



Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

X75-2 armchair



LAMMHULTS

Owner of the declaration:

Lammhults Möbel AB

Product:

X75-2 armchair

Declared unit:

1 pc

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core

PCR

NPCR 026:2022 Part B for Furniture

Program operator:

The Norwegian EPD Foundation

Declaration number:

NEPD-7272-6676-EN

Registration number:

NEPD-7272-6676-EN

Issue date: 19.08.2024

Valid to: 19.08.2029

EPD software:

LCAno EPD generator ID: 488301

The Norwegian EPD Foundation

General information

Product

X75-2 armchair

Program operator:

The Norwegian EPD Foundation
Post Box 5250 Majorstuen, 0303 Oslo, Norway

Phone: +47 977 22 020 web: www.epd-norge.no

Declaration number:

NEPD-7272-6676-EN

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR NPCR 026:2022 Part B for Furniture

Statement of liability:

The owner of the declaration shall be liable for the underlying information and evidence. EPD Norway shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

Declared unit:

1 pcs X75-2 armchair

Declared unit (cradle to gate) with option:

A1-A3,A4,A5,B2,B3,B4,C1,C2,C3,C4,D

Functional unit:

X75-2 armchair

General information on verification of EPD from EPD tools:

Independent verification of data, other environmental information and the declaration according to ISO 14025:2010, § 8.1.3 and § 8.1.4. Verification of each EPD is made according to EPD-Norway's guidelines for verification and approval requiring that tools are i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPD-Norway, and iii) the process is reviewed annually by an independent third party verifier. See Appendix G of EPD-Norway's General Programme Instructions for further information on EPD tools

Verification of EPD tool:

Independent third party verification of the EPD tool, background data and test-EPD in accordance with EPDNorway's procedures and guidelines for verification and approval of EPD tools.

Third party verifier:

Elisabet Amat, GREENIZE projects

(no signature required)

Owner of the declaration:

Lammhults Möbel AB Contact person: Helena Kumlin Phone: +46 472 26 95 00 e-mail: Helena.kumlin@lammhults.se

Manufacturer:

Lammhults Möbel AB

Place of production:

Lammhults Möbel AB Växjövägen 41 SE-363 45 Lammhult, Sweden

Management system:

ISO 14001, 9001, 45001

Organisation no:

556058-2602

Issue date:

19.08.2024

Valid to:

19.08.2029

Year of study:

2023

Comparability:

EPD of construction products may not be comparable if they not comply with EN 15804 and seen in a building context.

Development and verification of EPD:

The declaration is created using EPD tool lca.tools ver EPD2022.03, developed by LCA.no. The EPD tool is integrated in the company's management system, and has been approved by EPD Norway.

Developer of EPD: Lovisa Aiff

Reviewer of company-specific input data and EPD: Alexandra Lidnert

Approved:

Håkon Hauar

Managing Director of EPD-Norway

Product

Product description:

Lammhults' early collaboration with the designers Börge Lindau and Bo Lindekrantz lead to many successful products. The second product group, named X75, was introduced in 1972. Many of the pieces could be folded, such as the timeless X75-2, with steel tube frame and canvas seat and back. The practical nature of folding furniture which allowed more compact living became an embellishment to the playful stylistic nature of the Lindau-Lindekrantz design.

Product specification

Foldable frame of 25 mm chromium plated or powder coated steel tubing. Cross tubing always powder coated in black. Upholstery in black canvas alt. natural linen. Seat with reinforcements in matching leather.

| Materials | kg | % | Recycled share in material (kg) | Recycled share in material (%) |
|-------------------------------|-------|--------|------------------------------------|---|
| Metal - Steel | 9,45 | 87,29 | 0,00 | 0,00 |
| Plastic - Polyethylene (LDPE) | 0,07 | 0,67 | 0,00 | 0,00 |
| Plastic - Polyurethane (PUR) | 0,23 | 2,11 | 0,00 | 0,00 |
| Powder coating | 0,06 | 0,55 | 0,00 | 0,00 |
| Textile - Linen | 1,01 | 9,37 | 0,00 | 0,00 |
| Total | 10,82 | 100,00 | 0,00 | |

| Packaging | kg | % | Recycled share in material (kg) | Recycled share in material (%) |
|----------------------------|-------|--------|------------------------------------|---|
| Packaging - Cardboard | 0,21 | 24,76 | 0,00 | 0,00 |
| Packaging - Plastic | 0,10 | 11,56 | 0,00 | 0,00 |
| Packaging - Plastic straps | 0,05 | 5,90 | 0,00 | 0,00 |
| Recycled cardboard | 0,49 | 57,78 | 0,49 | 100,00 |
| Total incl. packaging | 11,67 | 100,00 | 0,49 | |

Technical data:

Height 80cm Width 53cm Depth 51cm Seat height 45cm

Market:

Available world wide

Reference service life, product

15 years (warranty 5 years)

Reference service life, building

LCA: Calculation rules

Declared unit:

1 pcs X75-2 armchair

Cut-off criteria:

All major raw materials and all the essential energy is included. The production processes for raw materials and energy flows with very small amounts (less than 1%) are not included. These cut-off criteria do not apply for hazardous materials and substances.

Allocation:

The allocation is made in accordance with the provisions of EN 15804. Incoming energy and water and waste production in-house is allocated equally among all products through mass allocation. Effects of primary production of recycled materials is allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

Data quality:

Specific data for the product composition are provided by the manufacturer. They represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on registered EPDs according to EN 15804, Ostfold Research databases, ecoinvent and other LCA databases. The data quality of the raw materials in A1 is presented in the table below.

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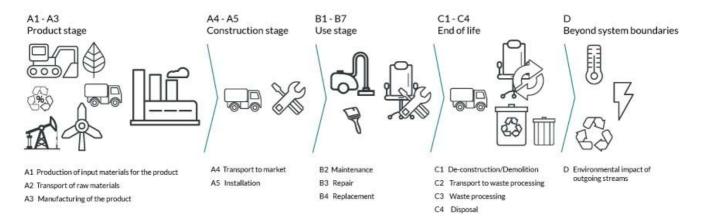
| Materials | Source | Data quality | Year |
|-------------------------------|------------------------|--------------|------|
| Metal - Steel | ecoinvent 3.6 | Database | 2019 |
| Packaging - Cardboard | Modified ecoinvent 3.6 | Database | 2019 |
| Packaging - Plastic | ecoinvent 3.6 | Database | 2019 |
| Packaging - Plastic straps | ecoinvent 3.6 | Database | 2019 |
| Plastic - Polyethylene (LDPE) | ecoinvent 3.6 | Database | 2019 |
| Plastic - Polyurethane (PUR) | ecoinvent 3.6 | Database | 2019 |
| Powder coating | Ecoinvent 3.6 | Database | 2019 |
| Recycled cardboard | Modified ecoinvent 3.6 | Database | 2019 |
| Textile - Linen | Modified ecoinvent 3.6 | Database | 2019 |

System boundaries (X=included, MND=module not declared, MNR=module not relevant)

| | Pı | roduct stag | ge | | uction ion stage | | | | Use stage | | | | | End of I | ife stage | | Beyond the system boundaries |
|-----|-----------|-------------|---------------|-----------|---------------------|-----|-------------|--------|-------------|-------------------------|------------------------------|--------------------------|-----------------------------------|-----------|---------------------|----------|--|
| Raw | materials | Transport | Manufacturing | Transport | Assembly | Use | Maintenance | Repair | Replacement | Refu <i>r</i> b ishment | Operational energy use | Operational water use | De- construction demolition | Transport | Waste processing | Disposal | Reuse-Recovery- Recycling-potential |
| Α | .1 | A2 | A3 | A4 | A5 | B1 | B2 | В3 | B4 | B5 | В6 | В7 | C1 | C2 | C3 | C4 | D |
| X | < | Х | X | X | Χ | MND | Χ | Χ | Х | MND | MND | MND | X | Χ | X | Χ | X |

System boundary:

The analysis is a cradle-to-cradle, A1-D, where some B-stages that were assumed to be neglectable are not included. The A1-A4 stages includes the extraction and production of raw materials, transportation to the production site, the production process itself, and an estimated transport distance to the market. A5 includes the generated waste from the packaging of the product after the assembly at the customer. The only B-stage that is assumed to be relevant is B2, which includes assumptions on how the customer takes care of the product according to Lammhults' care instructions. The C- and D-stages includes the use of materials and energy for deconstruction, the transport to waste management, the waste processes, disposal of materials that cannot be processed, and the potential of reuse, recovery, and recycling of the product.



Additional technical information:

https://www.lammhults.se/products/chairs-armchairs/x75-2

 $Lammhults\ Care\ \&\ Maintenance:\ https://issuu.com/lammhults/docs/lammhultscaremaintenance 2205$

LCA: Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD.

Some assumptions have been made regarding the products lifetime after leaving the factory gates. The product is assumed to be transported to the capitol of each country sold/delivered to. An average distance (A4) to the customer has been calculated through this data. In the A5 phase, the packaging of the product becomes waste, and the impacts are added automatically according to assumptions made in the EPD tool on waste handling on-site. In the use stage, the assumption is that the customer takes care of the product by vacuuming the product twice a year. For the end-of-life stage of the product, it has been assumed that there is a 50 km distance from the customer to a waste terminal. The rest of the values are automatically filled in by the tool. For the D-stage, automatic values are filled in, according to generic data.

| Assembly (A5) | Unit | Value | | | |
|---|--|---------------|-------------------------|-------|------------------------|
| Waste, packaging, cardboard, 100 % recycled, to average treatment (kg) | kg | 0,49 | | | |
| Waste, packaging, corrugated board box, 0 % recycled, to average treatment (kg) | kg | 0,21 | | | |
| Waste, packaging, PET straps, to average treatment - A5 (kg) | kg | 0,05 | | | |
| Waste, packaging, plastic film (LDPE), to average treatment - A5 (kg) | kg | 0,10 | | | |
| Maintenance (B2) | Unit | Value | | | |
| Electricity, Nordic (kWh) | kWh/DU | 0,35 | | | |
| Transport to waste processing (C2) | Capacity utilisation (incl. return) % | Distance (km) | Fuel/Energy Consumption | Unit | Value (Liter/tonne) |
| Truck, 16-32 tonnes, EURO 6 (km) | 36,7 % | 50 | 0,043 | l/tkm | 2,15 |
| Waste processing (C3) | Unit | Value | | | |
| Waste treatment per kg Non-hazardous waste, incineration with fly ash extraction - C3 (kg) | kg | 0,06 | | | |
| Waste treatment per kg Polyethylene, PE, incineration with fly ash extraction - C3 (kg) | kg | 0,07 | | | |
| Waste treatment per kg Polyurethane (PU), incineration (kg) | kg | 0,23 | | | |
| Waste treatment per kg Scrap steel, incineration with fly ash extraction (kg) | kg | 9,45 | | | |
| Waste treatment per kg Textile, incineration with fly ash extraction (kg) | kg | 1,01 | | | |
| Waste, materials to recycling (kg) | kg | 3,21 | | | |
| Disposal (C4) | Unit | Value | | | |
| Landfilling of ashes and residues from incineration of Scrap steel (kg) | kg | 6,24 | | | |
| Landfilling of ashes from incineration of Non- hazardous waste, process per kg ashes and residues - C4 (kg) | kg | 0,01 | | | |
| Landfilling of ashes from incineration of Polyethylene, PE, process per kg ashes and residues - C4 (kg) | kg | 0,00 | | | |
| Landfilling of ashes from incineration of Polyurethane (PU), process per kg ashes and residues - C4 (kg) | kg | 0,01 | | | |
| Landfilling of ashes from incineration of Textile, soiled, process per kg ashes and residues (kg) | kg | 0,05 | | | |
| Benefits and loads beyond the system boundaries (D) | Unit | Value | | | |
| Substitution of electricity, in Norway (MJ) | МЈ | 1,42 | | | |
| Substitution of primary steel with net scrap (kg) | kg | 3,20 | | | |
| Substitution of thermal energy, district heating, in Norway (MJ) | MJ | 21,43 | | | |

LCA: Results

The LCA results are presented below for the declared unit defined on page 2 of the EPD document.

| Environme | ental impact | | | | | | | | |
|----------------------------|---|------------|--|---------------------------------|--|--|--|--|---|
| | Indicator | | Unit | | A1-A3 | A4 | A5 | B2 | В3 |
| | GWP-total | | kg CO ₂ - | eq | 4,37E+01 | 0 | 1,21E+00 | 5,10E-02 | 0 |
| | GWP-fossil | GWP-fossil | | kg CO ₂ -eq | | 0 | 2,30E-02 | 4,75E-02 | 0 |
| | GWP-biogenic | | kg CO ₂ - | eq | -1,40E+00 | 0 | 1,19E+00 | 8,68E-04 | 0 |
| | GWP-luluc | | kg CO ₂ - | eq | 1,62E-01 | 0 | 4,64E-06 | 2,60E-03 | 0 |
| ٨ | ODP | | kg CFC11 | -eq | 3,12E-06 | 0 | 3,09E-09 | 5, 14E-09 | 0 |
| Œ. | AP | | mol H+ - | eq | 2,60E-01 | 0 | 6,81E-05 | 2,19E-04 | 0 |
| | EP-FreshWater | | kg P -ed | 7 | 3,05E-03 | 0 | 1,17E-07 | 3,14E-06 | 0 |
| | EP-Marine | | kg N -ed | q | 6,66E-02 | 0 | 3,10E-05 | 3,46E-05 | 0 |
| 2 | EP-Terrestial | | mol N -e | eq | 6,59E-01 | 0 | 2,44E-04 | 4,65E-04 | 0 |
| | POCP | | kg NMVOC | :-eq | 1,96E-01 | 0 | 7,22E-05 | 1,09E-04 | 0 |
| | ADP-minerals&metals ¹ | | kg Sb-e | 9 | 1,08E-03 | 0 | 3,38E-07 | 7,39E-07 | 0 |
| | ADP-fossil ¹ | | МЛ | | 6,06E+02 | 0 | 2,07E-01 | 1,28E+00 | 0 |
| <u></u> | WDP ¹ | | m^3 | | 1,19E+04 | 0 | 3,72E-01 | 9,93E+01 | 0 |
| (70) | WDP | | m³ | | 1,195+04 | U | 3,72L-01 | 9,93L+01 | U |
| 70 | Indicator | | Unit | B4 | C1 | C2 | C3 | 9,93E+01 | D |
| | | | | B4 0 | | | | | |
| | Indicator | | Unit | | C1 | C2 | C3 | C4 | D |
| | Indicator GWP-total | | Unit kg CO ₂ -eq | 0 | C1 0 | C2 9,54E-02 | C3 4,06E+00 | C4 6,80E-02 | D -3,66E+00 |
| | Indicator GWP-total GWP-fossil | | Unit kg CO ₂ -eq kg CO ₂ -eq | 0 | C1 0 | C2 9,54E-02 9,53E-02 | C3 4,06E+00 1,03E+00 | C4 6,80E-02 6,79E-02 | D -3,66E+00 -3,65E+00 |
| P | Indicator GWP-total GWP-fossil GWP-biogenic | | Unit kg CO ₂ -eq kg CO ₂ -eq kg CO ₂ -eq | 0 0 | C1 0 0 | C2 9,54E-02 9,53E-02 3,94E-05 | C3 4,06E+00 1,03E+00 3,03E+00 | C4 6,80E-02 6,79E-02 5,76E-05 | D -3,66E+00 -3,65E+00 -2,20E-03 |
| P P P P P P P P P P | Indicator GWP-total GWP-fossil GWP-biogenic GWP-luluc | | Unit kg CO ₂ -eq kg CO ₂ -eq kg CO ₂ -eq kg CO ₂ -eq | 0 0 0 0 | 0 0 0 0 | C2 9,54E-02 9,53E-02 3,94E-05 3,39E-05 | C3 4,06E+00 1,03E+00 3,03E+00 2,07E-05 | C4 6,80E-02 6,79E-02 5,76E-05 2,08E-05 | D -3,66E+00 -3,65E+00 -2,20E-03 -5,86E-03 |
| | Indicator GWP-total GWP-fossil GWP-biogenic GWP-luluc ODP | | Unit kg CO ₂ -eq kg CO ₂ -eq kg CO ₂ -eq kg CO ₂ -eq | 0 0 0 0 | 0 0 0 0 0 | C2 9,54E-02 9,53E-02 3,94E-05 3,39E-05 2,16E-08 | C3 4,06E+00 1,03E+00 3,03E+00 2,07E-05 9,33E-09 | C4 6,80E-02 6,79E-02 5,76E-05 2,08E-05 2,15E-08 | D -3,66E+00 -3,65E+00 -2,20E-03 -5,86E-03 -9,05E-03 |
| | Indicator GWP-total GWP-fossil GWP-biogenic GWP-luluc ODP AP | | Unit kg CO ₂ -eq mol H+ -eq | 0 0 0 0 0 | 0 0 0 0 0 0 | C2 9,54E-02 9,53E-02 3,94E-05 3,39E-05 2,16E-08 2,74E-04 | C3 4,06E+00 1,03E+00 3,03E+00 2,07E-05 9,33E-09 1,05E-03 | C4 6,80E-02 6,79E-02 5,76E-05 2,08E-05 2,15E-08 4,88E-04 | D -3,66E+00 -3,65E+00 -2,20E-03 -5,86E-03 -9,05E-03 -1,85E-02 |
| | Indicator GWP-total GWP-fossil GWP-biogenic GWP-luluc ODP AP EP-FreshWater | | witk kg CO ₂ -eq kg CO ₂ -eq kg CO ₂ -eq kg CO ₂ -eq kg CFC11 -eq mol H+ -eq kg P -eq | 0 0 0 0 0 0 | 0 0 0 0 0 0 | C2 9,54E-02 9,53E-02 3,94E-05 3,39E-05 2,16E-08 2,74E-04 7,61E-07 | C3 4,06E+00 1,03E+00 3,03E+00 2,07E-05 9,33E-09 1,05E-03 1,96E-06 | C4 6,80E-02 6,79E-02 5,76E-05 2,08E-05 2,15E-08 4,88E-04 6,70E-07 | D -3,66E+00 -3,65E+00 -2,20E-03 -5,86E-03 -9,05E-03 -1,85E-02 -2,28E-04 |
| | Indicator GWP-total GWP-fossil GWP-biogenic GWP-luluc ODP AP EP-FreshWater EP-Marine | | kg CO ₂ -eq kg CFC11 -eq mol H+ -eq kg P -eq kg N -eq | 0 0 0 0 0 0 | 0 0 0 0 0 0 0 | C2 9,54E-02 9,53E-02 3,94E-05 3,39E-05 2,16E-08 2,74E-04 7,61E-07 5,42E-05 | C3 4,06E+00 1,03E+00 3,03E+00 2,07E-05 9,33E-09 1,05E-03 1,96E-06 5,13E-04 | C4 6,80E-02 6,79E-02 5,76E-05 2,08E-05 2,15E-08 4,88E-04 6,70E-07 1,75E-04 | D -3,66E+00 -3,65E+00 -2,20E-03 -5,86E-03 -9,05E-03 -1,85E-02 -2,28E-04 -3,96E-03 |
| | Indicator GWP-total GWP-fossil GWP-biogenic GWP-luluc ODP AP EP-FreshWater EP-Marine EP-Terrestial | | kg CO ₂ -eq kg CO ₂ -eq kg CO ₂ -eq kg CO ₂ -eq kg CFC11 -eq mol H+ -eq kg P -eq kg N -eq mol N -eq | 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 | C2 9,54E-02 9,53E-02 3,94E-05 3,39E-05 2,16E-08 2,74E-04 7,61E-07 5,42E-05 6,06E-04 | C3 4,06E+00 1,03E+00 3,03E+00 2,07E-05 9,33E-09 1,05E-03 1,96E-06 5,13E-04 5,16E-03 | C4 6,80E-02 6,79E-02 5,76E-05 2,08E-05 2,15E-08 4,88E-04 6,70E-07 1,75E-04 1,93E-03 | D -3,66E+00 -3,65E+00 -2,20E-03 -5,86E-03 -9,05E-03 -1,85E-02 -2,28E-04 -3,96E-03 -4,07E-02 |
| | Indicator GWP-total GWP-fossil GWP-biogenic GWP-luluc ODP AP EP-FreshWater EP-Marine EP-Terrestial POCP | | kg CO ₂ -eq kg CO ₂ -eq kg CO ₂ -eq kg CO ₂ -eq kg CFC11 -eq mol H+ -eq kg P -eq kg N -eq mol N -eq g NMVOC -eq | 0 0 0 0 0 0 0 | C1 0 0 0 0 0 0 0 0 | C2 9,54E-02 9,53E-02 3,94E-05 3,39E-05 2,16E-08 2,74E-04 7,61E-07 5,42E-05 6,06E-04 2,32E-04 | C3 4,06E+00 1,03E+00 3,03E+00 2,07E-05 9,33E-09 1,05E-03 1,96E-06 5,13E-04 5,16E-03 1,32E-03 | C4 6,80E-02 6,79E-02 5,76E-05 2,08E-05 2,15E-08 4,88E-04 6,70E-07 1,75E-04 1,93E-03 5,56E-04 | D -3,66E+00 -3,65E+00 -2,20E-03 -5,86E-03 -9,05E-03 -1,85E-02 -2,28E-04 -3,96E-03 -4,07E-02 -1,87E-02 |

GWP-total = Global Warming Potential total; 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

Remarks to environmental impacts

[&]quot;Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"

^{*}INA Indicator Not Assessed

^{1.} The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator

| Additional e | nvironmental impac | t indicators | | | | | | |
|---------------------|---------------------|-------------------|---------------|----------|----------|----------|----------|-----------|
| | Indicator | Unit | | A1-A3 | A4 | A5 | B2 | В3 |
| | PM | Disease incidence | | 4,59E-06 | 0 | 1,05E-09 | 1,16E-09 | 0 |
| (101) | IRP ² | kgBq U235 -eq | kgBq U235 -eq | | 0 | 8,96E-04 | 2,93E-02 | 0 |
| €2 | ETP-fw ¹ | CTUe | | 1,97E+03 | 0 | 2,57E-01 | 1,61E+00 | 0 |
| 46. *** <u>B</u> | HTP-c ¹ | CTUh | | 2,38E-07 | 0 | 7,00E-12 | 3,70E-11 | 0 |
| % <u>Q</u> | HTP-nc ¹ | CTUh | | 1,48E-06 | 0 | 3,10E-10 | 9,86E-10 | 0 |
| | SQP ¹ | dimensionless | dimensionless | | 0 | 1,91E-01 | 9,68E-01 | 0 |
| I | ndicator | Unit | B4 | C1 | C2 | C3 | C4 | D |
| | PM | Disease incidence | 0 | 0 | 5,84E-09 | 1,98E-08 | 8,99E-09 | -3,55E-07 |
| | IRP ² | kgBq U235 -eq | 0 | 0 | 6,30E-03 | 1,99E-03 | 6,33E-03 | 1,31E-03 |
| | ETP-fw ¹ | CTUe | 0 | 0 | 1,07E+00 | 5,78E+00 | 9,11E-01 | -2,06E+02 |
| 44. <u>*</u> | HTP-c ¹ | CTUh | 0 | 0 | 0,00E+00 | 5,32E-10 | 3,20E-11 | -1,71E-08 |
| & <u>B</u> | HTP-nc ¹ | CTUh | 0 | 0 | 1,17E-09 | 6,01E-09 | 8,34E-10 | 3,59E-07 |

PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Soil Quality (dimensionless)

1,01E+00

1,60E-01

3,43E+00

-1,41E+01

dimensionless

SQP¹

[&]quot;Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"

^{*}INA Indicator Not Assessed

^{1.} The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator

^{2.} 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 nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

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| Resource use | | | | | | | | |
|------------------------------------|--------------------------------|----------------------------------|----------------------------|----------------------------|--|--|--|--|
| | Indicator | | Unit | A1-A3 | A4 | A5 | B2 | В3 |
| | PERE | | MJ | 4,03E+02 | 0 | 3,83E-03 | 1,26E+00 | 0 |
| | PERM | | MJ | 2,42E+01 | 0 | -6,21E+00 | 0,00E+00 | 0 |
| Ţ, | PERT | | MJ | 4,27E+02 | 0 | -6,21E+00 | 1,26E+00 | 0 |
| | PENRE | | MJ | 6,09E+02 | 0 | 2,07E-01 | 1,30E+00 | 0 |
| Åg | PENRM | | MJ | 1,54E+01 | 0 | -5,31E+00 | 0,00E+00 | 0 |
| IA | PENRT | | MJ | 6,24E+02 | 0 | -5,10E+00 | 1,30E+00 | 0 |
| | SM | | kg | 4,90E-01 | 0 | 0,00E+00 | 0,00E+00 | 0 |
| 2 | RSF | | MJ | 1,19E+00 | 0 | 1,19E-04 | 1,28E-02 | 0 |
| | NRSF | | MJ | 1,98E+00 | 0 | 4,40E-04 | 0,00E+00 | 0 |
| & | FW | | m ³ | 1,04E+00 | 0 | 1,00E-04 | 5,74E-03 | 0 |
| | ndicator | Unit | B4 | C1 | 62 | 60 | | _ |
| ್≓ | | Oint | D4 | CI | C2 | C3 | C4 | D |
| | PERE | МЈ | 0 | 0 | 2,06E-02 | 3,50E-02 | C4 2,87E-02 | -1,34E+01 |
| 2 | PERE PERM | | | | | | | |
| | | МЈ | 0 | 0 | 2,06E-02 | 3,50E-02 | 2,87E-02 | -1,34E+01 |
| | PERM | МЛ | 0 | 0 | 2,06E-02 0,00E+00 | 3,50E-02 -1,80E+01 | 2,87E-02 0,00E+00 | -1,34E+01 0,00E+00 |
| 4 | PERM PERT | MJ MJ | 0 0 0 | 0 0 0 | 2,06E-02 0,00E+00 2,06E-02 | 3,50E-02 -1,80E+01 -1,79E+01 | 2,87E-02 0,00E+00 2,87E-02 | -1,34E+01 0,00E+00 -1,34E+01 |
| S Fi | PERM PERT PENRE | мл мл мл | 0 0 0 0 | 0 0 0 0 | 2,06E-02 0,00E+00 2,06E-02 1,44E+00 | 3,50E-02 -1,80E+01 -1,79E+01 8,52E-01 | 2,87E-02 0,00E+00 2,87E-02 1,59E+00 | -1,34E+01 0,00E+00 -1,34E+01 -3,14E+01 |
| S F. E | PERM PERT PENRE PENRM | М1 М1 М1 | 0 0 0 0 | 0 0 0 0 | 2,06E-02 0,00E+00 2,06E-02 1,44E+00 0,00E+00 | 3,50E-02 -1,80E+01 -1,79E+01 8,52E-01 -1,01E+01 | 2,87E-02 0,00E+00 2,87E-02 1,59E+00 0,00E+00 | -1,34E+01 0,00E+00 -1,34E+01 -3,14E+01 0,00E+00 |
| \$ \$ \$ \$ 1 1 | PERM PERT PENRE PENRM PENRT | мл мл мл мл | 0 0 0 0 0 | 0 0 0 0 0 | 2,06E-02 0,00E+00 2,06E-02 1,44E+00 0,00E+00 1,44E+00 | 3,50E-02 -1,80E+01 -1,79E+01 8,52E-01 -1,01E+01 -9,24E+00 | 2,87E-02 0,00E+00 2,87E-02 1,59E+00 0,00E+00 1,59E+00 | -1,34E+01 0,00E+00 -1,34E+01 -3,14E+01 0,00E+00 -3,14E+01 |
| | PERM PERT PENRE PENRM PENRT SM | MJ MJ MJ MJ MJ kg | 0 0 0 0 0 0 | 0 0 0 0 0 0 | 2,06E-02 0,00E+00 2,06E-02 1,44E+00 0,00E+00 1,44E+00 0,00E+00 | 3,50E-02 -1,80E+01 -1,79E+01 8,52E-01 -1,01E+01 -9,24E+00 0,00E+00 | 2,87E-02 0,00E+00 2,87E-02 1,59E+00 0,00E+00 1,59E+00 0,00E+00 | -1,34E+01 0,00E+00 -1,34E+01 -3,14E+01 0,00E+00 -3,14E+01 0,00E+00 |

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 resources used as raw materials; PENRM = Use of non renewable primary energy resources; SM = Use of secondary materials; PENRM = Use of renewable primary energy resources; SM = Use of secondary materials; PENRM = Use of fresh water

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009" *INA Indicator Not Assessed

LAMMHULTS

| End of life - Waste | | | | | | | | | |
|---------------------|-----------|----|------|----------|----------|----------|----------|----------|-----------|
| | Indicator | | Uı | nit | A1-A3 | A4 | A5 | B2 | В3 |
| | HWD | | kg | | 1,11E+00 | 0 | 0,00E+00 | 1,20E-04 | 0 |
| Ū | NHWD | kg | | 1,38E+01 | 0 | 8,48E-01 | 7,97E-03 | 0 | |
| 3 | RWD | | k | 9 | 3,00E-03 | 0 | 0,00E+00 | 1,35E-05 | 0 |
| In | dicator | | Unit | B4 | C1 | C2 | C3 | C4 | D |
| Ā | HWD | | kg | 0 | 0 | 7,43E-05 | 0,00E+00 | 6,23E+00 | -1,84E-02 |
| Ū | NHWD | | kg | 0 | 0 | 7,01E-02 | 6,00E-02 | 4,57E-02 | -1,48E+00 |
| <u> </u> | RWD | | kg | 0 | 0 | 9,82E-06 | 0,00E+00 | 9,76E-06 | 4,20E-07 |

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009" *INA Indicator Not Assessed

| End of life - Output flow | | | | | | | | |
|---------------------------|-----------|------|----|----------|----------|----------|----------|----------|
| Ind | Indicator | | | A1-A3 | A4 | A5 | B2 | В3 |
| ® | CRU | kg | kg | | 0 | 0,00E+00 | 0,00E+00 | 0 |
| &▷ | MFR | k | 9 | 8,49E-01 | 0 | 7,27E-01 | 0,00E+00 | 0 |
| DF | MER | kį | 9 | 1,25E+00 | 0 | 8,35E-06 | 0,00E+00 | 0 |
| 50 | EEE | M | J | 6,18E-01 | 0 | 4,00E-02 | 0,00E+00 | 0 |
| DB | EET | M | J | 9,35E+00 | 0 | 6,06E-01 | 0,00E+00 | 0 |
| Indicato | or | Unit | B4 | C1 | C2 | C3 | C4 | D |
| ∅> | CRU | kg | 0 | 0 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| \$> | MFR | kg | 0 | 0 | 0,00E+00 | 3,21E+00 | 0,00E+00 | 0,00E+00 |
| DF | MER | kg | 0 | 0 | 0,00E+00 | 1,08E+01 | 0,00E+00 | 0,00E+00 |
| 50 | EEE | МЈ | 0 | 0 | 0,00E+00 | 1,43E+00 | 0,00E+00 | 0,00E+00 |
| D@ | EET | MJ | 0 | 0 | 0,00E+00 | 2,16E+01 | 0,00E+00 | 0,00E+00 |

CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy electrical; EET = Exported energy thermal

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009" *INA Indicator Not Assessed

| Biogenic Carbon Content | | | | | | | | |
|-------------------------|---------------------|--|--|--|--|--|--|--|
| Unit | At the factory gate | | | | | | | |
| kg C | 4,21E-01 | | | | | | | |
| kg C | 3,24E-01 | | | | | | | |
| | kg C | | | | | | | |

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO2

Additional requirements

Greenhouse gas emissions from the use of electricity in the manufacturing phase

National production mix from import, low voltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing process (A3).

| Electricity mix | Source | Amount | Unit |
|---------------------------|---------------|--------|--------------|
| Electricity, Sweden (kWh) | ecoinvent 3.6 | 54,94 | g CO2-eg/kWh |

Dangerous substances

The product contains no substances given by the REACH Candidate list.

Indoor environment

Additional Environmental Information

Key Environmental Indicators

| Key environmental indicators | Unit | A1-A3 | A4 | A1-C4 | A1-D |
|------------------------------|------------------------|---------|------|---------|--------|
| GWPtotal | kg CO ₂ -eq | 43,70 | 0,00 | 49,18 | 45,53 |
| Total energy consumption | MJ | 1015,35 | 0,00 | 1022,15 | 980,52 |
| Amount of recycled materials | % | 2.13 | | | |

| Additional environmental impact indicators required in NPCR Part A for construction products | | | | | | | |
|--|------------------------|------------------------|----|----------|----------|----------|-----------|
| Indicator | Unit | Unit | | A4 | A5 | B2 | В3 |
| GWPIOBC | kg CO ₂ -eq | kg CO ₂ -eq | | 0 | 2,31E-02 | 6,91E-02 | 0 |
| Indicator | Unit | B4 | C1 | C2 | C3 | C4 | D |
| GWPIOBC | kg CO ₂ -eq | 0 | 0 | 9,54E-02 | 2,62E+00 | 7,13E-02 | -5,41E+00 |

GWP-IOBC: Global warming potential calculated according to the principle of instantaneous oxidation. In order to increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.

Bibliography

ISO 14025:2010 Environmental labels and declarations - Type III environmental declarations - Principles and procedures.

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

EN 15804:2012+A2:2019 Environmental product declaration - Core rules for the product category of construction products.

ISO 21930:2017 Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products.

ecoinvent v3, Allocation, cut-off by classification, Swiss Centre of Life Cycle Inventories.

Iversen et al., (2021) eEPD v2021.09 Background information for EPD generator tool system verification, LCA.no Report number: 07.21 Ruud et al., (2023) EPD generator for NPCR026 Part B for Furniture - Background information for EPD generator application and LCA data, LCA.no report number 01.23

NPCR Part A: Construction products and services. Ver. 2.0. March 2021, EPD-Norge.

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