Environmental Product Declaration

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

Nofisol Standard Sound Insulation Barriers

EPD of multiple products, based on worst-case results

from

NOFISOL
SOUND OF SILENCE

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
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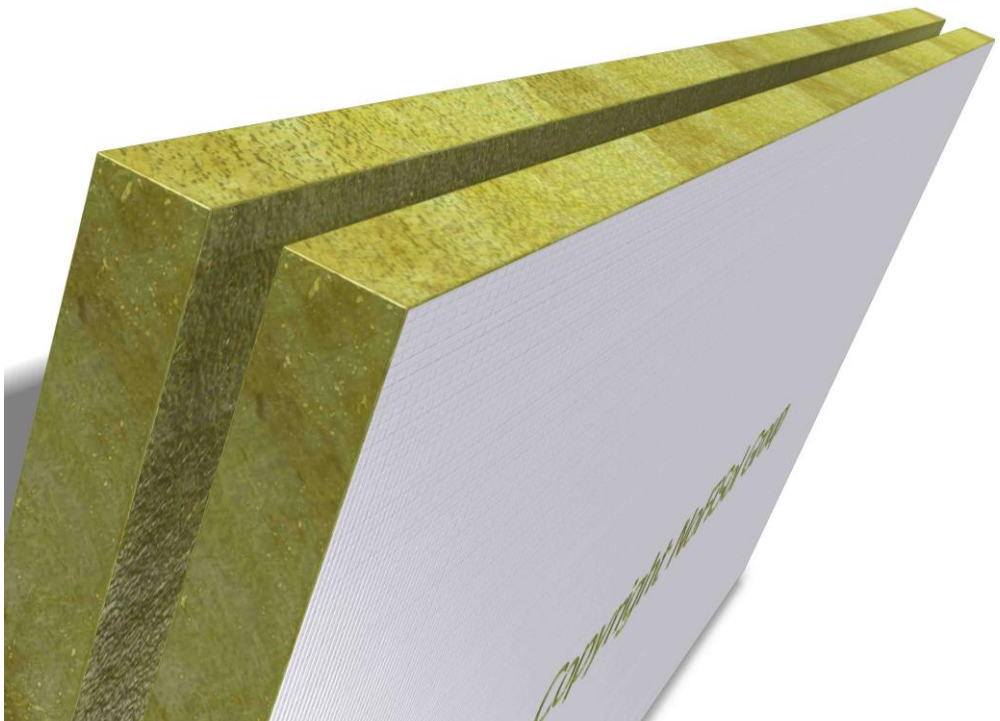
An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com



General information

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): *PCR 2019:14 Construction products (EN 15804:A2) (1.3.2.) (2023-12-08)* *c-PCR-014 Acoustical ceiling and wall solutions (2022-01-28)*
PCR review was conducted by: The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact.
Life Cycle Assessment (LCA)
LCA accountability: *Eco Intelligent Growth, Barcelona (Spain)* *T. (+34) 934 199 080* *info@ecointelligentgrowth.net*
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by individual verifier Third-party verifier: Marcel Gomez Ferrer, *Marcel Gomez Consultoria Ambiental* Phone: +34 630 64 35 93, Email: info@marcelgomez.com Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent

data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Comparability between EPDs is only achievable if the following performance characteristics are equivalent: declared unit, containment level, level of working width, assumed service life, geographic region and fulfilment of the same requirements of the applicable standard (EN 13964:2014).

Company information

Owner of the EPD: NOFISOL Europe BV
Contact: Iris van Vliet europe@nofisol.com

Description of the organisation:
NOFISOL, established in April 2006 . NOFISOL stands for NOISE FIRE SOLUTIONS.

NOFISOL provides acoustic materials and sound barriers, sealed-in stone wool, sealed-in glass wool, acoustic overlay tiles, trapezoidal blocks and a myriad of other solutions to improve the acoustic climate in your building.

NOFISOL® products are Cradle to Cradle Certified®. NOFISOL® has been a member of the C2C Building Group since 2017, to contribute with fellow companies and design offices further to the Cradle to Cradle philosophy.

Product-related or management system-related certifications:
NOFISOL® products have been tested by CSTB France for VOC emissions and are classified by CSTB as A+ or A.

NOFISOL® products are also:

- Cradle to Cradle Certified® Silver v4.0.
- Eurofins Indoor Air Comfort Gold certified according to EN 16516. Certificate number IACG-466-01-02-2022

See related norms at Reference section.

Name and location of production site(s):

Nofisol Europe BV
Everdenberg 9-d
4902 TT Oosterhout (NB)
The Netherlands

Product information

Product name: The NOFISOL Standard sound insulation barriers included in this declaration are panels with the following commercial references:

NOFISOL® STANDARD BARRIERS:	Rw (dB)	Kg/m2
• NOFISOL® 21	21	4,36
• NOFISOL® 22	22	4,36
• NOFISOL® 31	31	8,75
• NOFISOL® 33-LP	33	8,71
• NOFISOL® 33	33	8,786

NOFISOL Barriers are standard available in 3 sizes (1200x600 / 1200x1000 / 1200x2000mm).

Product identification:

The NOFISOL® Standard barriers are always provided with a special glass fibre-reinforced aluminium foil. The thickness of the barriers is 60 or 66 mm. The thickness of the NOFISOL® Standard barriers is honed to the standard 100 mm bandraster that is applied frequently and provides for a simple, well-connecting installation of the barriers on the underlying structure.

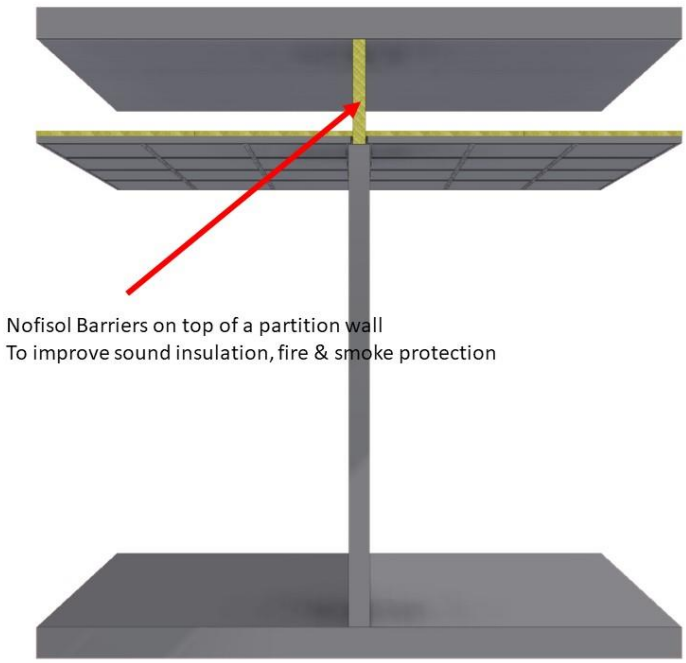
Product	Rw dB	Cradle To Cradle	Eurofins Indoor Air	Indoor Air Climate	Fire Resistance [min]	Fire Integrity [min]	Smoke Resistance NEN 6075-2011	Smoke Permeability NEN 6075-2020
NOFISOL® 21	21	Silver v 4.0	Comfort GOLD	A+	NPD	E 30	88	Sa, S200
NOFISOL® 22	22	Silver v 4.0	Comfort GOLD	A+	NPD	E 30	88	Sa, S200
NOFISOL® 31	31	Silver v 4.0	Comfort GOLD	A+	EI 30	E 120	202	Sa, S200
NOFISOL® 33-LP	33	Silver v 4.0	Comfort GOLD	A+	EI 30	E 120	202	Sa, S200
NOFISOL® 33	33	Silver v 4.0	Comfort GOLD	A+	Ei 30	E 120	202	Sa, S200

Figure 1. NOFISOL Standard barriers characteristics

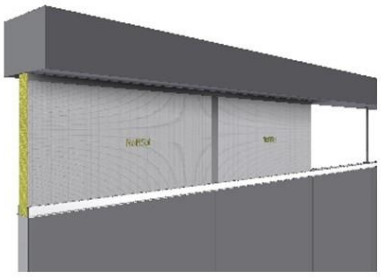
Product description:

This Environmental Product Declaration describes the environmental impacts of 1 m² of sound barrier.

NOFISOL® Sound Barriers are specifically developed to seal the gaps above lightweight partition walls and below raised floors. The use improves fire and smoke resistance, and the longitudinal noise insulation of a building.



Nofisol Barriers on top of a partition wall
To improve sound insulation, fire & smoke protection



Installed vertically on top of the ceiling directly on top of a partition wall to improve the sound insulation. Also these product's does not only improves the sound insulation but also improves fire resistance (EI classification) and the smoke permeability (Sa, S200) of a construction.

More information available at: www.nofisol.com

UN CPC code: –37990 Non-metallic mineral products n.e.c. (including mineral wool, expanded mineral materials, worked mica, articles of mica, non-electrical articles of graphite or other carbon and articles of peat)

Geographical scope: Europe

Content information

NOFISOL STANDARD Barrier worst-case corresponds to NOFISOL® 33.
Raw material composition of 1 m2 of NOFISOL® 33 and its packaging is presented in the following table:

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/ kg
Stone wool-Base barrier	8,400	1%	-
Aluminium laminate	0,160	-	-
Naturel glas tissue	0,150	-	-
Construction glue	0,040	-	-
HF Strip	0,036	-	-
TOTAL	8,786	-	-
Packaging materials	**Weight, kg**	**Weight-% (versus the product)**	**Weight biogenic carbon, kg C/ kg**
Plastic film	0,005	0,06%	-
Cardboard (corner protectors)	0,034	0,39%	0,5
Pallets	0,159	1,81%	0,455
TOTAL	0,198	2,26%	0,5

The product does not contain any REACH SVHC substances in amounts greater than 0,1% (1000 ppm).

The Stone wool-Base barrier has 8% pre-consumer material and 1% post-consumer material.

Biogenic Carbon Content

Product's biogenic carbon content at the factory gate	
Biogenic carbon content in product, kg C	= 0
Biogenic carbon content in packaging, kg C	= 0,09

LCA information

Functional unit:
The functional unit is 1m² of sound barriers for ceiling/wall during 50 years with a sound reduction index of 33 dB.

Reference service life:
Reference service life of NOFISOL Barriers is 50 years according to the default value established in the c-PCR C for acoustic systems.

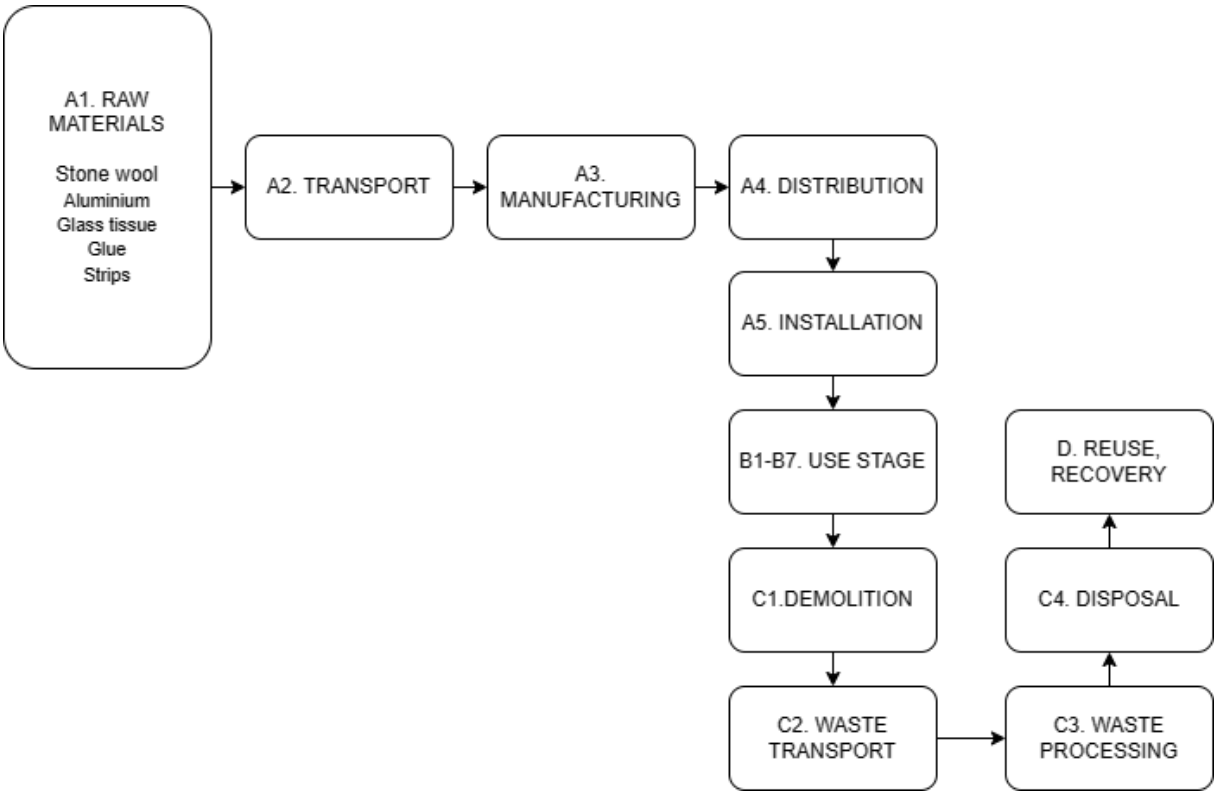
Time representativeness: All inventory data was collected using year 2022 as a reference year. Secondary data based on Ecoinvent database, processes correspond to the latest available in the Ecoinvent v3.8 with time representativeness for 2011 – 2021.

Database(s) and LCA software used: SimaPro 9.4, ecoinvent 3.8 cut-off system model.

Description of system boundaries:
The scope of this EPD is set to be Cradle to grave.

All major materials, production energy use and waste are included for product stages A1-A3, A4-A5, C1-C4, and D. Stages B1-B7 are also included, however there is no impact related to usage stage since it is assumed that there is no maintenance, replacement or repair during its lifetime, and no direct emissions related to this kind of products.

System diagram:



PRODUCT LIFE CYCLE:

A1 - Raw material supply
This module represents the extraction and processing of raw materials used in NOFISOL barriers. Among them are the main raw materials such as stone wool, aluminium, glass tissue and PE.

A2 - Transport to production sites
Raw materials are transported totally by road with a distance not higher than 1.100 km for all providers (providers based in Netherlands, Germany and Italy).

A3 - Manufacturing
This stage is taking into consideration the final assembly, cutting and packaging carried out at NOFISOL facilities. Total annual inputs (packaging, energy and water) and outputs (products and wastes) have been allocated per m2 produced in the manufacturing plant in 2022.

A 100% renewable electricity mix is used for the assembly site. NOFISOL plant at Oosterhout (Netherlands) has a Green certificate of Origen from the electricity supplier: wind production (100%).

This renewable mix represented emissions of 0.07 kg of CO2 eq/kWh.

A4 - Transport
This module includes transport from NOFISOL facilities to the building site. Transport is calculated on the basis of a scenario with the parameters described in the following table and the distances by road are weighted to different destinations of the NOFISOL customers in the analyzed period.

TECHNICAL PARAMETERS A4

Scenario parameter	Value
Specific transport CO_2e emissions, kg CO_2e / tkm Lorry, 16-32t, EURO5	0,09
Average transport distance, km	217
Capacity utilization (including empty return) %	Default value from Ecoinvent 3.8
Bulk density of transported products	N/A
Volume capacity utilization factor	≈ 1

A5 - Installation
This module includes wastes generated during the installation of NOFISOL panels.
Scenarios of waste treatments of packaging is based on Eurostat statistics on Packaging waste (Eurostat, 2020): 64,4% recycled; 15,8% incineration with energy recovery; 19,8% landfill.
It is assumed that no energy is consumed during installation of acoustic barriers since it is a manual installation where no tools and/or machines are needed.

Materials to fix the panels are out of the scope since panels are taking advantage of other constructions structures and no specific support is required.

Scenario parameter	Value

Materials and energy consumption for installation	None
Quantitative description of the type of energy (regional mix) and its consumption during the installation process.	None
Waste of packaging materials during the installation of the product:	Cardboard, plastic, wooden pallet: • 64,4% recycled; • 15,8% incineration with energy recovery; • 19,8% landfill
Direct emissions to air, soil or water	Considered negligible

B1-B7- Use stage
The product does not require any maintenance, repair or replacement during the reference life. Furthermore, no direct emission during the working life could be identified. There are no contribution on impact categories of this stage. CSTB France for VOC emissions classified as A+ or A and Eurofins Indoor Air Comfort (Gold) certificates support this statement.

C1 - De-construction
Module C1 assumes the scenario described by Santos et al., (2021): demolition 10 kWh Diesel / ton of construction material.

C2 - Transport to waste processing
The transport distance to the nearest waste processing plant is estimated at 50km and the mode of transport is assumed to be truck which is most common. (ref. EeBGuide)

C3 - Waste processing for reuse, recovery and/or recycling
NOFISOL sytems are considered to be landfilled without reuse, recovery or recycling. Therefore, there is no contribution in the impact categories for this module related to product.

C4 - Final disposal
The most likely disponal route for NOFISOL systems is a treatment as inert waste in landfill since a very high percentage of the materials involved are minerals. The amount of waste generated sent to final disposal is the same as that shown in the composition table.

Scenario parameter C1-C4	**Value**
C1-De-construction	10 kWh Diesel / ton of construction material = 10*8,786/1000= 0,088kWh
Recovery system specified by type	0% recycling, 0% reuse, 0% recovery
Specified discharge by type (C4)	100% landfill
Transport to disposal site (C2)	50 km by 16-32 ton Euro 5 trucks to the final treatment or disposal site.

D - Reuse, recovery or recycling potential

This module includes only benefits and loads of packaging recycling and incineration with energy recovery.

Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
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	x	x	x	x	x	x	x	x	x	x	x
Geography	EU	EU	NL	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU
Specific data used	<30%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	<42%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

X= Declared module
ND= Module not declared

CUT-OFF RULES

The study does not exclude any modules or processes which are stated mandatory in the EN 15804:2012+A2:2019 and the applied PCR. The study does not exclude any hazardous materials or substances.

The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. Inventory flows from infrastructure, construction, production equipment, and tools that are not directly consumed in the production process are excluded from the life cycle inventory (LCI). The module specific total neglected input and output flows do not exceed 5% of energy usage or mass.

ALLOCATION

Modularity and polluter payer principles have been followed. General allocation principles were applied according to EN 15804:2012+A2:2019. The acoustic barriers are produced only in one plant. Incoming energy, water and waste production are allocated equally among all products through a m2 allocation. According to recorded production, the material and energy consumption in manufacturers' data is indicated per m2.

The panels are essentially stone wool with some reinforcing laminate, and they already arrive at the NOFISOL plant in that format (stone wool manufacturers always sell in this format) where they are only assembled and cut to the necessary standard size and packaged. For this reason, the assignment in m2 is considerate adequate since it is common to any of the products of the NOFISOL plant.

DATA QUALITY

Primary data refers to year 2022. For the data, which is not influenced by the manufacturer, generic data was used. The secondary data was taken from the database EcoInvent cut-off system model v3.8. Regionally specific datasets were used to model electricity consumption.

For the processes of transport, production of raw materials or end-of-life, datasets were chosen according to their technological and geographical representation of the actual process.

The technological and geographical representativeness of 80% of the processes included in the LCA is guaranteed. The data quality is good, because all process specific data could be documented and modelled by using the generic data.

ESTIMATES AND ASSUMPTIONS

Main estimates and assumptions are given below:

- Modules A2, A4 & C2: The vehicle capacity utilization volume factor is assumed to be 1, meaning full load. Empty returns are not taken into account as it is assumed that the return trip is used by the transport companies to meet the needs of other customers.
- Module A4: Transport does not cause losses because the products are properly packaged.
- Module A5: Weight loss due to the cutting process during installation is assumed to be negligible since panels are cutted in standarized sizes at NOFISOL facilities. It is assumed that no energy or materials are consumed during installation.
- Modules B1-B7: Impacts of usage are negligible since there is no maintenance, replacement, weight loss or emission.
- Long term emissions are not included.

Results of the environmental performance indicators

Mandatory impact category indicators according to EN 15804+A2 (based on EF package 3.0)

NOFISOL STANDARD Barrier worst-case corresponds to NOFISOL® 33.
Results of 1 m2 of NOFISOL® 33 (8,78 kg) and its packaging (0,2kg).
Valid also for the other Standard barriers references: NOFISOL® 21, NOFISOL® 22, NOFISOL® 31, NOFISOL® 33-LP

The estimated impact results for the thermal insulation material are only relative statements that do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins, or risks.

Results per Functional unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	1,73E+01	3,25E-01	7,12E-03	0	0	0	0	0	0	0	2,91E-02	7,30E-02	0,00E+00	9,25E-02	-6,32E-02
GWP-biogenic	kg CO_2 eq.	-3,27E-01	0,00E+00	3,27E-01	0	0	0	0	0	0	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GWP-luluc	kg CO_2 eq.	1,89E-02	1,27E-04	2,34E-05	0	0	0	0	0	0	0	2,90E-06	2,87E-05	0,00E+00	9,37E-05	-1,32E-04
GWP-total	kg CO_2 eq.	1,70E+01	3,25E-01	3,34E-01	0	0	0	0	0	0	0	2,91E-02	7,30E-02	0,00E+00	9,26E-02	-6,33E-02
ODP	kg CFC 11 eq.	1,03E-06	7,51E-08	8,12E-10	0	0	0	0	0	0	0	6,22E-09	1,69E-08	0,00E+00	2,81E-08	-5,54E-08
AP	mol H^+ eq.	1,39E-01	1,32E-03	4,06E-05	0	0	0	0	0	0	0	3,02E-04	2,96E-04	0,00E+00	7,81E-04	-3,68E-04
EP-freshwater	kg P eq.	5,27E-03	2,09E-05	1,21E-06	0	0	0	0	0	0	0	9,01E-07	4,70E-06	0,00E+00	2,68E-05	-2,89E-05
EP-marine	kg N eq.	1,74E-02	3,97E-04	2,67E-05	0	0	0	0	0	0	0	1,34E-04	8,93E-05	0,00E+00	2,69E-04	-7,64E-05
EP-terrestrial	mol N eq.	2,44E-01	4,34E-03	1,65E-04	0	0	0	0	0	0	0	1,47E-03	9,75E-04	0,00E+00	2,93E-03	-7,77E-04
POCP	kg NMVOC eq.	7,36E-02	1,33E-03	4,52E-05	0	0	0	0	0	0	0	4,03E-04	2,99E-04	0,00E+00	8,47E-04	-2,51E-04
ADP-minerals & metals*	kg Sb eq.	1,42E-04	1,13E-06	1,21E-08	0	0	0	0	0	0	0	1,50E-08	2,54E-07	0,00E+00	3,02E-07	-2,58E-07
ADP-fossil*	MJ	2,03E+02	4,91E+00	6,98E-02	0	0	0	0	0	0	0	3,99E-01	1,10E+00	0,00E+00	2,17E+00	-1,05E+00

WDP*	m^3	4,08E+00	1,47E-02	6,30E-04	0	0	0	0	0	0	0	6,24E-04	3,31E-03	0,00E+00	9,47E-02	-2,25E-02
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption														

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

Additional mandatory and voluntary impact category indicators

Results per Functional unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [1]	kg CO_2 eq.	1,69E+01	3,22E-01	9,04E-03	0	0	0	0	0	0	0	2,88E-02	7,24E-02	0,00E+00	9,11E-02	-6,20E-02
Additional voluntary indicators e.g. the voluntary indicators from EN 15804 or the global indicators according to ISO 21930:2017																

Resource use indicators

Results per Functional unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	2,17E+01	6,92E-02	3,63E-03	0	0	0	0	0	0	0	2,24E-03	1,56E-02	0,00E+00	3,71E-02	-7,48E-01
PERM	MJ	3,76E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	2,54E+01	6,92E-02	3,63E-03	0	0	0	0	0	0	0	2,24E-03	1,56E-02	0,00E+00	3,71E-02	-7,48E-01
PENRE	MJ	2,03E+02	4,91E+00	7,00E-02	0	0	0	0	0	0	0	3,99E-01	1,10E+00	0,00E+00	2,17E+00	-1,05E+00
PENRM	MJ	2,15E-01	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	2,03E+02	4,91E+00	7,00E-02	0	0	0	0	0	0	0	3,99E-01	1,10E+00	0,00E+00	2,17E+00	-1,05E+00

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

SM	kg	7,56E-01	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	1,10E-01	5,12E-04	4,60E-05	0	0	0	0	0	0	0	2,01E-05	1,15E-04	0,00E+00	2,26E-03	-8,64E-04
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary 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 re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water															

Waste indicators

Results per Functional unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1,00E-03	1,28E-05	1,44E-07	0	0	0	0	0	0	0	1,09E-06	2,88E-06	0,00E+00	3,36E-06	-1,41E-06
Non-hazardous waste disposed	kg	2,27E+00	2,53E-01	4,27E-02	0	0	0	0	0	0	0	5,53E-04	5,69E-02	0,00E+00	8,81E+00	-4,84E-03
Radioactive waste disposed	kg	3,72E-04	3,32E-05	4,10E-07	0	0	0	0	0	0	0	2,75E-06	7,47E-06	0,00E+00	1,30E-05	-2,62E-06

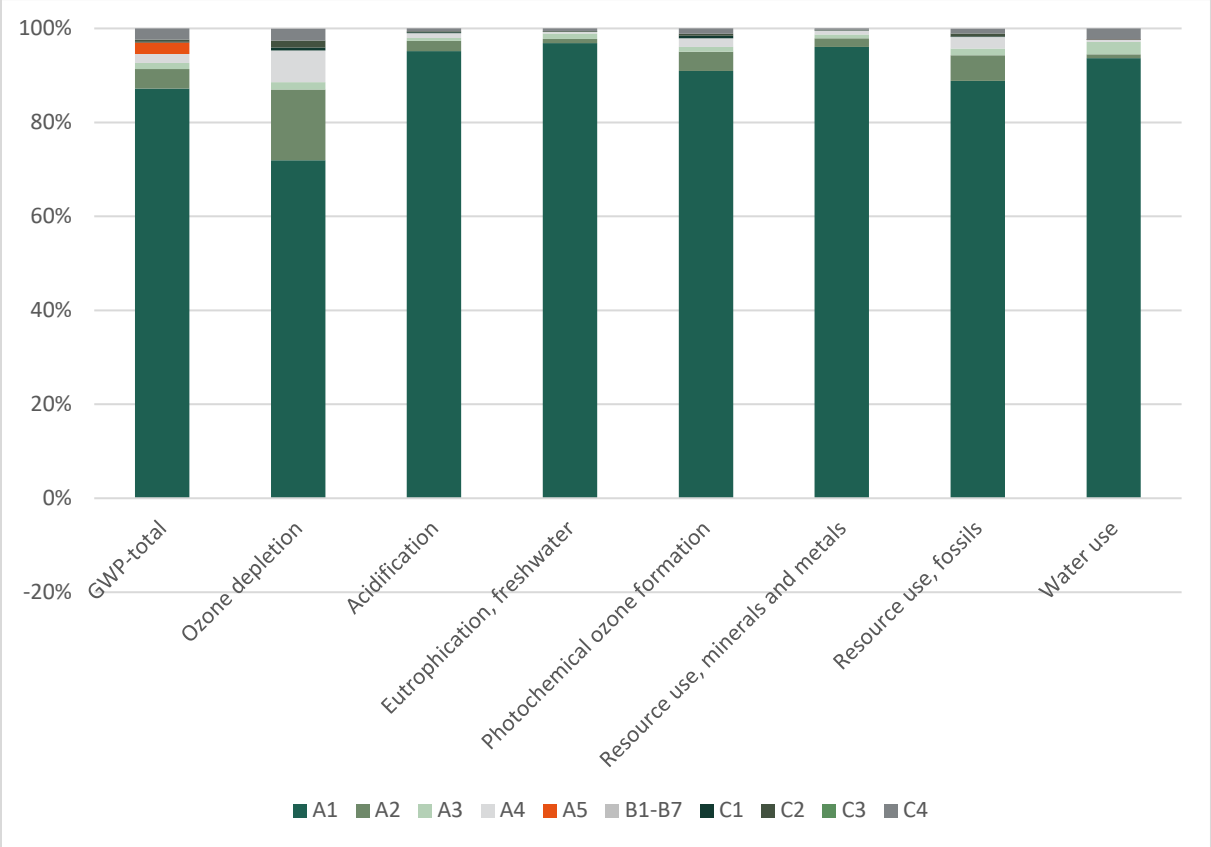
Output flow indicators

Results per Functional unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0,00E+00	0,00E+00	1,26E-01	0	0	0	0	0	0	0	0	0	0	0	0
Material for recycling	kg	4,61E-01	0,00E+00	2,08E-01	0	0	0	0	0	0	0	0	0	0	0	0
Materials for energy recovery	kg	0,00E+00	0,00E+00	1,20E-04	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0	0	0	0	0

LCA Interpretation

The life cycle impacts of the NOFISOL® Standard barriers are predominantly influenced by the A1 stage of the product across all impact categories. A1 represents the highest impacts across all categories, ranging from 97% (Resource use – Minerals and metals) to 72% (Ozone Depletion Potential).

Following A1, stage A2 holds the second -highest contributors in the life cycle impacts of the family. The remaining stages (A3, A4, and C modules) exhibit relatively low impact potentials, collectively contributing less than 10% to the total impact of the products.



Additional environmental information

None

Additional social and economic information

None

Information related to Sector EPD

This EPD is not sectoral.

Differences versus previous versions

This is the first EPD for these products.

References

General Programme Instructions of the International EPD® System. Version 4.0.

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ISO 14044:2006, Environmental management - Life cycle assessment-Principles

Product environmental footprint category rules (PEFCRs) for thermal insulation, versión 5.0, 2019

ISO 354:2003 - Acoustics - Measurement of sound absorption in a reverberation room

ISO 11654:1997 - Acoustics - Sound absorbers for use in buildings - Rating of sound absorption

ASTM C423 - Standard test method for sound absorption and sound absorption coefficients by the reverberation room method

EN 1364-1:1999 and 1363-1 + 2:1999 Determination of fire resistance

EN 13501-2:2007+A1:2009 Classification of the fire resistance

ISO 140-3:1995 Acoustics - Measurements of sound insulation in buildings and of building elements: Part 3: Laboratory measurements of airborne sound insulation of building elements (European Norm EN ISO 140-3:1995)

ISO 140-1:1997 Acoustics - Measurement of sound insulation of building elements - Part 1: Requirements for laboratory test facilities with suppresed flanking transmission

ISO 140-2:1991 Acoustics - Measurement of sound insulation of building elements - Part 2: Determination, verification and application of precision data

ISO 717-1:1996 Acoustics - Rating of sound insulation in buildings and of building elements - Part 1: Airborne sound insulation

ISO 717-1:1996/A1:2006 Acoustics - Rating of sound insulation in buildings and of building elements- Part 1: Airborne sound insulation - Amendment 1 : Rounding rules related to single number ratings and single number quantities

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