

ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 and EN 15804+A2 

S&P Clever Reinforcement Company AG S&P C-Laminate



Owner of the declaration

S&P Clever Reinforcement Company AG
Seewernstrasse 127
6423 Seewen
Switzerland

Product

S&P C-Laminate

Declared product / Declared unit

1 kg

This declaration is based on Product Category Rules

EN 15804:2012 + A2:2019,
NPCR Part A:2021

Program operator:

EPD Global
Majorstuen P.O. Box 5250
N-0303 Oslo
Norway

Declaration number

NEPD-11779-11779-2

Registration number

NEPD-11779-11779-2

Issue date

01.06.2026

Valid to

31.05.2031

EPD Software

Emidat Platform v1.0.0

General Information

Product

S&P C-Laminate

Program Operator

EPD Global
Majorstuen P.O. Box 5250
N-0303 Oslo
Norway
Phone: +47 23 08 80 00
Email: post@epd-norge.no

Declaration Number

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This declaration is based on Product Category Rules

EN 15804:2012 + A2:2019,
NPCR Part A:2021

Statements

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

Declared unit

1 kg

General information on verification of EPD from EPD tools

Independent verification of data, other environmental information and the declaration according to ISO 14025:2011-10, § 8.1.3 and § 8.1.4. Verification of each EPD is made according to EPD Global'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 Global, and iii) the process is reviewed annually by an independent third party verifier. See Appendix G of EPD Global's General Programme Instructions for further information on EPD tools.

Verification of EPD tool

Rui Wang, IVL Swedish Environmental Research Institute
(no signature required)

Owner of the declaration

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Manufacturer

S&P Clever Reinforcement Company AG
Seewernstrasse 127
6423 Seewen, Switzerland

Place of production

Netherlands

Management system

-

Issue date

01.06.2026

Valid to

31.05.2031

Year of study

2024

Comparability

EPDs of construction products may not be comparable if they do not comply with EN 15804 and are not seen in a building context. EPD data may not be comparable if the datasets used are not developed in accordance with EN 15804 and if the background systems are not based on the same database (including primary and secondary data).

Development and verification of EPD

The declaration was created using the Emidat EPD tool v1.0, developed by Emidat GmbH. The EPD tool has been approved by EPD Global.

Developer of EPD: Khaled Djama

Reviewer of company-specific input data and EPD: Jacob Hansen

Approved



Håkon Hauan, The Norwegian EPD Foundation

Product

Product description

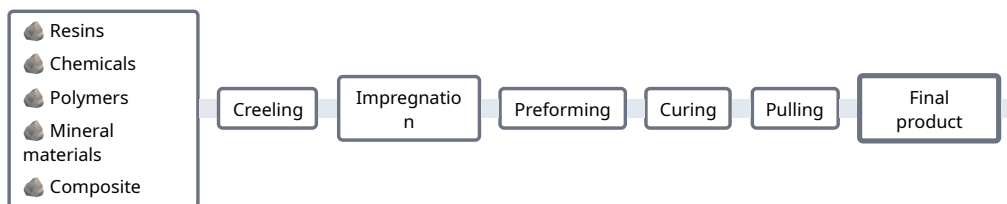
S&P C-Laminate is a prefabricated (pultruded), carbon fibre reinforced polymer for structural reinforcement of structures made from concrete, masonry, steel or wood.

No packaging was included for the modeled product.

Application description

S&P C-Laminate is a carbon fibre reinforced polymer used for structural reinforcement of structures made from concrete, masonry, steel or wood.

Production process



Product specification

| Name of ingredient | Share of total weight | Country of origin |
|--------------------|-----------------------|-------------------|
| Chemicals | 10 - 30 % | France |
| Composite | 2 - 10 % | Germany |
| Mineral materials | 0 - 2 % | Belgium |
| Polymers | 70 - 90 % | USA |
| Resins | 10 - 30 % | France |

Technical data

| | Unit | Value |
|---------|---------------------|-------|
| Density | kg / m ³ | 1600 |
| Mass | kg | 1 |

Market

Europe

Recipients

B2B

LCA: Calculation rules

Declared unit

1 kg

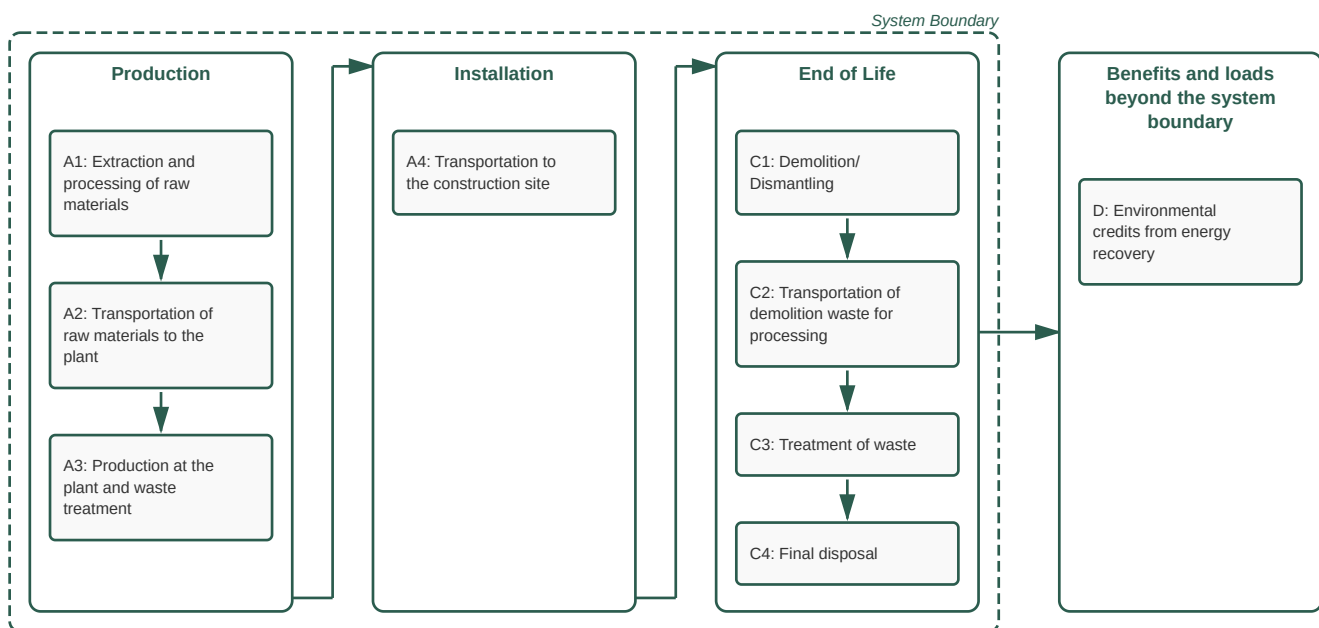
Product lifetime

Not declared

Reference service life

Not declared

System boundary



Data quality

The foreground data are based on extensive and detailed data collection at the production site of the manufacturer, covering key processes such as raw material sourcing, formulation, and manufacturing. These foreground data are fully linked with corresponding datasets from the background database (ecoinvent 3.10) or with EN15804+A2-compliant EPDs, ensuring consistency, reliability, and maintaining alignment with the latest industry standards.

The overall data representativeness is rated as good with an overall score of 4.00/5, in accordance with EN 15804+A2 Annex E guidance on data quality assessment, considering geographical, technical, and temporal representativeness.

The following table discloses all processes or activities assessed with very poor or poor data representativeness according to EN 15804+A2, as well as those assessed as fair that contribute more than 30% to any core impact indicator in A1–A3:

| Element | Minimal Representativeness | Source | Year |
|-------------------|----------------------------|----------------|------|
| Recycling | Very poor | ecoinvent 3.10 | 2023 |
| Composite | Poor | ecoinvent 3.10 | 2023 |
| Mineral materials | Poor | ecoinvent 3.10 | 2023 |
| Polymers | Poor | ecoinvent 3.10 | 2023 |

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

| | Production | | | Installation | | Use stage | | | | | | | End-of-Life | | | | Next product system |
|------------------|---------------------|-----------|---------------|--------------|----------------------|-----------|-------------|--------|-------------|---------------|------------------------|-----------------------|-------------|-----------|------------------|----------|---|
| | Raw material supply | Transport | Manufacturing | Transport | Installation Process | Use | Maintenance | Repair | Replacement | Refurbishment | Operational Energy Use | Operational Water Use | Demolition | Transport | Waste Processing | Disposal | Benefits and loads beyond the system boundary |
| Module | A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
| Modules declared | x | x | x | x | MND | MND | MND | MND | MND | MND | MND | MND | x | x | x | x | x |
| Geography | | | NL | Europe | MND | MND | MND | MND | MND | MND | MND | MND | Europe | Europe | Europe | Europe | Europe |

For the geographies modeled in A1 and A2, refer to *Product specification*.

Type of EPD: Cradle to gate with options, modules A4, C1-C4 + D

Stage of Material Production and Construction

Module A1: Extraction and processing of raw materials

Module A2: Transportation of raw materials to the plant

Module A3: Production at the plant and waste treatment

Module A4: Transportation to the construction site

Disposal Stage

Module C1: Demolition/Dismantling

Module C2: Transportation of demolition waste for processing

Module C3: Treatment of waste

Module C4: Final disposal

Credits and burdens outside the system boundaries

Module D: Environmental credits from energy recovery

Cut-off criteria

No cut-offs were applied.

Allocation

Foreground inventory data (energy and fuels, ancillary materials, emissions and waste) was collected at the production process level. Mass-based allocation was applied to allocate the total output of the production process in 2024 to the reference product.

Key assumptions and estimates

Production process flows are allocated to the reference product, as described under allocation. The mass-based allocation assumes a uniform distribution of production impacts across co-products. Foreground inventory data is checked for consistency of production process, to ensure the validity of the allocated results.

LCA: Scenarios and additional technical information

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

| Transport to the building site (A4) | Value | Unit |
|-------------------------------------|---|-----------|
| Transported mass | 1.00 | kg |
| Truck: Distance | 420.00 | km |
| Truck: Energy demand | 1.58 | MJ / t*km |
| Truck: Activity | transport, freight, lorry >32 metric ton, EURO6 | - |
| Truck: Capacity utilization | 53.30 | % |

| Demolition (C1) | Value | Unit |
|--|----------|---------|
| Diesel required to demolish 1 kg of concrete | 0.06 | MJ / kg |
| PM 10 emissions during the demolishment of 1 kg of concrete | 6.00e-05 | kg / kg |
| PM 2.5 emissions during the demolishment of 1 kg of concrete | 1.70e-05 | kg / kg |

| Transport to the waste facility (C2) | Value | Unit |
|--------------------------------------|---|-----------|
| Mass to landfill | 0.30 | kg |
| Mass to recycling | 0.70 | kg |
| Distance to landfill | 50.00 | km |
| Distance to recycling | 50.00 | km |
| Truck: Activity | transport, freight, lorry >32 metric ton, EURO6 | - |
| Truck: Capacity utilization | 53.30 | % |
| Truck: Distance | 50.00 | km |
| Truck: Energy demand | 1.58 | MJ / t*km |

Module C2 includes the impact of transportation of material after deconstruction, during the End-of-Life stage.

| Waste processing (C3) | Value | Unit |
|------------------------|-------|------|
| Material for recycling | 0.70 | kg |
| Recycling rate | 70.00 | % |

| Disposal (C4) | Value | Unit |
|-----------------------|-------|------|
| Material for landfill | 0.30 | kg |

| Reuse, recovery and/or recycling potentials (D) | Value | Unit |
|---|-------|------|
| Amount of secondary material that the system takes in | 0 | kg |
| Installation: Material eligible for recycling/reuse credits | 0 | kg |
| End-of-life: Material eligible for recycling/reuse credits | 0 | kg |
| Production: Exported energy eligible for credits | 0.48 | MJ |
| End-of-life: Exported energy eligible for credits | 0 | MJ |
| Substitution of electricity production, grid mix | 0.16 | MJ |
| Substitution of heat production from natural gas | 0.33 | MJ |

Calculation of loads and benefits per EN 15804+A2. Materials that entered the product system as secondary materials in A1 do not yield credits in module D.

LCA: Results

The following results are based on the market-based electricity approach applied to the foreground system (A3). Further details on electricity data are provided in the Additional Requirements section.

Core environmental impact indicators

| Indicator | Unit | A1-A3 | A4 | C1 | C2 | C3 | C4 | D |
|----------------|----------------------------------|----------|----------|----------|----------|----------|----------|-----------|
| GWP-total | kg CO ₂ -eq. | 2.44e+01 | 4.35e-02 | 6.13e-03 | 5.18e-03 | 3.09e-03 | 1.89e-03 | -4.57e-02 |
| GWP-fossil | kg CO ₂ -eq. | 2.43e+01 | 4.35e-02 | 6.13e-03 | 5.18e-03 | 3.06e-03 | 1.88e-03 | -4.36e-02 |
| GWP-biogenic | kg CO ₂ -eq. | 9.96e-02 | 2.18e-05 | 6.12e-07 | 2.60e-06 | 2.78e-05 | 1.19e-05 | -2.05e-03 |
| GWP-luluc | kg CO ₂ -eq. | 3.14e-03 | 1.54e-05 | 5.33e-07 | 1.84e-06 | 2.66e-07 | 9.74e-07 | -4.00e-05 |
| ODP | kg CFC-11-Eq | 2.30e-07 | 9.06e-10 | 9.38e-11 | 1.08e-10 | 4.69e-11 | 5.42e-11 | -1.27e-09 |
| AP | mol H ⁺ -Eq | 8.86e-02 | 1.03e-04 | 5.53e-05 | 1.22e-05 | 2.77e-05 | 1.33e-05 | -5.53e-05 |
| EP-freshwater | kg P-Eq | 8.63e-03 | 3.06e-06 | 1.79e-07 | 3.64e-07 | 8.93e-08 | 1.56e-07 | -2.56e-05 |
| EP-marine | kg N-Eq | 2.21e-02 | 2.69e-05 | 2.57e-05 | 3.21e-06 | 1.28e-05 | 5.06e-06 | -1.91e-05 |
| EP-terrestrial | mol N-Eq | 1.68e-01 | 2.91e-04 | 2.81e-04 | 3.47e-05 | 1.40e-04 | 5.53e-05 | -1.54e-04 |
| POCP | kg NMVOC-Eq | 5.52e-02 | 1.78e-04 | 8.38e-05 | 2.12e-05 | 4.19e-05 | 1.98e-05 | -7.26e-05 |
| ADPE | kg Sb-Eq | 5.63e-05 | 1.24e-07 | 2.20e-09 | 1.48e-08 | 1.10e-09 | 2.98e-09 | -4.43e-08 |
| ADPF | MJ, net calorific value | 4.65e+02 | 6.53e-01 | 8.02e-02 | 7.77e-02 | 4.01e-02 | 4.60e-02 | -6.91e-01 |
| WDP | m ³ world Eq deprived | 5.00e+00 | 3.28e-03 | 1.96e-04 | 3.90e-04 | 9.81e-05 | 1.29e-04 | -4.30e-03 |

GWP-total: Global Warming Potential - total , **GWP-fossil:** Global warming potential - fossil , **GWP-biogenic:** Global Warming Potential - biogenic , **GWP-luluc:** Global Warming Potential - luluc , **ODP:** Depletion potential of the stratospheric ozone layer , **AP:** Acidification potential, Accumulated Exceedance , **EP-freshwater:** Eutrophication potential - freshwater , **EP-marine:** Eutrophication potential - marine , **EP-terrestrial:** Eutrophication potential - terrestrial , **POCP:** Photochemical Ozone Creation Potential , **ADPE:** Abiotic depletion potential - non-fossil resources , **ADPF:** Abiotic depletion potential - fossil resources , **WDP:** Water (user) deprivation potential

Additional indicators

| Indicator | Unit | A1-A3 | A4 | C1 | C2 | C3 | C4 | D |
|-----------|-------------------|----------|----------|----------|----------|----------|----------|-----------|
| PM | disease incidence | 4.91e-07 | 4.24e-09 | 8.92e-09 | 5.04e-10 | 5.99e-09 | 3.02e-10 | -2.95e-10 |
| IRP | kBq U235-Eq | 9.99e+00 | 7.93e-04 | 3.59e-05 | 9.44e-05 | 1.79e-05 | 2.93e-05 | -4.66e-03 |
| ETP-fw | CTUe | 1.37e+02 | 1.55e-01 | 1.14e-02 | 1.84e-02 | 5.68e-03 | 6.29e-03 | -8.46e-02 |
| HTP-c | CTUh | 7.41e-08 | 2.78e-10 | 2.40e-11 | 3.31e-11 | 1.20e-11 | 8.48e-12 | -7.07e-11 |
| HTP-nc | CTUh | 1.29e-07 | 4.31e-10 | 1.09e-11 | 5.13e-11 | 5.44e-12 | 8.26e-12 | -1.64e-10 |
| SQP | dimensionless | 4.22e+01 | 6.57e-01 | 5.62e-03 | 7.82e-02 | 2.81e-03 | 9.05e-02 | -5.38e-02 |

PM: Potential incidence of disease due to PM emissions , **IRP:** Potential Human exposure efficiency relative to U235 , **ETP-fw:** Potential Comparative Toxic Unit for ecosystems , **HTP-c:** Potential Comparative Toxic Unit for humans - cancer effects , **HTP-nc:** Potential Comparative Toxic Unit for humans - non-cancer effects , **SQP:** Potential Soil quality index . **IRP:** 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. **ETP-fw, HTP-c, HTP-nc** and **SQP:** The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experienced with these indicators.

Use of resources

| Indicator | Unit | A1-A3 | A4 | C1 | C2 | C3 | C4 | D |
|-----------|----------------|----------|----------|----------|----------|-----------|----------|-----------|
| PERE | MJ | 1.30e+01 | 1.04e-02 | 4.90e-04 | 1.23e-03 | 2.45e-04 | 4.26e-04 | -7.30e-02 |
| PERM | MJ | 5.61e-04 | 0.00e+00 | 0.00e+00 | 0.00e+00 | -3.93e-04 | 0.00e+00 | 0.00e+00 |
| PERT | MJ | 1.30e+01 | 1.04e-02 | 4.90e-04 | 1.23e-03 | -1.47e-04 | 4.26e-04 | -7.30e-02 |
| PENRE | MJ | 4.40e+02 | 6.53e-01 | 8.02e-02 | 7.77e-02 | 4.01e-02 | 4.60e-02 | -6.91e-01 |
| PENRM | MJ | 2.51e+01 | 0.00e+00 | 0.00e+00 | 0.00e+00 | -1.76e+01 | 0.00e+00 | 0.00e+00 |
| PENRT | MJ | 4.65e+02 | 6.53e-01 | 8.02e-02 | 7.77e-02 | -1.75e+01 | 4.60e-02 | -6.91e-01 |
| SM | kg | 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 |
| NRSF | MJ | 0.00e+00 | 0.00e+00 | 0.00e+00 | 0.00e+00 | 0.00e+00 | 0.00e+00 | 0.00e+00 |
| FW | m ³ | 1.62e-01 | 9.49e-05 | 5.21e-06 | 1.13e-05 | 2.60e-06 | 4.77e-05 | -1.43e-04 |

PERE: Primary energy resources - renewable: use as energy carrier , **PERM:** Primary energy resources - renewable: used as raw materials , **PERT:** Primary energy resources - renewable: total , **PENRE:** Primary energy resources - non-renewable: use as energy carrier , **PENRM:** Primary energy resources - non-renewable: used as raw materials , **PENRT:** Primary energy resources - non-renewable: total , **SM:** Use of secondary material , **RSF:** Renewable secondary fuels , **NRSF:** Non-renewable secondary fuels , **FW:** Net use of fresh water

Waste flows

| Indicator | Unit | A1-A3 | A4 | C1 | C2 | C3 | C4 | D |
|-----------|------|----------|----------|----------|----------|----------|----------|----------|
| HWD | kg | 0.00e+00 | 0.00e+00 | 0.00e+00 | 0.00e+00 | 0.00e+00 | 0.00e+00 | 0.00e+00 |
| NHWD | kg | 1.63e-01 | 0.00e+00 | 0.00e+00 | 0.00e+00 | 0.00e+00 | 3.00e-01 | 0.00e+00 |
| RWD | kg | 0.00e+00 | 0.00e+00 | 0.00e+00 | 0.00e+00 | 0.00e+00 | 0.00e+00 | 0.00e+00 |

HWD: Hazardous waste disposed , **NHWD:** Non hazardous waste disposed , **RWD:** Radioactive waste disposed

Output flows

| Indicator | Unit | A1-A3 | A4 | C1 | C2 | C3 | C4 | D |
|-----------|------|----------|----------|----------|----------|----------|----------|----------|
| CRU | kg | 0.00e+00 | 0.00e+00 | 0.00e+00 | 0.00e+00 | 0.00e+00 | 0.00e+00 | 0.00e+00 |
| MFR | kg | 1.09e-01 | 0.00e+00 | 0.00e+00 | 0.00e+00 | 7.00e-01 | 0.00e+00 | 0.00e+00 |
| MER | kg | 0.00e+00 | 0.00e+00 | 0.00e+00 | 0.00e+00 | 0.00e+00 | 0.00e+00 | 0.00e+00 |
| EEE | MJ | 1.59e-01 | 0.00e+00 | 0.00e+00 | 0.00e+00 | 0.00e+00 | 0.00e+00 | 0.00e+00 |
| EET | MJ | 3.25e-01 | 0.00e+00 | 0.00e+00 | 0.00e+00 | 0.00e+00 | 0.00e+00 | 0.00e+00 |

CRU: Components for re-use , **MFR:** Materials for recycling , **MER:** Materials for energy recovery , **EEE:** Exported electrical energy , **EET:** Exported thermal energy

| Name | Value | Unit |
|---|----------|------|
| Biogenic carbon content in product | 1.08e-05 | kg C |
| Biogenic carbon content in accompanying packaging | 0.00e+00 | kg C |

Additional requirements

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

Electricity consumption in the manufacturing phase is composed from the sources below. This EPD follows the market-based approach.

| Approach | Electricity | Quantity [kWh] | Emission Factor [kg CO ₂ e/kWh] |
|--------------------|--|----------------|--|
| market-based | ecoinvent: electricity, high voltage, residual mix (NL) | 1.28 | 0.70 |
| (location-based) | (ecoinvent: market for electricity, high voltage (NL)) | (1.28) | (0.41) |

Rows marked with () are provided for reference and not used in the assessment.

Dangerous substances

The product contains no hazardous substances given by the REACH Candidate List or the Norwegian Priority List.

Additional environmental information







Additional environmental impact indicators required in NPCR Part A for construction products

| Indicator | Unit | A1-A3 | A4 | C1 | C2 | C3 | C4 | D |
|-----------|-------------------------|----------|----------|----------|----------|----------|----------|-----------|
| GWP-IOBC | kg CO ₂ -eq. | 2.43e+01 | 4.35e-02 | 6.13e-03 | 5.18e-03 | 3.07e-03 | 1.88e-03 | -4.37e-02 |

GWP-IOBC: Global Warming Potential - Instantaneous oxidation of biogenic carbon

Bibliography

| | |
|-----------------------|---|
| CEN/TR 15941:2010 | Sustainability of construction works - Environmental product declarations - Methodology for selection and use of generic data |
| EN 15804:2012+A2:2019 | Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products |
| EN 15942:2022-04 | Sustainability of construction works - Environmental product declarations - Communication format business-to-business |
| ISO 14025:2011-10 | Environmental labels and declarations - Type III environmental declarations - Principles and procedures |
| ISO 14040:2021-02 | Environmental management - Life cycle assessment - Principles and framework |
| ISO 14044:2021-02 | Environmental management - Life cycle assessment - Requirements and guidelines |
| EF 3.1 | Environmental Footprint (EF) Life Cycle Impact Assessment method - Characterisation Factors version 3.1, European Commission, Joint Research Centre (JRC) |
| ecoinvent 3.10 | ecoinvent, Zurich, Switzerland, database version 3.10 |
| NPCR Part A:2021 | Construction products and services, Version 2.0. Issue date: 24.03.2021; validity extended to 24.03.2026. |

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|---|---|-------|--|
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