SAINT-GOBAIN

ISOVER PLUS+ System

Calculation of Global Warming Potential

isover

SAINT-GOBAIN

General Information

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Valid until: The document is valid as long as the EPDs are valid.

This document is made to facilitate the calculation of the climate impact when using the ISOVER Plus system. It is based on two verified EPDs for the insulation material ISOVER Robust TP and ISOVER PLUS+ Skiva 32.

Link to included EPDs:

ISOVER Robust TP
https://www.epd-norge.no/getfile.php/1312419-1581595530/EPDer/Byggevarer/Isolasjon/NEPD-2018-891_ISOVER-Robust-TP-over-90-mm.pdf

ISOVER PLUS+ Skiva 32
https://www.epd-norge.no/getfile.php/1312733-1583495264/EPDer/Byggevarer/Isolasjon/NEPD-2063-932_ISOVER-PLUS--Skiva-32.pdf

Between these two verified EPDs the entire insulation layer is covered, but the ratio between the two will differ depending on the project specifics such as the center/center-distance and system thickness.

Generic values have been used for the wooden lath and fastening screws, the systems total values are then presented separately with or without the accessories.

Product description

Product description and description of use:

Original EPDs for the insulation materials used describes the environmental impacts of 1 m² of mineral wool with a thermal resistance of 1,0 m².K/W.

The system mainly consists of PLUS+ Studs and PLUS Screw that supports the facade. The studs consist of a hard glass wool with very high compressive strength that is glued to a finger-jointed wooden batten with pre-drilled holes for the facade screws. These are fixed vertically with a cc distance of either 600 mm or 1000 mm and PLUS+ Facade insulation is mounted in between, without the need for additional fixing.

At the date of issue of this declaration, there is no “Substance of Very High Concern” (SVHC) in concentration above 0.1% by weight, and neither do their packaging, following the European REACH regulation (Registration, Evaluation, Authorization and Restriction of Chemicals).

Composition of the product

1. ISOVER PLUS+ Regel 1
2. ISOVER PLUS+ Skiva 32
3. ISOVER PLUS+ Träskruv
4. ISOVER Vario Xtra – smart vapour retarder
5. KL-trä

ISOVER Vario Xtra and KL-trä
are optional accessories not included in the calculation.

Components

ISOVER PLUS+ Regel 1

Thermal conductivity 0,042 W/(mK)
Reaction to fire:
Euroclass A2-s1, d0
Length: 2400 mm Width: 90 mm Thickness: 145 mm, 195 mm, 245 mm and 290 mm

ISOVER PLUS+ Skiva 32

Thermal conductivity: 0.032 W/(m·K)
Reaction to fire: Euroclass A1
Length: 1200 mm Width: 515 mm / 915 mm Thickness: 120 mm, 145 mm, 170 mm, 195 mm, 220 mm and 245 mm

ISOVER PLUS+ Träskruv

Made of hardened carbon steel with a C4-rated surface treatment for outdoor and indoor environments.
Length: 200mm 240 mm 300mm and 340mm

Calculation information

Included stages=A1-A3 “Raw material supply”, “transport” and “manufacturing”

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

A2, Transport to the manufacturer
The raw materials are transported to the manufacturing site. In our case, the modeling includes road (average values) of each raw material.

A3, Manufacturing
This module includes the manufacturing of the components of the product and packaging.

Data has been taken directly from their respective EPDs where available.

Results

Global Warming Potential (GWP) – kg CO_2 equiv at 33 mm (R=1)

PRODUCT	INSULATION LAYER ONLY	INSULATION WITH WOOD AND SCREW
C600	0,91	1,80
C1000	0,84	1,38

All the results refer to a functional unit of mineral wool with thermal resistance of 1,0 m^2 K.W-1 for a thickness of 33 mm which is not commercial thickness. To obtain results of commercial thicknesses see Additional information.

Additional information

Influence of particular thicknesses

This includes the range of thicknesses between 33 mm and 290 mm using a multiplication factor to obtain the environmental performance (GWP) for every thickness and considering if you calculate only the insulation (first table) or insulation with wood and screw (second table). In order to calculate the GWP-value for each thickness, using the multiplication factors, a reference value, 0,91 kg CO_2 e (For a thermal resistance of R= 1,0 m^2 K/W), has been selected.
Hence to obtain the corresponding GWP associated with every specific thickness given the choice of insulation or insulation with wood and screws, the reference value must be multiplied by its corresponding multiplication factor.

Insulation layer only

PRODUCT THICKNESS	MULIPLIC-ATION FACTOR	GWP kg CO_2 equiv	MULIPLIC-ATION FACTOR	GWP kg CO_2 equiv	THERMAL RESISTANCE m^2 *K/W	
mm	C600	C600	C1000	C1000	C600	C1000
33	1,00	**0,91**	0,92	**0,84**	0,99	1,00
120	3,62	3,29	3,34	3,04	3,58	3,65
145	4,37	3,98	4,04	3,68	4,33	4,41
170	5,13	4,67	4,74	4,31	5,07	5,17
195	5,88	5,35	5,43	4,94	5,82	5,93
220	6,64	6,04	6,13	5,58	6,57	6,69
245	7,40	6,73	6,82	6,21	7,31	7,45
265	8,00	7,28	7,38	6,72	7,91	8,05
290	8,75	7,96	8,08	7,35	8,66	8,81

Insulation with wood and screw

PRODUCT THICKNESS	MULIPLIC-ATION FACTOR	GWP kg CO_2 equiv	MULIPLIC-ATION FACTOR	GWP kg CO_2 equiv	THERMAL RESISTANCE m^2 *K/W	
mm	C600	C600	C1000	C1000	C600	C1000
33	1,98	**1,80**	1,52	**1,38**	0,88	0,94
120	4,98	4,53	4,15	3,78	3,21	3,41
145	5,74	5,22	4,86	4,42	3,88	4,12
170	6,64	6,04	5,64	5,13	4,55	4,82
195	7,40	6,73	6,34	5,77	5,22	5,53
220	8,27	7,53	7,11	6,47	5,88	6,24
245	9,02	8,21	7,80	7,10	6,55	6,95
265	9,84	8,95	8,48	7,72	7,09	7,52
290	10,58	9,63	9,18	8,35	7,76	8,23