

Environmental Product Declaration



THE INTERNATIONAL EPD® SYSTEM



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

EPD based on worst-case results:

AIROLEN®

from

NMC



| | |
|--------------------------|---|
| Programme: | The International EPD® System, www.environdec.com |
| Programme operator: | EPD International AB |
| EPD registration number: | EPD-IES-0010026 |
| Publication date: | 2025-01-07 |
| Valid until: | 2030-01-06 |


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): PRODUCT CATEGORY RULES PCR 2019:14 VERSION 1.3.4 CONSTRUCTION PRODUCTS; EN 16783:2024 Thermal insulation products C-PCR-005 (TO PCR 2024:14) | |
| PCR review was conducted by: The Technical Committee of the International EPD® System. The review panel may be contacted via info@environdec.com . 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) | |
| NMC Sverige AB Stenstorpsvägen 35 SE-305 75 Getinge www.nmc.eu |  |
| Third-party verification | |
| Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: | |
| <input checked="" type="checkbox"/> EPD verification by individual verifier | |
| Third-party verifier: Matthew Fishwick, Fishwick Environmental Ltd | |
| Approved by: The International EPD® System | |
| Procedure for follow-up of data during EPD validity involves third party verifier: | |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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); 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.

Company information

Owner of the EPD:

NMC Sverige AB

Contact :

NMC Sverige AB
Stenstorpsvägen 35
SE-305 75 Getinge
info@nmc.se

Description of the organisation:

NMC is a leading, growth-oriented international company specializing in synthetic foams. For 70 years, the company has put customers and people at the heart of its actions, identifying more and more products and solutions that contribute to comfort and protection for a better life. Some 1,650 employees at 22 sites currently serve customers in 120 countries.

NMC is active in the following sectors: solutions for industries, technical insulation, protective packaging, decorative design elements, underlays for floating floors and sport and leisure.

Product-related or management system-related certifications:

The production site is certified ISO 9001:2015 and ISO 14001:2015 certified.

Name and location of production site(s):

NMC Sverige AB
Stenstorpsvägen 35
SE-305 75 Getinge

EPD Type

This EPD is a multi-product EPD based on worst-case results. Only the size of the product delivered varies. The LCA results given in this EPD are those for which the items have the highest weight per square meter. (worst case)

Product information

Product name:

AIROLEN[®]

Product description:

AIROLEN[®] consists of an age-resistant expanded polyethylene foam with closed cells. The new developed fine cell structure gives excellent compression strength and sound insulation properties. AIROLEN[®] is used under parquet and laminated flooring in order to reduce impact sound and to contribute to the levelling of the substructure.

AIROLEN[®] is ideal for floating parquet and laminate flooring. Its fine cellular structure gives it exceptional physical properties. Light, strong and flexible, it offers high pressure resistance and excellent dimensional stability. AIROLEN[®] is fully recyclable and is sold in plastic bags or cardboard.

AIROLEN® effectively dampens impact noise, with a ΔL_w measurement improvement of -19 dB, Reduced transmission of footfall and impact noise (More information on [Downloads – Nomafoam \(nmc-nomafoam.com\)](https://www.nmc-nomafoam.com))

TECHNICAL DATA ACCORDING TO EN 16354

| Properties | Norm | Unit | Value |
|-----------------------------------|---|--------------------|--------|
| Thickness | SP 1116 | mm | 2 |
| Density | ISO 845 | kg/m ³ | 30 |
| Impact sound reduction (IS) | SS-EN ISO 140-8 SS 02 52 67 SS-EN ISO 717-2 | db | 19 |
| Compressive Strength (CS) | EN 826 + A.3.7 | kPa | 20,4 |
| Punctual conformability (PC) | EN ISO 868 + A.3.6 | mm | 1,67 |
| Water vapour diffusion resistance | SS0212582 | m | 10,9 |
| Thermal resistance (R) | DIN 52612 ISO 2581 | m ² K/W | 0,0492 |

TECHNICAL DATA ACCORDING TO EN 16354

| Properties | Norm | Unit | Value |
|-----------------------------------|---|--------------------|-------|
| Thickness | SP 1116 | mm | 3 |
| Density | ISO 845 | kg/m ³ | 30 |
| Impact sound reduction (IS) | SS-EN ISO 140-8 SS 02 52 67 SS-EN ISO 717-2 | db | 19 |
| Compressive Strength (CS) | EN 826 + A.3.7 | kPa | 15,9 |
| Punctual conformability (PC) | EN ISO 868 + A.3.6 | mm | 1,83 |
| Water vapour diffusion resistance | SS0212582 | m | 12,1 |
| Thermal resistance (R) | DIN 52612 ISO 2581 | m ² K/W | 0,067 |

UN CPC code :

369 (36910)

Geographical scope :

The raw materials are sourced in Europe, the product is manufactured in Sweden and marketed, used and disposed of in Europe.

LCA information

Functional Unit:

1 m² (30 kg/m³, from 40 gr/m² to 90 gr/m²) of AIROLEN®.

Remark: The LCA results given in this EPD are those for which the items have the highest weight per square meter. (worst case)

Reference service life:

50 years

Database(s) and LCA software used:

The LCA and results were calculated using LCA for Expert 10.9 and its content version 2024. Some of the data used comes from the ECOINVENT 3.10 database in the cut-off version.

Description of system boundaries:

Cradle to grave and module D.

Geographical and temporal representativeness of primary data

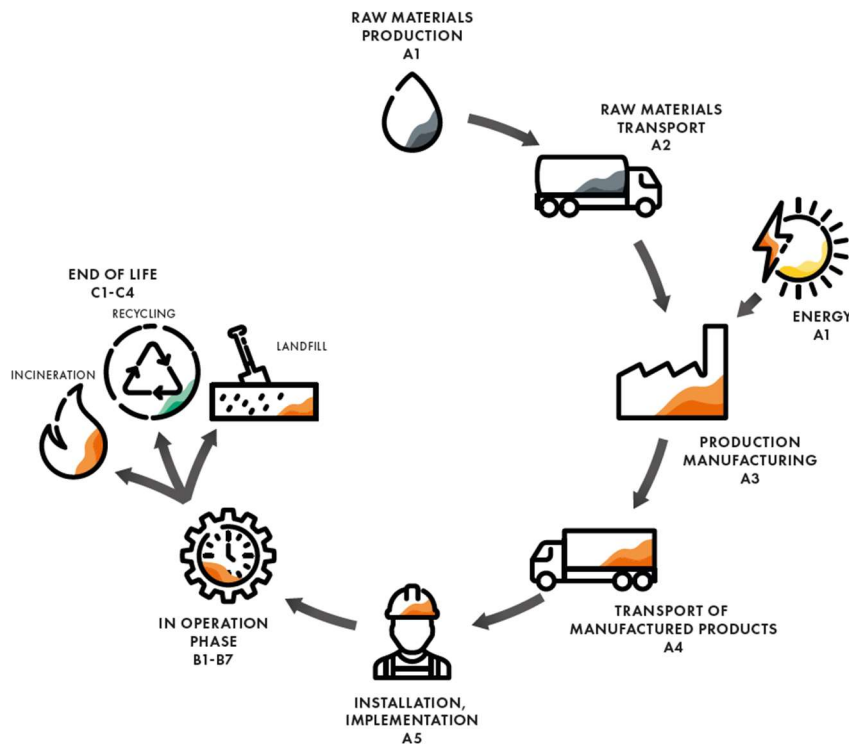
The primary data collected relating to the manufacture of the product studied are representative of production in 2023 for the NMC Sweden site. The electricity mix used in Sweden is a specific process adapted to the only green electricity produced that has been used with a GWP impact of 0,0134 kg CO₂e/kWh (35% Nuclear, 20% Hydro power, 20% PV, 25% Biomass). Sweden buys its electricity with a certificate of origin guaranteeing that it is produced entirely from renewable energy sources.

Cut-off Criteria for the Exclusion of Inputs and Outputs:

In compliance with the rules in EN 15804:2012+A2:2019, 6.3.6, the cut-off criteria are 1 % of renewable and non-renewable primary energy usage and 1 % of the total mass input of a unit process. All known inputs and outputs were included. Data gaps were filled with conservative assumptions and generic data. The neglected input flows are each below 1% of the total mass or the total impact of primary energy. In total, they constitute less than 5% of the overall mass or 5% of the total energy.

Workshop cleaning, the administrative department, employee transport, manufacturing and heavy maintenance of production equipment have been omitted from the boundaries of the system in accordance with standard EN 15804.

System diagram:



- Production stage, A1- A3:

This stage considers the extraction, production and transport of raw materials, the production of energy consumed on site, the manufacture of AIROLEN®, its packaging and storage prior to shipment and delivery. The treatment of waste leaving the plant is a mix of recycling and incineration.

- A1 Raw materials supply

This module takes into account the supply and processing of raw materials and the energies generated upstream of the manufacturing process.

- A2 Transport to manufacturing site

This module takes into account road transport. Vehicles used in the modelling: Euro 0-6 diesel mix freight truck with a loading capacity of 27 tons. The truck loading rate for raw materials has been estimated at 50%.

- A3 Production

The manufacture of AIROLEN® involves incorporating the formulation ingredients into an extruder, adding a foaming agent, mixing, heating and then extruding the mixture through a die where foaming takes place. The product is then water-cooled before being cut to size, packaged, and stored.

- A4 transport

This step models the transport of AIROLEN® from the production site to the building site, in most cases via an intermediary.

| Scenario information | Value | Unit |
|---------------------------------|--|------|
| Vehicle type | Truck-trailer, Euro 0 - 6 mix POCP adapted | |
| Fuel type | Diesel | |
| Distance | 278 | km |
| Fill rate mass payload capacity | 10 | % |
| Gross vehicle weight | 34 - 40t gross weight / 27t payload capacity | t |

- A5 Installation

AIROLEN® is installed by hand and requires no special tools other than a knife. Packaging plastic bag brought to the site are estimated sent to a waste incineration centre. Auxiliary inputs have not been included in the life-cycle analysis.

| Scenario information | Value | Unit |
|--|--|----------------|
| Auxiliary inputs for installation | Not concerned | kg |
| Water use | Not concerned | m ³ |
| Use of other resources | Not concerned | kg |
| Quantitative description of energy type (regional mix) and consumption during installation process | Not concerned | kWh or MJ |
| Material waste on construction site prior to treatment of waste generated by product installation (specified by type) | The 2% loss criterion has been adopted as recommended in EN 16783, which is equivalent to 0,0018 kg per m ² of AIROLEN® placed. | kg |
| Outgoing materials (specified by type) generated by waste processing on the construction site, e.g. collection for recycling, energy recovery, disposal (specified by route) | Construction site waste is considered sent to municipal waste incineration plant. | kg |
| Direct emissions into ambient air, soil and water | Not concerned | kg |

- Life stage in use, B1-B7

Once installed, AIROLEN® requires no maintenance or repair. It is dismantled at the end of the building's life or removed when no longer required. In addition, the product undergoes no modification or degradation throughout its entire life cycle. For these reasons, there is no impact on modules B1 to B7.

- End-of-life stage, C1-C4

- C1 Deconstruction, demolition

As with product installation, dismantling is carried out manually and requires no special equipment other than a knife. Consequently, there is no impact associated with this module.

- C2 Transport

The choice of transport for the end-of-life stage was that of truck with a Euro 0-6 diesel mix engine and a loading capacity of 27 tons. Diesel consumption of 38 Liters per 100 km. The average distance

between the dismantling site and the treatment center (incinerator, recycling center and landfill) was estimated at 50 km.

- C3 Treatment of waste for reuse, recovery and/or recycling and C4 disposal.

AIROLEN® is fully recyclable. However, end-of-life has been modelled and based on a study of plastic construction waste processing in Europe by Plasticseurope.org. The ratio used in this study for low-density polyethylene plastics is 27% sent for mechanical recycling, 51% disposed of in incinerators with energy recovery and 22% landfilled as non-hazardous waste.

| Scenario information | Value and Unit |
|--------------------------------|--|
| Collecting process | Manual disassembly |
| Type-specified recovery system | 0,024 kg foam for recycling 0,046 kg foam for energy recovery |
| Elimination spécifiée par type | 0,020 kg for final disposal (Landfill) |
| Scenario assumptions | Transport over 50 km |

More information:

More product details : https://nmc-nomafoam.com/wp-content/uploads/sites/4/2020/12/NMC_NOMATEC%C2%AE_Airolen_TDS_A4_EN.pdf

Name and contact information of LCA practitioner: Alain Baltus NMC sa Gert-Noël-Strasse B-4731 Eynatten info@nmc.eu

AIROLEN® is manufactured at NMC's Swedish site. The lifecycle analysis was carried out based on the worst-case results for all references. For the LCA calculation, no cut-off criteria were applied, and all elementary input processes as well as all energy and water inputs and waste outputs were considered. This EPD only includes environmental impacts linked to the product itself, such as material losses and packaging disposal.

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 | SE | EU | EU | EU | EU | EU | EU | EU | EU | EU | EU | EU | EU | EU | EU |
| Specific data used | 4,3% | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Variation – products | -55,56% | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Variation – sites | 0% | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Note: X = Modules declared, ND = Modules not declared

Content information: for 1 Functional Unit (1 m² of foam)

| Product components | Weight (kg per functional unit) | Post-consumer material, weight-% (% per functional unit) | Biogenic material, weight-% and kg C/ per functional unit |
|--|---------------------------------|--|---|
| Polymer (LDPE) | 0,07 | 0 | 0 |
| Various additives (pigments, stabilizers, processing agent...) | 0,008 | 0 | 0 |
| Coex Film | 0,002 | 0 | 0 |
| Foaming agent | 0,011 | 0 | 0 |
| TOTAL | 0,090 | 0 | 0 |
| Packaging materials | Weight (kg per functional unit) | Weight-% (versus the product) | Weight biogenic carbon, (kg C per functional unit) |
| Cardboard | 0,0048 | 5,3 | 0,002 |
| Plastic film | 0,0015 | 1,7 | 0 |
| TOTAL | 0,0063 | 7 | 0,002 |

Note: Packaging varies from one item to another; in the table above, the packaging values indicated are a weighted average based on the production quantities of the various items.

| Dangerous substances from the candidate list of SVHC for Authorisation | EC No. | CAS No. | Weight-% per Functional Unit |
|---|---------------|----------------|-------------------------------------|
|---|---------------|----------------|-------------------------------------|

Under the European Chemicals Regulation REACH, manufacturers, importers, and downstream users must register their chemicals and are responsible for their safe use. NMC S.A. uses only verifiably registered and approved substances in its production. AIROLEN[®] does not contain any substances of very high concern (SVHC).

Results of the environmental performance indicators

The results given are those of the worst-case product.

Mandatory impact category indicators according to EN 15804

For the characterization factors (CF) to be used, EN 15804 refers to the “EN 15804 reference package” available at the JRC webpage. In February 2023, this reference package was updated to be based on the EF 3.1 package for CFs to be used in the PEF framework. For this EPD, the EN 15804 reference package based on EF 3.1 is being used.

Results per Functional Unit 1 m² of AIROLEN®

| Indicator | Unit | A1-A3 | A4 | A5 | B1-B7 | C1 | C2 | C3 | C4 | D |
|----------------------|---|-----------|-----------|----------|----------|----------|-----------|----------|-----------|-----------|
| GWP-fossil | kg CO ₂ eq. | 2,56E-01 | 1,73E-03 | 8,44E-03 | 0,00E+00 | 0,00E+00 | 7,07E-04 | 1,50E-01 | 5,82E-04 | -1,06E-01 |
| GWP-biogenic | kg CO ₂ eq. | -6,99E-03 | -4,10E-05 | 7,95E-03 | 0,00E+00 | 0,00E+00 | -1,77E-05 | 4,86E-05 | -1,60E-06 | -4,50E-04 |
| GWP-luluc | kg CO ₂ eq. | 7,79E-05 | 2,78E-05 | 4,78E-07 | 0,00E+00 | 0,00E+00 | 1,16E-05 | 1,42E-06 | 2,14E-06 | -1,11E-05 |
| GWP-total | kg CO ₂ eq. | 2,49E-01 | 1,72E-03 | 1,64E-02 | 0,00E+00 | 0,00E+00 | 7,01E-04 | 1,50E-01 | 5,82E-04 | -1,07E-01 |
| ODP | kg CFC 11 eq. | 3,32E-11 | 2,44E-16 | 1,88E-15 | 0,00E+00 | 0,00E+00 | 1,01E-16 | 9,56E-14 | 1,92E-15 | -7,20E-13 |
| AP | mol H ⁺ eq. | 5,41E-04 | 2,16E-06 | 1,31E-06 | 0,00E+00 | 0,00E+00 | 9,02E-07 | 2,34E-05 | 3,48E-06 | -1,57E-04 |
| EP-freshwater | kg P eq. | 1,05E-06 | 7,07E-09 | 6,34E-09 | 0,00E+00 | 0,00E+00 | 2,94E-09 | 6,79E-08 | 3,34E-07 | -1,68E-07 |
| EP-marine | kg N eq. | 1,56E-04 | 7,90E-07 | 4,47E-07 | 0,00E+00 | 0,00E+00 | 3,32E-07 | 5,50E-06 | 7,50E-07 | -4,88E-05 |
| EP-terrestrial | mol N eq. | 1,67E-03 | 9,25E-06 | 5,82E-06 | 0,00E+00 | 0,00E+00 | 3,87E-06 | 9,34E-05 | 8,23E-06 | -5,24E-04 |
| POCP | kg NMVOC eq. | 8,09E-03 | 2,48E-06 | 1,40E-06 | 0,00E+00 | 0,00E+00 | 9,16E-07 | 1,56E-05 | 2,40E-06 | -1,69E-04 |
| ADP-minerals&metals* | kg Sb eq. | 3,44E-08 | 1,44E-10 | 2,06E-11 | 0,00E+00 | 0,00E+00 | 5,99E-11 | 1,60E-09 | 3,87E-11 | -9,16E-09 |
| ADP-fossil* | MJ | 9,17E+00 | 2,18E-02 | 4,43E-03 | 0,00E+00 | 0,00E+00 | 9,06E-03 | 1,10E-01 | 9,83E-03 | -2,67E+00 |
| WDP* | m ³ | 4,60E-02 | 2,56E-05 | 8,01E-04 | 0,00E+00 | 0,00E+00 | 1,07E-05 | 1,46E-02 | 7,52E-05 | -1,53E-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 | | | | | | | | | |

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

* Disclaimer 1: 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.

Disclaimer 2: It is recommended to always use the results of the modules, taking into consideration module C.

Additional mandatory and voluntary impact category indicators

| Results per Functional Unit 1 m ² of AIROLEN [®] | | | | | | | | | | |
|--|------------------------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| Indicator | Unit | A1-A3 | A4 | A5 | B1-B7 | C1 | C2 | C3 | C4 | D |
| GWP-GHG ¹ | kg CO ₂ eq. | 2,56E-01 | 1,76E-03 | 8,44E-03 | 0,00E+00 | 0,00E+00 | 7,18E-04 | 1,50E-01 | 5,84E-04 | -1,06E-01 |

Resource use indicators

| Results per Functional Unit 1 m ² of AIROLEN [®] | | | | | | | | | | |
|--|--|----------|----------|-----------|----------|----------|----------|-----------|----------|-----------|
| Indicator | Unit | A1-A3 | A4 | A5 | B1-B7 | C1 | C2 | C3 | C4 | D |
| PERE | MJ | 1,17E+00 | 1,88E-03 | 1,05E-03 | 0,00E+00 | 0,00E+00 | 7,81E-04 | 6,37E-02 | 1,49E-03 | -4,82E-01 |
| PERM | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| PERT | MJ | 1,17E+00 | 1,88E-03 | 1,05E-03 | 0,00E+00 | 0,00E+00 | 7,81E-04 | 6,37E-02 | 1,49E-03 | -4,82E-01 |
| PENRE | MJ | 5,88E+00 | 2,18E-02 | 4,43E-03 | 0,00E+00 | 0,00E+00 | 9,06E-03 | 1,10E-01 | 9,83E-03 | -2,67E+00 |
| PENRM | MJ | 3,28E+00 | 0,00E+00 | -2,30E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | -3,05E+00 | 0,00E+00 | 0,00E+00 |
| PENRT | MJ | 9,17E+00 | 2,18E-02 | -2,25E-01 | 0,00E+00 | 0,00E+00 | 9,06E-03 | -2,94E+00 | 9,83E-03 | -2,67E+00 |
| SM | kg | 5,37E-04 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 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 | 0,00E+00 | 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 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| FW | m ³ | 1,56E-03 | 2,09E-06 | 1,91E-05 | 0,00E+00 | 0,00E+00 | 8,70E-07 | 3,61E-04 | 2,25E-06 | -5,22E-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 | | | | | | | | | |

The option for separating primary energy use into energy used as a raw material and energy used as an energy carrier is option A of PCR 2019:14.

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 CO₂ is set to zero.

Waste indicators

| Results per Functional Unit 1 m ² of AIROLEN® | | | | | | | | | | |
|--|------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| Indicator | Unit | A1-A3 | A4 | A5 | B1-B7 | C1 | C2 | C3 | C4 | D |
| Hazardous waste disposed | kg | 4,41E-04 | 8,35E-13 | 2,23E-12 | 0,00E+00 | 0,00E+00 | 3,47E-13 | 2,96E-09 | 2,43E-12 | -1,00E-09 |
| Non-hazardous waste disposed | kg | 3,63E-03 | 3,56E-06 | 1,31E-03 | 0,00E+00 | 0,00E+00 | 1,48E-06 | 3,15E-03 | 1,97E-02 | -1,02E-03 |
| Radioactive waste disposed | kg | 2,32E-04 | 3,97E-08 | 1,33E-07 | 0,00E+00 | 0,00E+00 | 1,65E-08 | 1,39E-05 | 1,39E-07 | -1,07E-04 |

Output flow indicators

| Results per Functional Unit 1 m ² of AIROLEN® | | | | | | | | | | |
|--|------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Indicator | Unit | A1-A3 | A4 | A5 | B1-B7 | C1 | C2 | C3 | C4 | D |
| Components for re-use | kg | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Material for recycling | kg | 0,00E+00 | 0,00E+00 | 4,06E-03 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 2,43E-02 | 0,00E+00 | 0,00E+00 |
| Materials for energy recovery | kg | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 4,59E-02 | 0,00E+00 | 0,00E+00 |
| Exported energy, electricity | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 3,07E-01 | 0,00E+00 | 0,00E+00 |
| Exported energy, thermal | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 5,45E-01 | 0,00E+00 | 0,00E+00 |

Additional environmental impact indicators

| Results per Functional Unit 1 m ² of AIROLEN® | | | | | | | | | | |
|--|---------------------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| Indicator | Unit | A1-A3 | A4 | A5 | B1-B7 | C1 | C2 | C3 | C4 | D |
| Particulate matter | Diseases incidences | 4,95E-09 | 2,24E-11 | 1,54E-11 | 0,00E+00 | 0,00E+00 | 8,96E-12 | 1,61E-10 | 3,61E-11 | -1,36E-09 |
| Ionising radiation, human health | kBq U235 eq. | 3,17E-02 | 5,76E-06 | 1,83E-05 | 0,00E+00 | 0,00E+00 | 2,39E-06 | 2,28E-03 | 1,90E-05 | -1,75E-02 |
| Ecotoxicity, freshwater | CTUe | 4,87E+00 | 1,62E-02 | 3,02E-03 | 0,00E+00 | 0,00E+00 | 6,73E-03 | 3,58E-02 | 2,13E-02 | -9,86E-01 |

| | | | | | | | | | | |
|----------------------------|------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| Human toxicity, cancer | CTUh | 1,30E-10 | 3,27E-13 | 1,34E-13 | 0,00E+00 | 0,00E+00 | 1,36E-13 | 2,46E-12 | 3,16E-13 | -3,21E-11 |
| Human toxicity, non-cancer | CTUh | 3,53E-09 | 1,47E-11 | 1,12E-11 | 0,00E+00 | 0,00E+00 | 6,10E-12 | 3,85E-11 | 6,61E-12 | -8,89E-10 |
| Land Use | - | 4,95E-01 | 1,07E-02 | 1,04E-03 | 0,00E+00 | 0,00E+00 | 4,46E-03 | 4,05E-02 | 1,67E-03 | -2,83E-01 |

Disclaimer 1 – for the indicator “Potential Human exposure efficiency relative to U235”. This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure, or radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, radon and from some construction materials is also not measured by this indicator.

Disclaimer 2 – for the indicators “abiotic depletion potential for non-fossil resources”, “abiotic depletion potential for fossil resources”, “water (user) deprivation potential, deprivation-weighted water consumption”, “potential comparative toxic unit for ecosystems”, “potential comparative toxic unit for humans – cancerogenic”, “Potential comparative toxic unit for humans - not cancerogenic”, “potential soil quality index”. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high as there is limited experience with the indicator.

Additional environmental information

AIROLEN® is made from low-density polyethylene. It is therefore fully recyclable and can be recycled when it reaches the end of its life. In the construction sector, 27% of LDPE used in buildings is recycled, and the aim should be to increase this percentage.

NMC Sweden are certified ISO 9001 and ISO 14001.

NMC has defined its sustainability strategy, keeping a foothold in the present and looking to the future. NMC has thus formalized a new set of guidelines that forms its group-wide sustainability strategy, embedded in the global business strategy. Sustainability goals have therefore been set for 2030, with three focus areas being circularity, decarbonisation, and empowerment.

<https://nmc.eu/en/downloads/corporate-identity>

To continue to reduce the environmental impact of the AIROLEN® we need to continue to increase our energy efficiency and the switch to more and more renewable energies.

In the recent past, NMC Sweden has installed photovoltaic panels, in addition, all the acquired electricity is coming from renewable sources. NMC is looking for further sources of renewable energy.

NMC are in addition actively looking for more sustainable sourcing and raw materials as well as more local suppliers to avoid long-distance transport as much as possible.

Climate impact (GWP-GHG) for the two extreme LCA products (A1-A3)

This EPD declares the worst-case product of the range. The following table shows the climate impact results (GWP-GHG) for A1-A3 for the two extreme products.

| | N AIRO BAND 30Whi 1200x3/62.5m+P200/11 C | N NTEC PARQ 20Whi 1200x2/12.5+P200/11 C |
|-----------------------|---|--|
| GWP-GHG kg CO2 eq. | 2,56E-01 | 1,14E-01 |

Variation of environmental impact indicator results for which the variation is above 10%.

The highest variation (%) between the results of the declared product (worst case) and any of the other included products covered by this EPD is -55,56% for A1-A3 and for A-C.

List of AIROLEN[®] references included in this EPD.

| Material - Description |
|--|
| N AIRO BAND 30Whi 1000x2/30m+P200/11 C |
| N AIRO BAND 30Whi 1200x2/12.5m+P200/11 C |
| N AIRO BAND 30Whi 1200x2/50m+P200/11 C |
| N AIRO BAND 30Whi 1200x2/62.5m+P200/11 C |
| N AIRO BAND 30Whi 1200x3/12.5m+P200/11 C |
| N AIRO BAND 30Whi 1200x3/62.5m+P200/11 C |
| N AIRO STD 30Whi 1200x2/12,5m C |
| N AIRO STD 30Whi 1200x2/12.5m C |
| N AIRO STD 30Whi 1200x2/125m C |
| N AIRO STD 30Whi 1200x2/25m C |
| N AIRO STD 30Whi 1200x2/41.67m C |
| N AIRO STD 30Whi 1200x2/50m C |
| N AIRO STD 30Whi 1200x3/12.5m C |
| N AIRO STD 30Whi 1200x3/62.5m C |
| N NTEC PARQ 20Whi 1000x2/15m C |
| N NTEC PARQ 20Whi 1200x2/12.5+P200/11 C |
| N NTEC PARQ 20Whi 1200x2/12.5m C |

References

General Program Instructions of the International EPD[®] System. Version 4.0.

Product category rules (PCR): PCR 2019:14 v1.3.4. Construction products (EN 15804:A2) Version 1.0
c-PCR-005 Thermal insulation products (EN 16783: 2024) Version: 2024-04-30

EN 15804

EN 15804:2012-04 + A2 2019: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products.

EN 16783

EN 16783:2024-04: Thermal insulation products - Environmental Product Declarations (EPD) - Product Category Rules (PCR) complementary to EN 15804 for factory made and in-situ formed products.

ISO 14025

DIN EN ISO 14025:2011-10: Environmental labels and declarations — Type III environmental declarations — Principles and procedures

ISO 14040:2006

ISO 14040:2006: Environmental management — Life cycle assessment — Principles and framework

ISO 14044:2006

ISO 14044:2006: Environmental management — Life cycle assessment — Requirements and guidelines

CEN/TR 15941:2010

CEN/TR 15941:2010: Sustainability of construction works - Environmental product declarations - Methodology for selection and use of generic data.

ISO 9001:2015

Quality management systems.

ISO 14001:2015

Environmental management systems.

EN 1602: 2013

EN 1602: 2013: Thermal insulating products for building applications. Determination of the apparent density

ISO 845:2006

ISO 845:2006: Cellular plastics and rubbers — Determination of apparent density

ISO 2896:2001

ISO 2896:2001: Rigid cellular plastics — Determination of water absorption

ISO 1798:2008

ISO 1798:2008: Flexible cellular polymeric materials — Determination of tensile strength and elongation at break

EN 16354:2019

Laminate floor coverings - Underlays - Specification, requirements, and test methods

Sphera LCA for Experts

Sphera LCA for Experts 10.9 (GaBi) LCA for Experts Software-System and Database for Life Cycle Engineering Copyright © 1992-2024 Sphera Solutions GmbH Version: 10.9.0.20 DB Schema 8007

Sphera

Sphera Solutions GmbH. LCA for Experts 10 LCI documentation. [GaBi Databases \(sphera.com\)](http://www.sphera.com) + ecoinvent integrated v3.10 database Stuttgart, Echterdingen: Sphera Solutions GmbH.

Eurostat

European Statistics: Recovery rates for packaging wastepaper and cardboard packaging for the European Union 27 countries 2014 <http://ec.europa.eu/eurostat/home>

CEN/TS 16516:2013

CEN TS 16516/, AgBB/, /ISO 16000-3/, /ISO 16000-6/, /ISO16000-9/, /ISO 16000-11/ Construction products. Assessment of release of dangerous substances. Determination of emissions into indoor air

