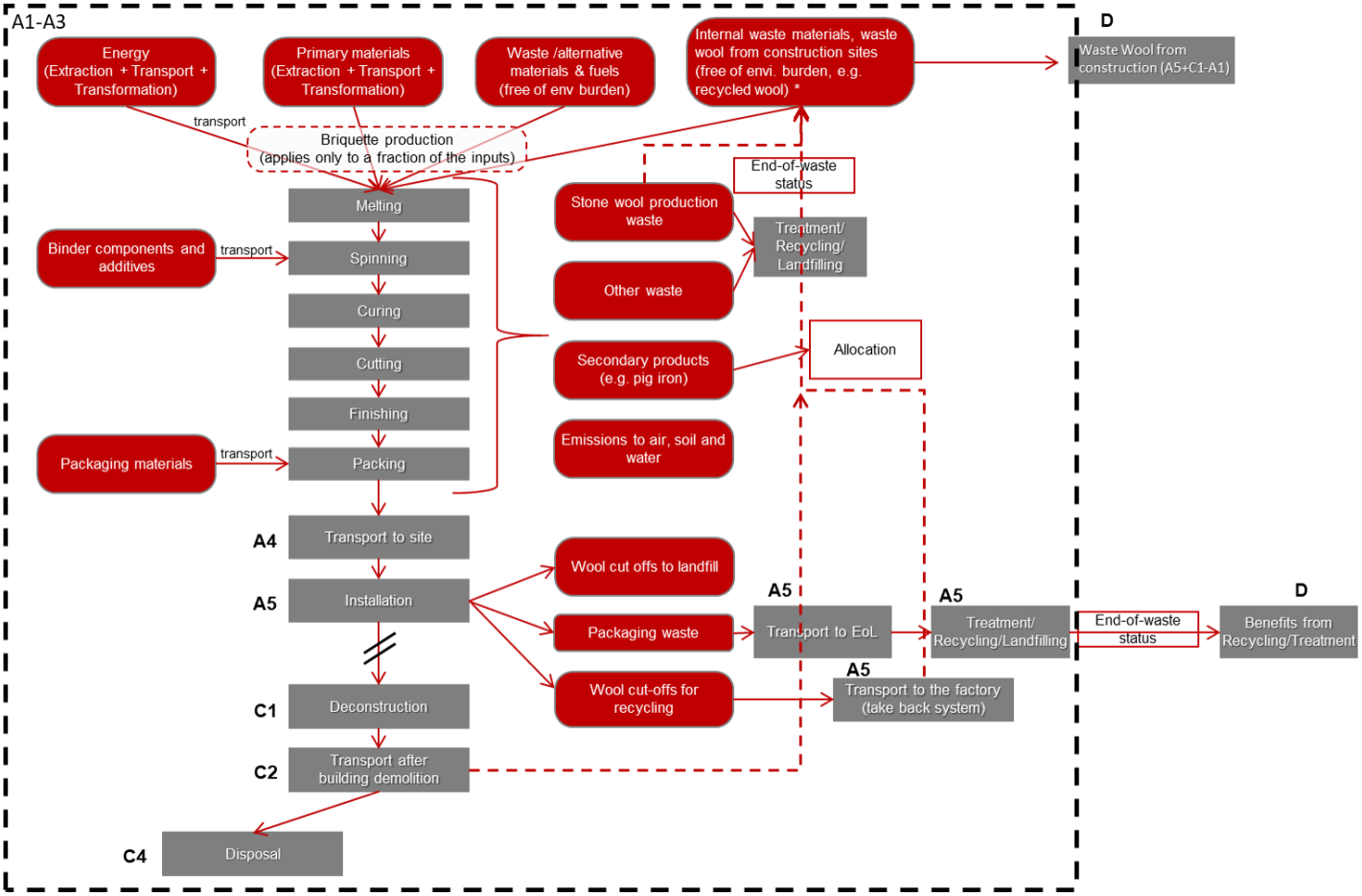


Figure 1: System boundaries for ROCKWOOL production system

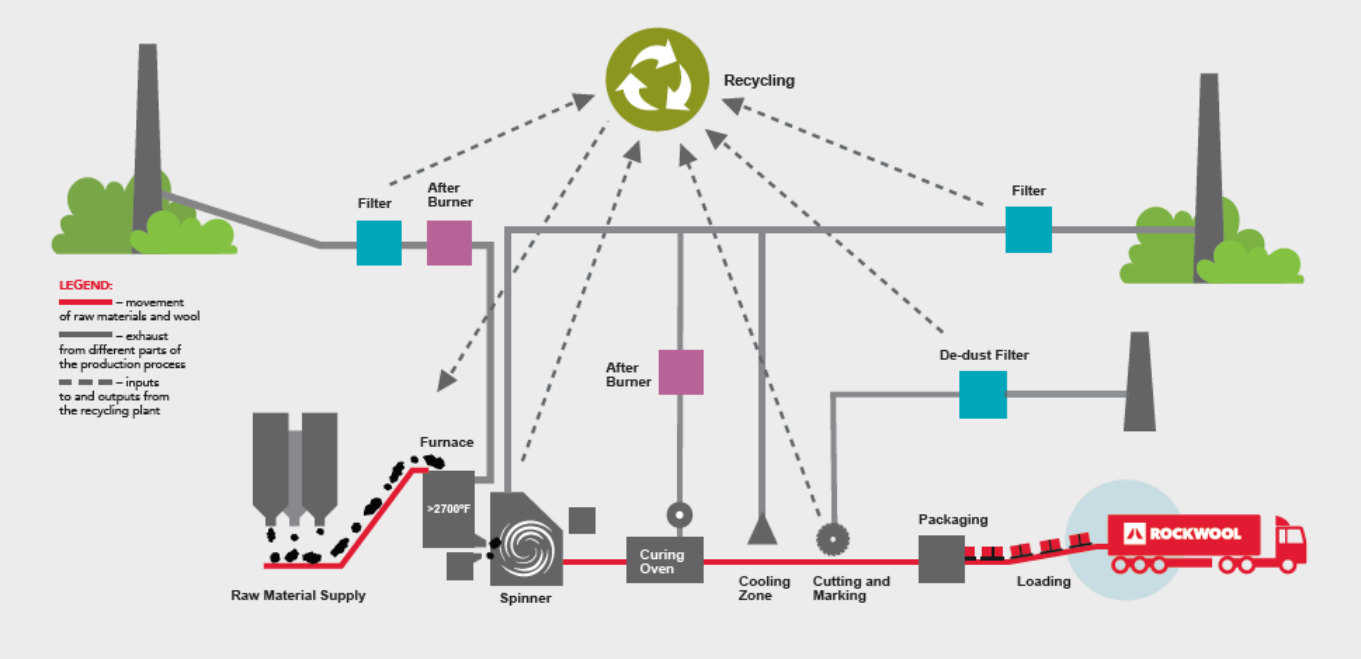


Figure 2: Graphical representation of manufacturing process in ROCKWOOL

Description of production process

Stone wool is produced as follows:

Raw materials, mainly basaltic rocks and secondary raw materials and coke are weighed and led into the cupola oven where they are melted. The melted mass from the cupola then goes through a spinning machine in order to create fibres. At this stage, also binder is applied, and fibres are formed. This moist pack of stone wool (uncured binder) is fed into the curing oven where the binder is polymerized. Once removed from the oven, the products are cooled down and go through a series of confectioning stages in order to give each product its final dimensions before packaging.

For cleaning the air of the melting process and the curing oven several after-burners, installations and filters (made of stone wool) are used. Off-cuts and stone wool air filters are all recycled back into the production.

The collected data reflects the actual stone wool produced by the ROCKWOOL plant in Cigacice (PL), Malkinia (PL), Bohumin (CZ) or Tapolca (HU). Throughout its factories, ROCKWOOL stone wool products are manufactured with the same underlying technology and pass through the same production processes in different production plants.

Cut-off criteria

Included are all the basic materials used as per formulation, utilized thermal energy, internal fuel consumption and electric power consumption, all packaging materials (plastic wrapping, pallets, labels), any direct production waste, and all emission measurements available. Machines and facilities required during production are treated as capital goods and their production is therefore not included in the LCA.

Allocation

Besides stone wool, pig iron is produced during the melting process of raw materials and sold. The iron is considered to be a co-product. Iron as a co-product is allocated by economic value. This is in line with EN15804.

Data quality

The quality of the data of this specific EPD is assessed as good and appropriate by internal experts. The data gathering approach for all EPDs is assessed as good and appropriate by the external verifier. Data was collected consistently and based on the financial year 2019.

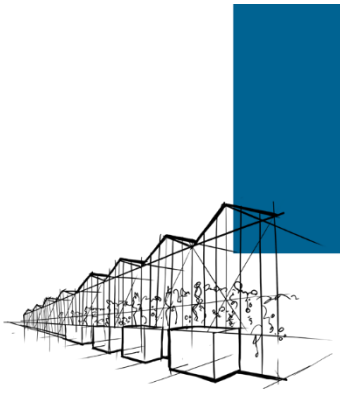
Life Cycle Assessment: Results

Limitations

Conservative choices are made in the LCA as described in the ROCKWOOL Group LCA rules. Therefore, the results can be considered to be conservative and worst case.

Description of the system boundaries (x=included, MNA = Module not assessed)

Production stage			Construction stage		Use stage							End-of-life stage				Benefits and loads beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	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	x	x	x	MNA	MNA	MNA	MNA	MNA	MNA	x	x	x	x	x



ROCKWOOL stone wool thermal insulation product for buildings

1 m² stone wool thermal insulation product with a thermal resistance of RD=1 m² K/W (thickness of 39 mm; density of 28 kg/m³)

Environmental impact

	Production stage	Construction stage		Use stage							End-of-life stage				
Parameter	A1-A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 De-construction/ demolition	C2 Transport	C3 Waste treatment	C4 Disposal	D Benefits and loads beyond the boundaries of the system
Global warming potential (GWP) kg CO_2 eqv	1,21E+00	5,66E-01	1,08E-01	0,00E+00	MNA	MNA	MNA	MNA	MNA	MNA	0,00E+00	3,01E-03	0,00E+00	1,25E-02	-4,63E-02
The global warming potential of a gas refers to the total contribution to global warming resulting from the emission of one unit of that gas relative to one unit of the reference gas, carbon dioxide, which is assigned a value of 1.															
Ozone depletion potential (ODP) kg CFC11 eqv	1,91E-09	3,58E-17	1,51E-10	0,00E+00	MNA	MNA	MNA	MNA	MNA	MNA	0,00E+00	4,95E-19	0,00E+00	6,90E-17	-1,59E-14
Destruction of the stratospheric ozone layer which shields the earth from ultraviolet radiation harmful to life. This destruction of ozone is caused by the breakdown of certain chlorine and/or bromine containing compounds (chlorofluorocarbons or halons), which break down when they reach the stratosphere and then catalytically destroy ozone molecules.															
Acidification potential (AP) kg SO^2 eqv	5,27E-03	1,72E-04	1,26E-04	0,00E+00	MNA	MNA	MNA	MNA	MNA	MNA	0,00E+00	2,59E-06	0,00E+00	8,04E-05	-1,09E-04
Acid depositions have negative impacts on natural ecosystems and the man-made environment incl, buildings. The main sources for emissions of acidifying substances are agriculture and fossil fuel combustion used for electricity production, heating and transport.															
Eutrophication potential (EP) kg PO_4 ^{3}- eqv	7,34E-04	3,49E-05	2,47E-05	0,00E+00	MNA	MNA	MNA	MNA	MNA	MNA	0,00E+00	5,42E-07	0,00E+00	9,04E-06	-1,12E-05
Excessive enrichment of waters and continental surfaces with nutrients, and the associated adverse biological effects.															
Photochemical ozone creation (POCP) kg Ethene eqv	3,03E-04	-7,33E-07	9,24E-06	9,83E-11	MNA	MNA	MNA	MNA	MNA	MNA	0,00E+00	-9,98E-08	0,00E+00	6,04E-06	-1,23E-05
Chemical reactions brought about by the light energy of the sun. The reaction of nitrogen oxides with hydrocarbons in the presence of sunlight to form ozone is an example of a photochemical reaction															
Abiotic depletion potential for non-fossil resources (ADP-elements) kg Sb eqv	2,51E-07	1,81E-08	4,38E-09	0,00E+00	MNA	MNA	MNA	MNA	MNA	MNA	0,00E+00	2,50E-10	0,00E+00	4,83E-09	-9,05E-09
Abiotic depletion potential for fossil resources (ADP-fossils) MJ	1,23E+01	2,97E+00	3,66E-01	0,00E+00	MNA	MNA	MNA	MNA	MNA	MNA	0,00E+00	4,10E-02	0,00E+00	1,78E-01	-9,36E-01
Consumption of non-renewable resources, thereby lowering their availability for future generations.															

Resource use

	Production stage	Construction stage		Use stage							End-of-life stage				
Parameter	A1-A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 De-construction/ demolition	C2 Transport	C3 Waste treatment	C4 Disposal	D Benefits and loads beyond the boundaries of the system
Use of renewable primary energy excluding renewable primary energy resources used as raw materials - MJ	8,14E-01	4,34E-01	7,61E-01	0,00E+00	MNA	MNA	MNA	MNA	MNA	MNA	0,00E+00	2,31E-03	0,00E+00	2,40E-02	-1,26E-01
Use of renewable primary energy resources used as raw materials - MJ	1,09E+00	0,00E+00	-6,94E-01	0,00E+00	MNA	MNA	MNA	MNA	MNA	MNA	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renewable primary energy resources - MJ	1,84E+00	1,67E-01	6,73E-02	0,00E+00	MNA	MNA	MNA	MNA	MNA	MNA	0,00E+00	2,31E-03	0,00E+00	2,40E-02	-1,26E-01
Use of non-renewable primary energy excluding nonrenewable primary energy resources used as raw materials - MJ	1,15E+01	2,98E+00	3,91E-01	0,00E+00	MNA	MNA	MNA	MNA	MNA	MNA	0,00E+00	4,12E-02	0,00E+00	1,83E-01	-9,86E-01
Use of non-renewable primary energy resources used as raw materials - MJ	1,19E+00	0,00E+00	-5,33E-03	0,00E+00	MNA	MNA	MNA	MNA	MNA	MNA	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-renewable primary energy resources - MJ	1,27E+01	2,98E+00	3,86E-01	0,00E+00	MNA	MNA	MNA	MNA	MNA	MNA	0,00E+00	4,12E-02	0,00E+00	1,83E-01	-9,86E-01
Use of secondary materials - kg/FU	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MNA	MNA	MNA	MNA	MNA	MNA	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of renewable secondary fuels - MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MNA	MNA	MNA	MNA	MNA	MNA	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of non-renewable secondary fuels - MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MNA	MNA	MNA	MNA	MNA	MNA	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water - m3	4,15E-03	1,94E-04	2,91E-04	0,00E+00	MNA	MNA	MNA	MNA	MNA	MNA	0,00E+00	2,68E-06	0,00E+00	4,62E-05	-3,05E-04

Waste categories

	Production stage	Construction stage		Use stage							End-of-life stage				
Parameter	A1-A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 De-construction/ demolition	C2 Transport	C3 Waste treatment	C4 Disposal	D Benefits and loads beyond the boundaries of the system
Hazardous waste disposed - kg	4,89E-07	1,39E-07	1,30E-08	0,00E+00	MNA	MNA	MNA	MNA	MNA	MNA	0,00E+00	1,92E-09	0,00E+00	2,79E-09	-1,17E-09
Non-hazardous waste disposed - kg	6,90E-02	4,56E-04	2,40E-02	0,00E+00	MNA	MNA	MNA	MNA	MNA	MNA	0,00E+00	6,30E-06	0,00E+00	9,21E-01	-2,84E-03
Radioactive waste disposed - kg	1,22E-04	3,69E-06	7,05E-06	0,00E+00	MNA	MNA	MNA	MNA	MNA	MNA	0,00E+00	5,10E-08	0,00E+00	2,08E-06	-7,51E-06

* There is never radioactive waste from a ROCKWOOL plant (A3), but potentially in its upstream chain (A1 & A2), which is not taken into account here.

Output flows

	Production stage	Construction stage		Use stage							End-of-life stage				
Parameter	A1-A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 De-construction/ demolition	C2 Transport	C3 Waste treatment	C4 Disposal	D Benefits and loads beyond the boundaries of the system
Component for re-use - kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MNA	MNA	MNA	MNA	MNA	MNA	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling - kg	0,00E+00	0,00E+00	1,95E-02	0,00E+00	MNA	MNA	MNA	MNA	MNA	MNA	0,00E+00	0,00E+00	2,56E-02	0,00E+00	0,00E+00
Materials for energy recovery - kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MNA	MNA	MNA	MNA	MNA	MNA	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported electrical energy - MJ	0,00E+00	0,00E+00	8,35E-02	0,00E+00	MNA	MNA	MNA	MNA	MNA	MNA	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported thermal energy - MJ	0,00E+00	0,00E+00	2,50E-01	0,00E+00	MNA	MNA	MNA	MNA	MNA	MNA	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Other Information

Dangerous substances

ROCKWOOL stone wool does not contain substances from the Candidate List of Substances of Very High Concern.

Mineral wool fibres produced by ROCKWOOL are classified as non-hazardous under REACH (Regulation (EC) No 1272/2008 of the European parliament and of the council of 16 December 2008 on classification, labelling and packaging of substances and mixtures).

The ROCKWOOL fibres are registered with REACH under the following definition: “Man-made vitreous (silicate) fibres with random orientation with alkaline oxide and alkali earth oxide (Na2O+K2O+CaO+MgO+BaO) content greater than 18% by weight and fulfilling one of the Note Q conditions”.

ROCKWOOL products produced in Europe fulfil the Note Q requirements [ref. Note Q]. This is certified by the independent certification body EUCEB. More information on EUCEB can be found at www.euceb.org

The International Agency for Research on Cancer (IARC), part of the World Health Organization, revised its classification of mineral wool fibres in October 2001, including them in Group 3 as an agent “not classifiable as to its carcinogenicity to humans”.

Indoor air

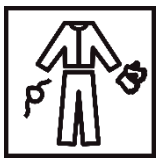
ROCKWOOL stone wool products fulfil the national demands in the EU with regard to emission to indoor climate. ROCKWOOL stone wool products have small impact on emission levels in buildings. Salthammer et al. 2010 notes that “the presence of mineral wool had no influence on the formaldehyde level in the house”.

Instruction for safe installation

Due to the well-known mechanical effect of coarse fibres, mineral wool products may cause temporary skin itching. Mineral wool fibres cannot cause a chemical or allergic reaction.

To diminish the mechanical effect of coarse fibres and avoid unnecessary exposure to mineral wool dust, information on good practice is available on the packaging of all mineral wool products with pictograms and/or written information (see pictograms on this page).

Safe use instruction sheets are also available from www.rockwool.pl



Cover exposed skin. When working in unventilated area wear disposable face mask.

Clean area using vacuum equipment.

Waste should be disposed of according to local regulations.

Rinse in cold water before washing.

Ventilate working area if possible.

Wear goggles when working overhead.

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