ENVIRONMENTAL PRODUCT DECLARATION
Environmentální prohlášení o produktu

In accordance with (v souladu s) EN 15804 and ISO 14025

Isover MAXIL

Declaration owner:
Výrobce:
Saint-Gobain Construction Products CZ a.s., Isover division

EPD Programme:
Pravidla značení:
Národní program environmentálního značení

Declaration number:
Registrační číslo:
3013EPD-15-0394

Issued:
Datum vydání:
3. 11. 2015

Valid to:
Platné do:
3. 11. 2020
General information

Manufacturer: Saint-Gobain Construction Products CZ a.s., Isover division
Počernická 272/66, 108 03 Prague 10, Czech Republic
VAT CZ25029673

About company: International company, enterprising in 64 countries, part of Saint-Gobain group, more than 190 000 employees. Subject of enterprise of Isover division is to produce and sell thermal insulation from mineral wool, expanded and extruded polystyrene, their accessories and providing technical support for marketed solutions.

Product name and manufacturer represented: Isover MAXIL;
Saint-Gobain Construction Products CZ a.s., Isover division
Factory address: Masarykova 197, 517 50 Častolovice, Czech Republic

Harmonised Commodity Code: 68066000

| EPD Programme: | Národní program environmentálních značení |
| Registration number: | 3013EPD-15-0394 |
| Date of publication: | 3. 11. 2015 |
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| Accredited or approved by | ČIA, Czech Accreditation Institute |

EPD calculation has been done in Ecohilian software TEAM, version 5.1. by:

Ing. Petr Vacek
Saint-Gobain Construction Products CZ a.s.
Isover division, Czech Republic

Independant verification of calculation data and other environmental information:

Mgr. Barbora Vlasalá
Výzkumný ústav pozemních staveb, Čertifikační společnost, s.r.o., Praha, Czech Republic
Product description

Product description and description of use:

This EPD describes the environmental impacts of 1 m³ of mineral wool product. EPD was created from complete data included all thicknesses of the product. Each thickness influences environmental impacts specifically, their individual impacts were taken into account by the real production and sale rate. Thickness proportions are listed thereafter.

Production process of this mineral wool uses natural and abundant raw materials (volcanic rock), blast-furnace slag, recycled contend (briquettes), fusion and fiberising techniques to produce stone wool. The products obtained come in the form of a "mineral wool mat" consisting of a soft, airy structure. It is made of hydrophilic mineral wool, so it has special parameters unlike to standard mineral wool. (see Manufacturing process flow diagram on page 6)

Isover MAXIL are slabs with increased density (75 kg.m⁻³), but still, they are suitable for unloaded insulations of the outer walls (ventilated facades under the cladding with insulation inserted into cassettes or frames), insulation of the pitch roofs, ceilings, false ceilings and other light sandwich constructions and fire-protection systems. They cannot be used for ETICS!
Product parameters for EPD calculation:

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness of product</td>
<td>100 mm (from range 30 - 100 mm)</td>
</tr>
<tr>
<td>Density</td>
<td>75 kg·m⁻² (constant for all thicknesses)</td>
</tr>
<tr>
<td>Recycled briquette content</td>
<td>33.4 %</td>
</tr>
<tr>
<td>Surfacing</td>
<td>None</td>
</tr>
<tr>
<td>Packaging for the distribution and transportation</td>
<td>Polyethylene: 5.6 g/m² (free parcels)</td>
</tr>
<tr>
<td>Quantity by transport (truck)</td>
<td>6480 kg</td>
</tr>
<tr>
<td>Distance transport (by truck) od the final product</td>
<td>120 km</td>
</tr>
<tr>
<td>Product used for the Installation:</td>
<td>None</td>
</tr>
<tr>
<td>Implementation losses rate</td>
<td>0.05 %</td>
</tr>
</tbody>
</table>

Technical data / physical characteristics:

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal resistance (100 mm) (EN 12162)</td>
<td>2.9 K·m²·W⁻¹</td>
</tr>
<tr>
<td>Thermal conductivity coefficient λ (EN 12667)</td>
<td>0.034 W·m⁻¹·K⁻¹</td>
</tr>
<tr>
<td>Water vapour transmission (EN 12986)</td>
<td>1 [·]</td>
</tr>
<tr>
<td>Compressive strength (EN 826)</td>
<td>Not declared</td>
</tr>
<tr>
<td>Tensile strength (EN 1607)</td>
<td>Not declared</td>
</tr>
<tr>
<td>Reaction to fire class (EN 13 501-1)</td>
<td>A1</td>
</tr>
</tbody>
</table>


Chemical and hazard information:

<table>
<thead>
<tr>
<th>Substance</th>
<th>C.A.S. number</th>
<th>Amount weight (%)</th>
<th>Classification and labelling (Regulation (CE) n°1272/2008)</th>
<th>Classification and labelling (European directive 67/548/EEC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stone wool (1)</td>
<td></td>
<td>over 95 %</td>
<td>Not classified (3)</td>
<td>Not classified</td>
</tr>
<tr>
<td>Terpolymerbinder</td>
<td></td>
<td>5%</td>
<td>Not classified</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

(1) Man-made vitreous (silicate) fibres with random orientation with alkali oxide and alkal earth oxide (Na₂O+K₂O+CaO+MgO+BaO) content greater than 18% by weight and fulfilling one of the note Q conditions
(2) C.A.S.: Chemical Abstract Service
(4): Where substances are classified in accordance with Regulation (EC) No 1272/2008 during the period from its entry into force until 1 December 2010, that classification may be added in the safety data sheet together with the classification in accordance with Directive 67/548/EEC. From 1 December 2010 until 1 June 2015, the safety data sheets for substances shall contain the classification


Most important hazards: There is no Hazard statement associated with this product

Material doesn’t contain any of substances listed in the Candidate List of Substances of Very High Concern for authorisation
LCA calculation information

FUNCTIONAL UNIT

Providing a thermal insulation on 1 m² with a thermal resistance of 2.9 K.m²/W

SYSTEM BOUNDARIES

Cradle to Grave. Mandatory stages = A1-3, A4-5, B1-7, C1-4 and Optional stage = D

REFERENCE SERVICE LIFE (RSL)

50 years

The use of cut-off criterion on mass inputs and primary energy at the unit process level (1%) and at the information module level (5%);

Flows related to human activities such as employee transport are excluded;

The construction of plants, production of machines and transportation systems is excluded since the related flows are supposed to be negligible compared to the production of the building product when compared at these systems lifetime level;

Product parts, that are neglectable for its small influence, are for example Paper Labels, used for labeling insulation parcels and pallets.

Allocations criteria are based on mass

ALLOCATIONS

Europe

2013

GEOGRAPHICAL COVERAGE AND TIME PERIOD

According to EN 15804, EPD of construction products may not be comparable if they do not comply with this standard. According to ISO 21930, EPD might not be comparable if they are from different programmes.
Product stage, A1-A3

Description of the stage:

The product stage of the mineral wool products is subdivided into 3 modules A1, A2 and A3 respectively 'Raw material supply', 'transport' and 'manufacturing'.

The aggregation of the modules A1, A2 and A3 is a possibility considered by the EN 15 804 standard. This rule is applied in this EPD.

Description of scenarios and additional technical information:

A1, Raw material supply
This module takes into account the extraction and processing of all raw materials and energy which occur upstream to the studied manufacturing process.

Specifically, the raw material supply covers production binder components and sourcing (quarry) of raw materials for fiber production, e.g. basalt and slag for stone wool. Besides these raw materials, recycled materials (briquettes) are also used as input. See detailed info at the end of this EPD.

A2, transport to the manufacturer
The raw materials are transported to the manufacturing site. In our case, the modelling include: road transportations (average values) of each raw material.

A3, manufacturing
This module includes process taking place on the manufacturing site. Specifically, it covers stone wool fabrication including melting and fiberization see process flow diagram and packaging.

The production of packaging material is taken into account at this stage.

Manufacturing process schema
Construction process stage, A4-A5

Description of the stage: The construction process is divided into 2 modules: transport to the building site A4 and installation A5.

A4, Transport to the building site: This module includes transport from the production gate to the building site. 
Transport is calculated on the basis of a scenario with the parameters described in the following table.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel type and consumption of vehicle or vehicle</td>
<td>Average truck trailer with a 24 t payload; diesel</td>
</tr>
<tr>
<td>type used for transport e.g. long distance truck,</td>
<td>consumption 38 liters for 100 km</td>
</tr>
<tr>
<td>boat, etc.</td>
<td>1400 km (for further distances could be A4 criteria</td>
</tr>
<tr>
<td>Distance</td>
<td>linearly adjusted)</td>
</tr>
<tr>
<td>Capacity utilisation (including empty returns)</td>
<td>95 % of the capacity in volume</td>
</tr>
<tr>
<td>Bulk density of transported products</td>
<td>30 % of empty returns</td>
</tr>
<tr>
<td>Volume capacity utilisation factor</td>
<td>75 kg/m³</td>
</tr>
<tr>
<td></td>
<td>1 (by default)</td>
</tr>
</tbody>
</table>

A5, Installation in the building: This module includes
- Wastage of products: see following table 5 %. These losses are landfilled (landfill model for stone wool see chapter end of life).
- Additional production processes to compensate for the loss,
- Processing of packaging wastes: they are 100 % collected and modeled as recovered matter.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wastage of materials on the building site before</td>
<td>5 %</td>
</tr>
<tr>
<td>waste processing, generated by the product's</td>
<td></td>
</tr>
<tr>
<td>installation (specified by type)</td>
<td></td>
</tr>
<tr>
<td>Output materials (specified by type) as results of</td>
<td>Packaging wastes are 100 % collected and modeled as recovered matter</td>
</tr>
<tr>
<td>waste processing at the building site e.g. of</td>
<td></td>
</tr>
<tr>
<td>collection for recycling, for energy recovering,</td>
<td>Stone wool losses are landfilled</td>
</tr>
<tr>
<td>disposal</td>
<td></td>
</tr>
<tr>
<td>(specified by route)</td>
<td></td>
</tr>
</tbody>
</table>
Use stage (excluding potential savings), B1-B7

Description of the stage: The use stage is divided into the following modules:
- B1: Use
- B2: Maintenance
- B3: Repair
- B4: Replacement
- B5: Refurbishment
- B6: Operational energy use
- B7: Operational water use

Description of scenarios and additional technical information:

Once installation is complete, no actions or technical operations are required during the use stages until the end of life stage. Therefore mineral wool insulation products have no impact (excluding potential energy savings) on this stage.

End-of-life stage C1-C4*

Description of the stage:

The stage includes the different modules of end-of-life detailed below.

C1. de-construction, demolition
The de-construction and/or dismantling of insulation products take part of the demolition of the entire building. In our case, the environmental impact is assumed to be very small and can be neglected.

C2. transport to waste processing
The model use for the transportation is applied.

C3. waste processing for reuse, recovery and/or recycling;
The product is considered to be landfilled without reuse, recovery or recycling.

C4. disposal;
The stone wool is assumed to be 100% landfilled.

Description of scenarios and additional technical information: See below.

End-of-life:

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>VALUE/DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collection process specified by type</td>
<td>7.5 kg (collected with mixed construction waste)</td>
</tr>
<tr>
<td>Recovery system specified by type</td>
<td>No re-use, recycling or energy recovery</td>
</tr>
<tr>
<td>Disposal specified by type</td>
<td>7.5 kg are landfilled</td>
</tr>
<tr>
<td>Assumptions for scenario development (e.g.</td>
<td>Average truck trailer with a 24 t payload, diesel</td>
</tr>
<tr>
<td>transportation)</td>
<td>consumption 38 liters per 100 km</td>
</tr>
<tr>
<td></td>
<td>25 km</td>
</tr>
</tbody>
</table>

Reuse/recovery/recycling potential, D*

Description of the stage: Packaging wastes from module A5 are reported in this module as recovered matter for information.

*see Environmental positive contribution at the end of EPD
LCA results

LCA model, aggregation of data and environmental impact are calculated from the TEAM™ software 5.1.

Resume of the LCA results detailed on the following tabs.

Environmental impacts of other thicknesses can be recounted by the design factor (on the material density and thickness base):

<table>
<thead>
<tr>
<th>Thickness (mm)</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>80</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>factor</td>
<td>0.3</td>
<td>0.4</td>
<td>0.5</td>
<td>0.6</td>
<td>0.8</td>
<td>1.0</td>
</tr>
</tbody>
</table>
## ENVIRONMENTAL IMPACTS

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Product stage</th>
<th>Construction process stage</th>
<th>Use stage</th>
<th>End-of-life stage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A1/A2/A3</td>
<td>A4 Transport</td>
<td>A5 Installation</td>
<td>B1 Use</td>
</tr>
<tr>
<td>Global Warming Potential (GWP) - kg CO₂ equiv/FU</td>
<td>1.5E+01</td>
<td>1.6E-01</td>
<td>7.4E-01</td>
<td>0</td>
</tr>
<tr>
<td>Ozone Depletion (ODP) - kg CFC 11 equiv/FU</td>
<td>4.7E-07</td>
<td>1.1E-07</td>
<td>2.9E-08</td>
<td>0</td>
</tr>
<tr>
<td>Acidification potential (AP) - kg SO₂ equiv/FU</td>
<td>9.4E-02</td>
<td>9.4E-04</td>
<td>4.8E-03</td>
<td>0</td>
</tr>
<tr>
<td>Eutrophication potential (EP) - kg (PO₄-3) equiv/FU</td>
<td>5.6E-03</td>
<td>2.3E-04</td>
<td>3.0E-04</td>
<td>0</td>
</tr>
<tr>
<td>Photochemical ozone creation (POCP) - Ethene equiv/FU</td>
<td>4.9E-03</td>
<td>2.1E-05</td>
<td>2.5E-04</td>
<td>0</td>
</tr>
<tr>
<td>Abiotic depletion potential for non-fossil resources (ADP-elements) - kg Sb equiv/FU</td>
<td>2.3E-06</td>
<td>2.3E-11</td>
<td>1.2E-07</td>
<td>0</td>
</tr>
<tr>
<td>Abiotic depletion potential for fossil resources (ADP-fossil fuels) - MJ/FU</td>
<td>2.3E+02</td>
<td>1.9E+00</td>
<td>1.2E+01</td>
<td>0</td>
</tr>
</tbody>
</table>

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.

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.

Acid deposition has 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.

Excessive enrichment of waters and continental surfaces with nutrients, and the associated adverse biological effects.

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.

Consumption of non-renewable resources, thereby lowering their availability for future generations.
<table>
<thead>
<tr>
<th>Parameters</th>
<th>A1/A2/A3</th>
<th>A4 Transport</th>
<th>A5 Installation</th>
<th>B1 Use</th>
<th>B2 Maintenance</th>
<th>B3 Repair</th>
<th>B4 Replacement</th>
<th>B5 Refurbishment</th>
<th>B6 Operational energy use</th>
<th>B7 Operational Water use</th>
<th>C1 Deconstruction</th>
<th>C2 Transport</th>
<th>C3 Waste processing</th>
<th>C4 Disposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of renewable primary energy excluding renewable primary energy resources used as raw materials - MJ/FU</td>
<td>3.0E+00</td>
<td>1.1E-03</td>
<td>1.5E-01</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2.0E-04</td>
<td>0</td>
</tr>
<tr>
<td>Use of renewable primary energy used as raw materials MJ/FU</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td>-</td>
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<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) MJ/FU</td>
<td>3.0E+00</td>
<td>1.1E-03</td>
<td>1.5E-01</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2.0E-04</td>
<td>0</td>
</tr>
<tr>
<td>Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials - MJ/FU</td>
<td>2.0E+02</td>
<td>1.9E+00</td>
<td>1.0E+01</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3.6E-01</td>
<td>0</td>
</tr>
<tr>
<td>Use of non-renewable primary energy used as raw materials MJ/FU</td>
<td>-</td>
<td>-</td>
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</tr>
<tr>
<td>Total use of non-renewable primary energy resources (primary energy energy resources used as raw materials) - MJ/FU and primary</td>
<td>2.0E+02</td>
<td>1.9E+00</td>
<td>1.0E+01</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3.6E-01</td>
<td>0</td>
</tr>
<tr>
<td>Use of secondary material kg FU</td>
<td>5.3E+00</td>
<td>0</td>
<td>2.6E-01</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Use of renewable secondary fuels - MJ/FU</td>
<td>-</td>
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<tr>
<td>Use of non-renewable secondary fuels - MJ/FU</td>
<td>-</td>
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</tr>
<tr>
<td>Use of net fresh water - m3/FU</td>
<td>4.9E+02</td>
<td>1.8E-04</td>
<td>2.4E-03</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3.4E-05</td>
</tr>
<tr>
<td>Parameters</td>
<td>Kg/FU</td>
<td>Kg/FU</td>
<td>Kg/FU</td>
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<td></td>
</tr>
<tr>
<td>Hazardous waste disposed</td>
<td>2.6E-03</td>
<td>1.4E-04</td>
<td>1.3E-05</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-hazardous waste disposed</td>
<td>2.7E-01</td>
<td>8.9E-01</td>
<td>3.1E-05</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radioactive waste disposed</td>
<td>2.5E-04</td>
<td>2.5E-04</td>
<td>7.5E+00</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
## OUTPUT FLOWS

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Product stage</th>
<th>Construction process stage</th>
<th>Use stage</th>
<th>End-of-life stage</th>
<th>D Recovery, recycling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Components for re-use</td>
<td>A1, A2, A3</td>
<td>A4 Transport</td>
<td>A5 Installation</td>
<td>B1 Use</td>
<td>B2 Maintenance</td>
</tr>
<tr>
<td>kg/FU</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Materials for recycling</td>
<td>6.5E+00</td>
<td>7.8E-07</td>
<td>3.7E-01</td>
<td>0</td>
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<tr>
<td>Materials for energy recovery</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>kg/FU</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Exported energy</td>
<td>8.5E-03</td>
<td>4.2E-04</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MJ/FU</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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</tbody>
</table>

13
### LCA Interpretation

<table>
<thead>
<tr>
<th>Global warming</th>
<th>Production</th>
<th>Transport</th>
<th>Installation</th>
<th>Use</th>
<th>End of life</th>
<th>Total</th>
<th>Recycling</th>
</tr>
</thead>
<tbody>
<tr>
<td>lb of CO₂eq/ton</td>
<td>9,94</td>
<td>16,46</td>
<td>6,74</td>
<td>2,00</td>
<td>11,05</td>
<td>15,59</td>
<td>0,30</td>
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<tr>
<td>Non-renewable resource consumption</td>
<td>1,06</td>
<td>1,52</td>
<td>13,82</td>
<td>2,34</td>
<td>1,91</td>
<td>24,48</td>
<td>0,09</td>
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<tr>
<td>Energy consumption</td>
<td>242.12</td>
<td>1.04</td>
<td>10.24</td>
<td>0,00</td>
<td>0,04</td>
<td>215,17</td>
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<tr>
<td>Water consumption</td>
<td>0,05</td>
<td>0,00</td>
<td>0,00</td>
<td>0,00</td>
<td>0,00</td>
<td>0,05</td>
<td>0,00</td>
</tr>
<tr>
<td>Waste production</td>
<td>2,71</td>
<td>0,03</td>
<td>0,00</td>
<td>0,00</td>
<td>0,00</td>
<td>3,00</td>
<td>0,00</td>
</tr>
</tbody>
</table>

[1] This indicator corresponds to the abiotic depletion potential of fossil resources. Potenciál abitu abitu, špecifická hrana.
[2] This indicator corresponds to the total use of primary energy. Specifická potenciál energie.
[4] This indicator corresponds to the sum of hazardous, non-hazardous and radioactive waste disposed. Súčet hroz výsledků, jako tvar, nehroz naprostotou.
*Environmental positive contribution*

Waste processing for reuse, recovery and/or recycling (not considered in the LCA scenarios of this EPD):

Factory mineral wool waste can be processed into recycled briquettes for mineral wool production. Only internal recycled products (that never leave factory gate) can be used as a production input and it is mentioned only at **part A1 - Raw material supply**. Main parts of these briquettes are Milled wet mineral waste, Cement and Bauxit.

Second way how to reuse or recycle old mineral wool waste is to mill it and use it as a blown wool for attic floor insulation or for cavity constructions. This option is now available only for an internal waste recycling (for products, that have never been used in real constructions). That's why this reuse and recycling is not counted also for stages C and D of this EPD.

**Additional information**

Production process follows in addition these international standards:

ČSN EN ISO 9001: 2009
ČSN EN ISO 14001: 2005
The electricity production model considered for the modelling of Saint-Gobain plant is: 401 Electricity (Czech Republic, 2011)

<table>
<thead>
<tr>
<th>TYPE OF INFORMATION</th>
<th>DESCRIPTION</th>
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</thead>
<tbody>
<tr>
<td>Location</td>
<td>Representative of average production in Czech Republic (2011)</td>
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<td></td>
<td>Breakdown of energy sources in Czech Republic (source: IEA 2013) - Coal and peat: 57.04%, Fuel oil: 0.11%, Gas: 1.34%, Nuclear: 32.34%, Hydro: 3.05%, Tide: 0.00%, Wind: 0.45%, Solar PV: 2.50%, Other non-thermal: 0.00%, Import: 11.96%</td>
</tr>
<tr>
<td>Geographical representativeness description</td>
<td></td>
</tr>
<tr>
<td>Reference year</td>
<td>2011</td>
</tr>
<tr>
<td>Type of data set</td>
<td>Cradle to gate</td>
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<tr>
<td>Source</td>
<td>IEA 2011</td>
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</tbody>
</table>

![Energy Sources Chart]

References


