



ENVIRONMENTAL PRODUCT DECLARATION



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

PRODUCT LINE:

PRIMA

PRODUCT NAME:

PRIMA 1.2ft ABS 2200/840

COMPANY NAME:

TREVOS



Programme:

The International EPD® System, www.environdec.com

Programme operator:

EPD International AB

EPD registration number:

S-P-11851

Publication date:

2024-02-05

Valid until:

2029-02-04

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



Company information

Owner of the EPD: TREVOS, a.s.

Contact: certification@trevos.cz

Description of the organisation:

Established over 30 years ago, and still fully Czech-owned, TREVOS is a market-leading producer of light fixtures. Our wide range includes industrial and indoor LED luminaires boasting exceptional energy efficiency. Building on its own research and development efforts and protected know-how, TREVOS is a major exporter, supplying its top-quality products and illuminating the lives of customers in over 60 countries worldwide.

Product-related or management system-related certifications: ISO 9001:2016, ISO 14001:2016
ISO 45001:2018, ISO 50001:2019

Name and location of production site: TREVOS, a.s., Nová Ves 34, 511 01 Turnov, Czech Republic

Product information

Product name: PRIMA

Product description:

IP66/IP69-rated, PRIMA is designed for agricultural buildings and other spaces with chemically aggressive environments due to ammonia fumes, lye fumes, alkali and hot water (hydrolysis). IP69-rated and HACCP-compliant, the fitting's design also makes it a great choice for the food industry. In addition to an electronic driver, the luminaire features LED sources that retain 90% of their initial output at 50,000 hours. A size 1.2ft fitting has dimensions of 610x98x84 mm and a weight of 0.9 kg.

Product identification: PRIMA



UN CPC code: 4653 Lighting equipment

Geographical scope: Global, Czech Republic

LEGENDA:

PRIMA 1.2ft aa bb cccc/eee fff gg for example PRIMA 1.2ft ABS 2200/840

- aa = energy series **ES** - lower energy consumption, **base version without denotation**
- bb = type series **VALUE** – economical version, **TRS** - indirect lighting (clear base), **VP** - outdoor (added ventilation sticker Gore), **base version without denotation**
- cc = material – ABS/ABS
- dddd = lumen flux 1300 up to 2200 lm
- eee = CRI and CCT 827 to 865 and 927 to 965
- fff = **base version without denotation** or **DALI** (version with digital dimmable driver DALI)
- gg = **"1F"** = light fitting with 1-phase 3 core through-wiring, or
"3F" = light fitting with 3-phase 5 core through-wiring, or
" " = light fitting without through-wiring

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 |

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|---|
| 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, version 1.3.1 |
| PCR review was conducted by: The Technical Committee of the International EPD® System. Chair of the PCR review is Claudia A. Peña. The review panel may be contacted via info@environdec.com |
| Life Cycle Assessment (LCA) |
| LCA accountability: LCA Studio s.r.o. Ing. Petra Kšenžihová, Ing. et Ing. Tatiana Trecáková, PhD., prof. Ing. Vladimír Kočí, Ph.D., MBA Šárecká 1962/5, 16000 Prague 6, Czech Republic, www.lcastudio.cz |
|  LCA Studio |
| 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: prof. Ing. Silvia Vilčeková, Ph.D., Silcert, s.r.o. 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/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.

LCA information

Functional unit / declared unit: Declared unit is 1000 lumens of the industrial LED luminaire.

Reference service life: 80 000 hours.

Time representativeness: Site specific data from producer are based on 1 year average for process data (reference year 2022). Time scope less than 10-years was applied for background data. Time scope less than 2-years was applied for specific data.

Database(s) and LCA software used: software LCA for Experts. Sphera databases, ecoinvent database.

Description of system boundaries:

The system boundary is Cradle to grave and module D (A+B+C+D) according to EN 15804 + A2/AC:2021. It covers the production of raw materials, all relevant transport down to the factory gate, manufacturing by Trevos, a.s., transport from the Trevos, a.s. plant to the site (considered weighted average 769 km), installation of luminaire, operational energy of use of luminaire (considered European residual electricity grid mix), deconstruction of the luminaire, transport of deconstructed materials, waste processing, recovery, and disposal of used luminaire.

System diagram:

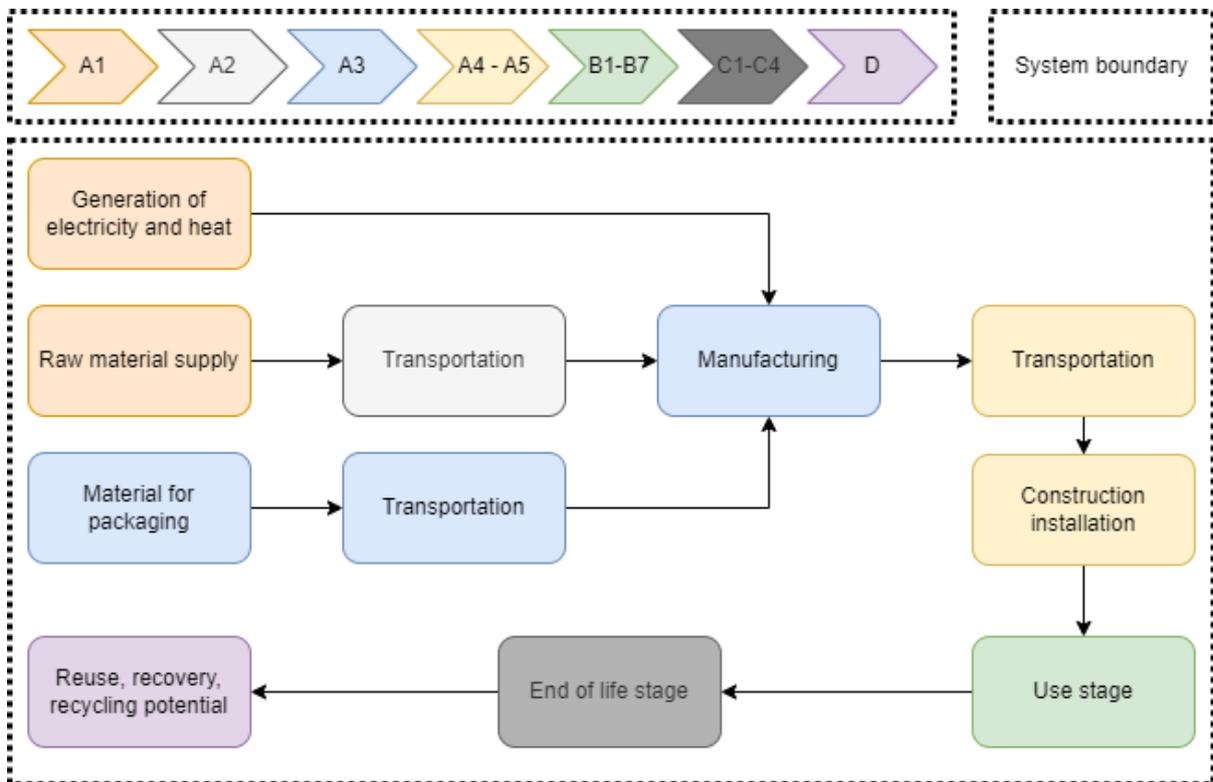


Figure 1 System boundary of the LCA study conducted on PRIMA 1.2ft ABS 2200/840 production

More information:

Cut off rules: The cut-off criterion was chosen based on the used PCR. According to the used PCR, more than 95 % of flows were included.

Allocations: All material and energy flows were assigned to one product. Allocation was not necessary.

General content of scrap steel and iron in steel, cold rolled production, general content of stainless steel scrap in stainless steel production and general content of steel scrap in steel, Zn production are used in production of a luminaire. No secondary fuels are used in production.

Generic process data for the production of input materials and components were used except LED Driver and LED module where EPD data were used.

Electricity consumption: Sphera DB process of Czech residual grid mix is used for production process in Trevos, a.s.

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 | X |
| Geography | GLO | GLO | CZ | GLO | GLO | GLO | GLO | GLO | GLO | GLO | GLO | GLO | GLO | GLO | GLO | GLO | GLO | GLO |
| Specific data used | >99% | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Variation – products | 0% | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Variation – sites | 0% | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Content information

| Product components | Weight, kg | Post-consumer material, weight-% | Biogenic material, weight-% and kg C/kg |
|--|------------|----------------------------------|---|
| Polycarbonate granulate | 0,0082 | 0 | 0 |
| Addition-curing two-component PUR foam | 0,0100 | 0 | 0 |
| Acrylonitrile Butadiene Styrene granulate | 0,2330 | 0 | 0 |
| Methylmethacrylate acrylonitrile butadiene styrene granulate | 0,1575 | 0 | 0 |
| Polyamide 6 fiber | 0,0376 | 0 | 0 |
| Steel, cold rolled | 0,2140 | 17,97 | 0 |
| Coating powder | 0,0178 | 0 | 0 |
| Low Density Polyethylene granulate | 0,0016 | 0 | 0 |
| Stainless steel | 0,0196 | 15,60 | 0 |
| Polyamide 6 granulate | 0,0208 | 0 | 0 |
| Copper Wire | 0,0364 | 0 | 0 |
| High Density Polyethylene | 0,0007 | 0 | 0 |
| Brass | 0,0004 | 0 | 0 |
| Steel, Zn | 0,0249 | 17,40 | 0 |
| LED driver | 0,1100 | 0 | 0 |
| LED module | 0,0360 | 0 | 0 |
| TOTAL | 0,9285 | 4,58 | 0 |
| Packaging materials | Weight, kg | Weight-% (versus the product) | Weight biogenic carbon, kg C/kg |
| Paper | 0,1494 | 16,09 | 0,38 |
| LDPE | 0,0020 | 0,22 | 0 |
| TOTAL | 0,1514 | 16,31 | 0,38 |

| Dangerous substances from the candidate list of SVHC for Authorisation | EC No. | CAS No. | Weight-% per 1000 lumens of PRIMA 1.2ft ABS 2200/840 |
|--|--------|---------|--|
| No substances from the SVHC list to report. | | | |

Results of the environmental performance indicators

Mandatory impact category indicators according to EN 15804

| Results per 1000 lumens of PRIMA 1.2ft ABS 2200/840 | | | | | | | | | | |
|---|---|-----------|-----------|----------|----------|----------|-----------|----------|-----------|-----------|
| Indicator | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
| GWP-fossil | kg CO2 eq. | 5,60E+00 | 2,13E-01 | 1,42E-02 | 3,28E+02 | 9,39E-03 | 6,01E-03 | 1,15E+00 | 1,47E-04 | -6,50E-01 |
| GWP-biogenic | kg CO2 eq. | -1,75E-01 | -3,16E-03 | 2,10E-01 | 1,56E-01 | 4,46E-06 | -8,88E-05 | 6,73E-05 | -5,06E-06 | -3,24E-04 |
| GWP-luluc | kg CO2 eq. | 4,33E-03 | 1,98E-03 | 9,39E-07 | 2,16E-02 | 6,17E-07 | 5,56E-05 | 1,74E-05 | 4,64E-07 | -9,63E-05 |
| GWP-total | kg CO2 eq. | 5,43E+00 | 2,12E-01 | 2,24E-01 | 3,28E+02 | 9,40E-03 | 5,98E-03 | 1,15E+00 | 1,43E-04 | -6,50E-01 |
| ODP | kg CFC 11 eq. | 6,01E-09 | 1,87E-14 | 1,00E-13 | 3,28E-09 | 9,40E-14 | 5,25E-16 | 2,29E-13 | 3,84E-16 | -1,36E-12 |
| AP | mol H+ eq. | 2,63E-02 | 2,47E-04 | 2,73E-05 | 4,88E-01 | 1,40E-05 | 8,12E-06 | 3,14E-04 | 1,06E-06 | -8,84E-04 |
| EP-freshwater | kg P eq. | 2,90E-04 | 7,79E-07 | 6,26E-09 | 1,49E-04 | 4,27E-09 | 2,19E-08 | 6,86E-08 | 3,02E-10 | -1,21E-07 |
| EP-marine | kg N eq. | 2,10E-03 | 8,09E-05 | 8,64E-06 | 1,33E-01 | 3,82E-06 | 2,92E-06 | 9,24E-05 | 2,74E-07 | -2,29E-04 |
| EP-terrestrial | mol N eq. | 2,19E-02 | 9,93E-04 | 1,02E-04 | 1,43E+00 | 4,08E-05 | 3,48E-05 | 1,40E-03 | 3,01E-06 | -2,51E-03 |
| POCP | kg NMVOC eq. | 7,47E-03 | 2,08E-04 | 2,36E-05 | 3,77E-01 | 1,08E-05 | 7,06E-06 | 2,46E-04 | 8,26E-07 | -6,93E-04 |
| ADP-minerals&metals* | kg Sb eq. | 6,02E-05 | 1,39E-08 | 1,19E-09 | 3,96E-05 | 1,13E-09 | 3,90E-10 | 2,13E-09 | 6,92E-12 | -1,08E-06 |
| ADP-fossil* | MJ | 9,50E+01 | 2,91E+00 | 2,18E-01 | 7,05E+03 | 2,02E-01 | 8,16E-02 | 5,85E-01 | 1,99E-03 | -1,06E+01 |
| WDP* | m3 | 2,97E-01 | 2,46E-03 | 6,86E-03 | 2,48E+01 | 7,11E-04 | 6,91E-05 | 1,19E-01 | 1,64E-05 | -2,71E-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 1000 lumens of PRIMA 1.2ft ABS 2200/840 | | | | | | | | | | |
|---|--------------------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| Indicator | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
| GWP-GHG ¹ | kg CO2 eq. | 5,62E+00 | 2,16E-01 | 1,42E-02 | 3,28E+02 | 9,40E-03 | 6,08E-03 | 1,15E+00 | 1,48E-04 | -6,50E-01 |
| Particulate matter | Disease incidences | 1,40E-07 | 1,67E-09 | 2,01E-10 | 4,36E-06 | 1,25E-10 | 6,69E-11 | 2,43E-09 | 1,30E-11 | -1,05E-08 |
| Ionising radiation, human health | kBq U235 eq. | 2,75E-01 | 5,44E-04 | 5,04E-03 | 1,72E+02 | 4,91E-03 | 1,53E-05 | 3,23E-03 | 2,54E-06 | -7,84E-02 |
| Ecotoxicity fresh water | CTUe | 1,30E+02 | 2,05E+00 | 2,71E-02 | 6,92E+02 | 1,98E-02 | 5,75E-02 | 3,05E-01 | 1,25E-03 | -8,43E-01 |
| Human toxicity, cancer | CTUh | 3,19E-07 | 4,12E-11 | 1,58E-12 | 3,97E-08 | 1,14E-12 | 1,16E-12 | 2,10E-11 | 1,67E-13 | -2,55E-10 |
| Human toxicity, non-cancer | CTUh | 3,85E-05 | 1,82E-09 | 5,10E-11 | 1,28E-06 | 3,68E-11 | 5,11E-11 | 2,38E-09 | 1,76E-11 | -2,61E-09 |
| Land Use | Pt | 3,06E+01 | 1,21E+00 | 2,32E-02 | 6,47E+02 | 1,85E-02 | 3,40E-02 | 1,31E-01 | 5,02E-04 | -3,11E-01 |

Resource use indicators

| Results per 1000 lumens of PRIMA 1.2ft ABS 2200/840 | | | | | | | | | | |
|---|------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| Indicator | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
| PERE | MJ | 1,60E+01 | 2,06E-01 | 3,31E-02 | 1,02E+03 | 2,92E-02 | 5,77E-03 | 1,13E-01 | 3,25E-04 | -4,77E-01 |
| PERM | MJ | 0,00E+00 |
| PERT | MJ | 1,23E+01 | 2,06E-01 | 3,31E-02 | 1,02E+03 | 2,92E-02 | 5,77E-03 | 1,13E-01 | 3,25E-04 | -4,77E-01 |
| PENRE | MJ | 1,21E+02 | 2,91E+00 | 2,18E-01 | 7,05E+03 | 2,02E-01 | 8,18E-02 | 5,85E-01 | 1,99E-03 | -1,07E+01 |
| PENRM | MJ | 4,72E-01 | 0,00E+00 |
| PENRT | MJ | 9,74E+01 | 2,91E+00 | 2,18E-01 | 7,05E+03 | 2,02E-01 | 8,18E-02 | 5,85E-01 | 1,99E-03 | -1,07E+01 |
| SM | kg | 5,40E-02 | 0,00E+00 |
| RSF | MJ | 4,56E-24 | 0,00E+00 |
| NRSF | MJ | 5,36E-23 | 0,00E+00 |
| FW | m3 | 3,54E-02 | 2,27E-04 | 1,89E-04 | 1,54E+00 | 4,42E-05 | 6,36E-06 | 2,83E-03 | 5,02E-07 | -1,22E-03 |

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.

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 1000 lumens of PRIMA 1.2ft ABS 2200/840 | | | | | | | | | | |
|---|------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| Indicator | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
| Hazardous waste disposed | kg | 1,43E-05 | 1,08E-11 | 1,49E-11 | 5,04E-07 | 1,44E-11 | 3,03E-13 | 2,55E-11 | 4,29E-14 | -1,37E-09 |
| Non-hazardous waste disposed | kg | 1,34E-01 | 4,20E-04 | 1,85E-03 | 1,50E+00 | 4,29E-05 | 1,18E-05 | 8,82E-02 | 9,95E-03 | -6,58E-03 |
| Radioactive waste disposed | kg | 4,48E-03 | 3,77E-06 | 3,44E-05 | 1,17E+00 | 3,35E-05 | 1,06E-07 | 2,89E-05 | 2,24E-08 | -5,33E-04 |

Output flow indicators

| Results per 1000 lumens of PRIMA 1.2ft ABS 2200/840 | | | | | | | | | | |
|---|------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| Indicator | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
| Components for re-use | kg | 0,00E+00 |
| Material for recycling | kg | 6,45E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,99E-01 | 0,00E+00 | 1,89E-01 |
| Materials for energy recovery | kg | 0,00E+00 | 0,00E+00 | 3,45E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 5,02E-01 | 0,00E+00 | 0,00E+00 |
| Exported energy, electricity | MJ | 0,00E+00 | -1,33E+00 |
| Exported energy, thermal | MJ | 0,00E+00 | -5,72E+00 |

Additional environmental information

PRIMA 1.2ft ABS 2200/840 is manufactured in three variations of luminous flux - 1300 lm, 1600 lm, 2200 lm. Conversion factors have been calculated to enable the conversion of results per 1000 lumens to correspondent luminous fluxes.

Conversion factors for PRIMA 1.2ft ABS 2200/840:

| | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|----------------|-------|------|------|------|------|------|------|------|------|
| 1300 lm | 1,30 | 1,30 | 1,30 | 1,30 | 1,30 | 1,30 | 1,30 | 1,30 | 1,30 |
| 1600 lm | 1,30 | 1,30 | 1,30 | 1,56 | 1,30 | 1,30 | 1,30 | 1,30 | 1,30 |
| 2200 lm | 1,30 | 1,30 | 1,30 | 2,13 | 1,30 | 1,30 | 1,30 | 1,30 | 1,30 |

More information can be found on the website www.trevos.eu.

References

General Programme Instructions of the International EPD® System. Version 4.1.

Product Category Rules (PCR) document for Construction Products (PCR 2019:14 Version 1.3.1 2023-07-08)

ISO 14020:2000 Environmental labels and declarations — General principles, 2000-09

ISO 14025: EN ISO 14025:2006-11: Environmental labels and declarations - Type III environmental declarations — Principles and procedures

ISO 14040:2006 Environmental management — Life cycle assessment — Principles and framework, 2006-07

ISO 14044:2006 Environmental management — Life cycle assessment — Requirements and guidelines, 2006-07

EN 15804+A2:2019/AC:2021 European Committee for Standardization: Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products, 2021

Ecoinvent: www.ecoinvent.org, ecoinvent database.

Sphera: software LCA for Experts. 2023, Sphera solutions, www.sphera.com