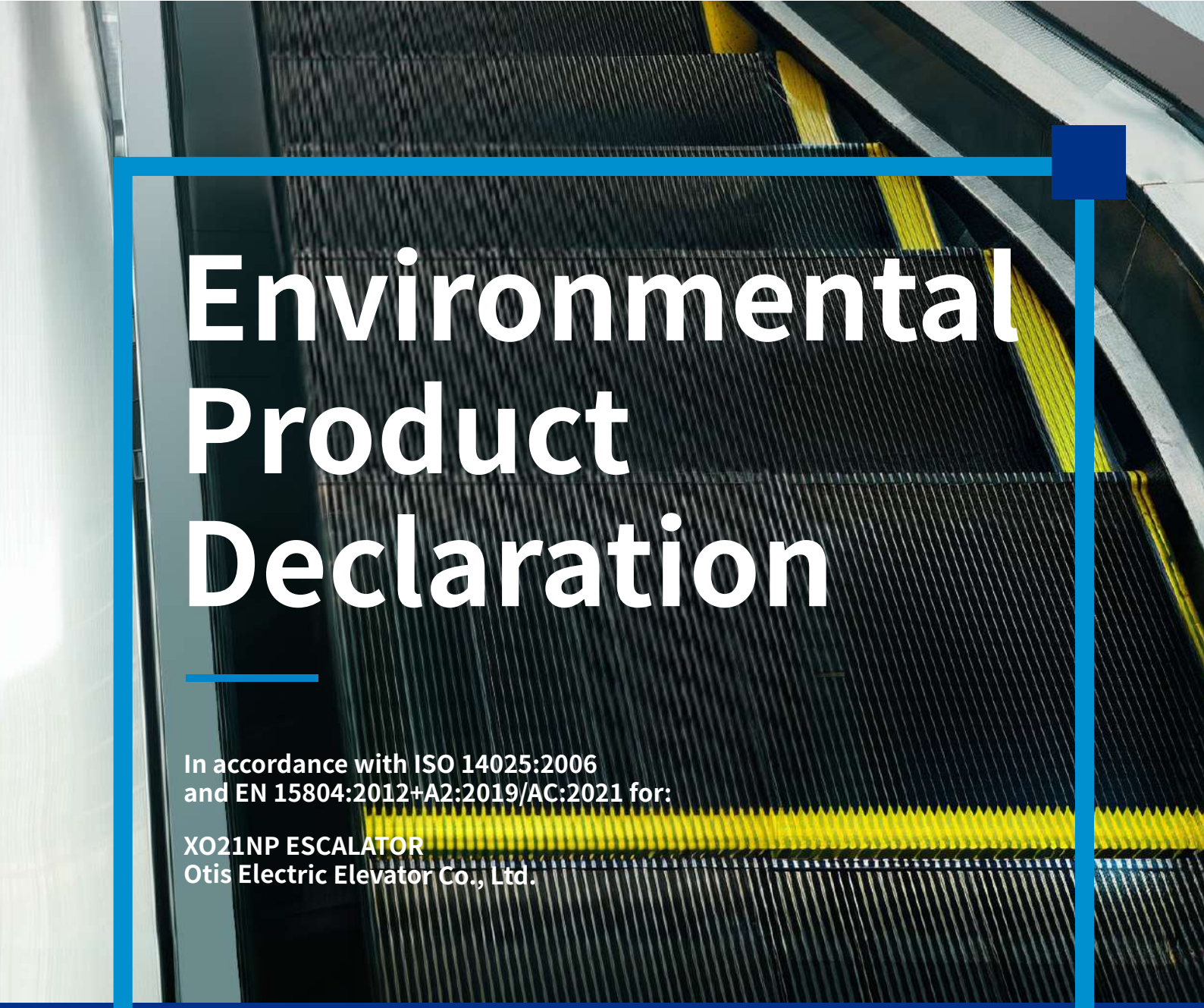


# Environmental Product Declaration

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

**XO21NP ESCALATOR**
**Otis Electric Elevator Co., Ltd.**

| | |
|---|---|
| Programme: | The International EPD® System, www.environdec.com |
| Programme operator: | EPD International AB |
| EPD registration number: | EPD-IES-0018245 |
| Publication date: | 2024-12-13 |
| Valid until: | 2029-12-13<br>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 |
| Revision number: | 0.0 |
| Geographical scope: | China |

EPD®

ECO PLATFORM EPD VERIFIED

OTIS electric

# About Otis Electric

Otis Electric was established as a main subsidiary of Otis (NYSE: OTIS) in China in March 1997, and is headquartered in Hangzhou. It provides elevators, escalators together with their service maintenance based on Otis global technology platform and quality standards, for residential, commercial and urban modernization projects.

Otis Electric is supported by two manufacturing bases in Hangzhou and Chongqing, and has a laboratory accredited by China National Accreditation Service for Conformity Assessment (CNAS). Its 5,000 mechanics collaborate on a dedicated team of 8,000 employees at more than 370 branches and service outlets nationwide to move forward together with passengers and customers.

# Factory information

Otis' sustainability and environmental strategy has led to increasing energy-efficiency of escalators and moving walks as well as the production and assembly of them. We are committed to continuously improving and enhancing our environmental indicators at our manufacturing facilities in China.

OE escalator factory, located in Hangzhou, has passed ISO 9001, ISO 14001, ISO 45001, ISO 50001 certification and the certification of design, manufacturing and sales of escalators and moving walks. It’ s also certified to provide installation, maintenance and other related services.

We have established and maintained the operation of occupational health and safety management, quality management system and environmental management system. We have been monitoring the end-of-line disposal of recyclable, non-recyclable, and hazardous waste. Under the supervision of the ISO 50001 energy management system, our factory has been strictly controlling the use of water and electricity, reducing greenhouse gas emissions.

Following the "Otis GS193 global standard" and in line with the United Nations’ and China's Sustainable Development Goals, our factory is planned to achieve carbon neutrality in electricity consumption by 2030 and reduce CO2 by an estimated 3,000 tons (compared to 2021).

We are also reducing our waste emissions by removing and recycling the packaging of parts and backfilling recyclable packaging materials to reach the goal of zero-landfill. As a result, ZWTL (Zero Waste to Landfill) golden certification was obtained in 2024.

Our government and major customers care about how escalators and moving walks are manufactured and are increasingly focusing on energy enhancement and environmental protection. Through ISO 50001, we can continuously reduce energy consumption in our in-house manufacturing processes and support our energy efficiency in our operations. The implementation of this standard helps us protect our employees from possible occupational risks, reduce the likelihood of accidents in the workplace, while improving the safety performance of our products and protecting all equipment.

## Product-related or management system-related certifications:

ISO 9001, ISO 14001, ISO 45001, ISO 50001 and ZWTL certificates

# General information

## EPD owner

Otis Electric Elevator Co., Ltd.

No.28 Jiuhuan Road, Shangcheng District, Hangzhou City, Zhejiang Province

Jun Ma<Jun.Ma3@otis.com>

## Programme Operator

The International EPD® System

EPD International AB
Box 210 60,SE-100 31 Stockholm,Sweden

www.environdec.com

info@environdec.com

## 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 1.3.4 and C-PCR-025 (TO PCR 2019:14) for ESCALATORS AND MOVING WALKS VERSION: 2024-04-30

PCR review was conducted by: The Technical Committee of the International EPD® System. Contact via info@environdec.com

## Life Cycle Assessment (LCA)

LCA accountability: Vivi Sun, TÜV Rheinland (Shanghai) Co., Ltd.

## Third-party verification

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:

■ EPD verification by individual verifier

Third-party verifier: Rui Wang, IVL Swedish Environmental Research Institute

Approved by: The International EPD® System

Procedure for follow-up of data during EPD validity involves third party verifier:

☐ Yes ■ No

[Procedure for follow-up the validity of the EPD is at minimum required once a year with the aim of confirming whether the information in the EPD remains valid or if the EPD needs to be updated during its validity period. The follow-up can be organized entirely by the EPD owner or together with the original verifier via an agreement between the two parties. In both approaches, the EPD owner is responsible for the procedure being carried out. If a change that requires an update is identified, the EPD shall be re-verified by a verifier]

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.

# Product information

Product name:
XO21NP ESCALATOR
Product identification:
The escalators are compliant with required Codes and Standards.

Product description:
Otis Electric XO21NP escalators are safe, reliable and sustainable. They are designed to meet the demands of high-traffic areas such as airports, railway stations, subways and busy transport hubs. As safety is part of our DNA and is embedded in all our solutions, our public escalators are designed to exceed industry standards. Furthermore, Environmental, Social and Governance (ESG) is embedded in our long-term strategy. We designed our public escalators that maximally reduce the environmental impact of vertical transportation.

UN CPC code: 4354

Geographical scope:
Module A-D are modelled with Chinese scope.

| Characteristic | Range | Representative Values |
|---|---|---|
| Type of installation | Escalator | |
| Type of configuration | new generic installation without modernization | |
| Commercial name | XO21NP | |
| Recommended application (main market) | Public | |
| Geographic region of intended installation | China | |
| Optional equipment | / | |
| Designed Reference Service Life (RSL) | 20 years | |
| Applied Usage Class (UC) | 1,2,3,4 | 3 |
| Nominal speed | 0.5 m/s, 0.65m/s | 0.5 m/s |
| Number of operating days per year | 365 | |
| Operation mode | Auto start, Slow-speed, Continuous | Auto start |
| Angle of inclination, α (fixed or range) [degree] | 30°, 27.3° | 30° |
| Vertical rise (fixed or range) | up to 15m | |
| Step width (fixed or range) | 1000 mm, 800 mm | 1000 mm |

Comparability between EPDs based on c-PCR Escalators and moving walks (to PCR 2019:14) is only achievable, if the following performance characteristics apply: functional unit (FU), operation mode and usage class (UC) are identical and the geographic region is equivalent.

# LCA information

## Functional unit:

This report uses the transportation of one passenger over one kilometre as the functional unit. The total amount of pkm delivered by the product during its technical lifespan (called also transportation value, TV for short) shall be calculated, followed by division of the respective inputs and outputs by the TV to obtain the LCA results per FU.

## Reference service life:

20 years

## Time representativeness:

The time boundary of XO21NP escalator data is from 2023.01.01 to 2023.12.31.

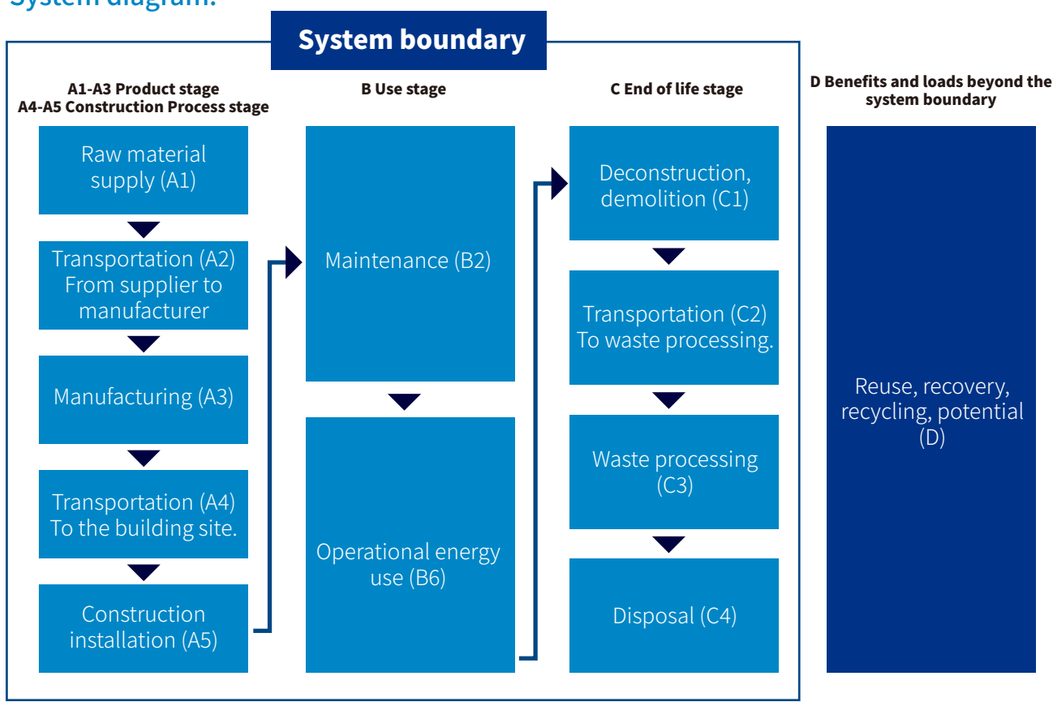
## Database(s) and LCA software used:

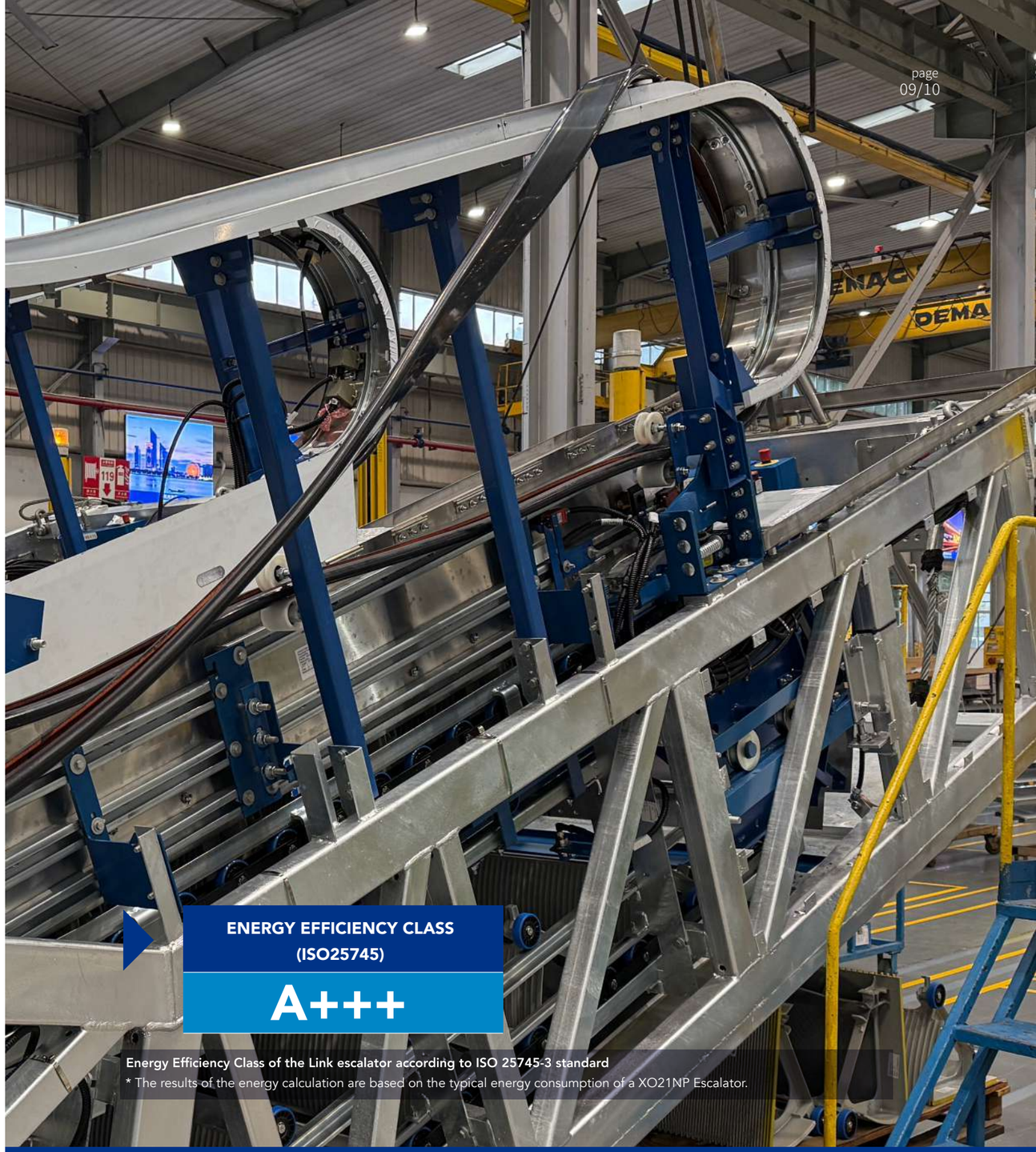
GABI 10.8.0.14 software, content version 2024.2

## Description of system boundaries:

Cradle to grave and module D (A + B + C + D). Module D is outside of the system boundary and is reported separately and shall not be summed up with the rest of the results.
Since this EPD includes module C, it is recommended that module C be considered when referring to the results of modules A1-A3.

## System diagram:




## Manufacturing processes:

## Allocation rules:

In module A3, the manufacturer calculates the electricity consumption by counting the assembly time of all the products in the factory and allocating the electricity consumption throughout the year accordingly.

## Cut-off rules:

The cut-off rules are not applied in this study. All data are provided from Otis Electric Elevator Co., Ltd..

## Electricity usage:

The data collected for this study were all provided by Otis Electric Elevator Co., Ltd.. In the A3 module, part of the electricity from factory solar panel and the rest comes from the grid mix. Further evidence is provided by the manufacturer.The electricity factor information are as follows:

| | Reference year | GWP-GHG (kg $CO^2$ eq./kWh) |
|---|---|---|
| CN: Electricity grid mix 1kV-60kV (China electric power yearbook) | 2020 | 0.68 |
| CN: Electricity from photovoltaic Sphera | 2020 | 0.03 |

## Use stage:

According to ISO 25745-1 & 3 energy efficiency standard for escalators. In the B6 stage, the operational energy use is based on the up direction in auto start mode.

## Resource recovery stage:

It is expected that the recycling quote of escalator is 95%. Recycling of materials is only related to metals and plastics. For other materials like mineral wool, concrete or ceramics inert landfilling is assumed, as well as for 5% of metals and plastics that are not recycled. Plastics that are not recycled are introduced to the municipal waste incineration.

## Data collection:

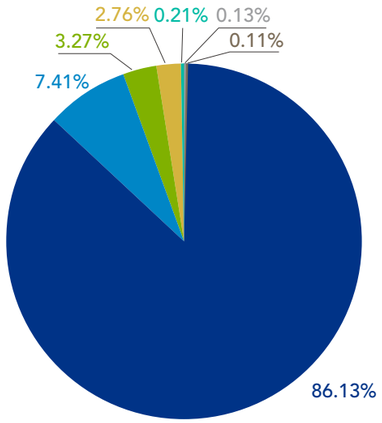
The report boundary of the escalator is set from cradle to grave. The product life cycle stage is from resource extraction to final disposal. Production, maintenance, and disposal of infrastructure (buildings, machinery and capital goods) at the sites where the product is disposed are excluded in this report. The primary data is not available to account for material losses (cuttings, wastage, residues, etc.) mass of materials used in the main components ,so that the input materials accounted for with an increase of 5%.

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

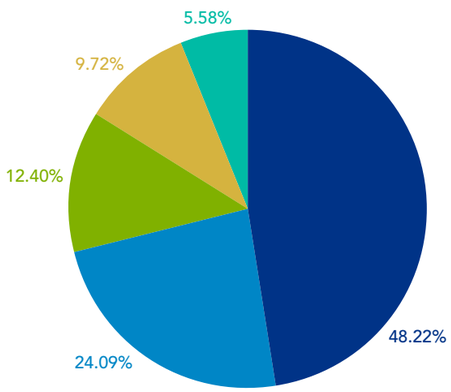
| | | Module | Modules declared | Geography | Specific data used |
|---|---|---|---|---|---|
| Product stage | Raw material supply | A1 | × | CN | >90% |
| | Transport | A2 | × | CN | |
| | Manufacturing | A3 | × | CN | |
| Construction process stage | Transport | A4 | × | CN | >90% |
| | Construction installation | A5 | × | CN | >90% |
| Use stage | Use | B1 | ND | - | - |
| | Maintenance | B2 | × | CN | - |
| | Repair | B3 | ND | - | - |
| | Replacement | B4 | ND | - | - |
| | Refurbishment | B5 | ND | - | - |
| | Operational energy use | B6 | × | CN | - |
| | Operational water use | B7 | ND | - | - |
| End of life stage | De-construction demolition | C1 | × | CN | - |
| | Transport | C2 | × | CN | - |
| | Waste processing | C3 | × | CN | - |
| | Disposal | C4 | × | CN | - |
| Resource recovery stage | Reuse-Recovery-Recycling-potential | D | × | CN | - |

Multiple products or multiple production sites were not involved in this study.

# Content information




| Product components | Weight (kg) | Weight (%) | Biogenic carbon |
|---|---|---|---|
| Ferrous metals (Galvanized steel, stainless steel, cast iron, steel) | 8584.72 | 86.13% | / |
| Inorganic materials (Glass, glass fibre, alumina, titanium dioxide) | 738.54 | 7.41% | / |
| Polymers | 325.79 | 3.27% | / |
| Non-ferrous metals (Aluminium, copper) | 274.64 | 2.76% | / |
| Electronic component (Capacitance, PCB) | 20.45 | 0.21% | / |
| Paint and gear oil | 12.52 | 0.13% | / |
| Paper | 10.53 | 0.11% | 0.43 kg C/kg |
| TOTAL | 9967.18 | 100% | / |




| Packaging materials | Weight (kg) | Weight (%) | Biogenic carbon |
|---|---|---|---|
| Plywood | 70.00 | 48.22% | 0.48 kg C/kg |
| Polymers | 34.97 | 24.09% | / |
| Wood | 18.00 | 12.40% | 0.45 kg C/kg |
| Ferrous metals | 14.11 | 9.72% | / |
| Paper | 8.10 | 5.58% | 0.43 kg C/kg |
| TOTAL | 145.17 | 100% | / |

No post-consumer material is used in the product components.
There is less than 5% biogenic content in the product.

# Main results of the environmental performance indicators

EN 15804 reference package based on EF 3.1 was used as LCIA method.
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.

## Mandatory impact category indicators according to EN 15804

| Results per functional unit | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Indicator | Unit | A1-A3 | A4 | A5 | B2 | B6 | C1 | C2 | C3 | C4 | D |
| GWP-GHG | kg $CO_2$ eq. | 1.90E-02 | 1.51E-03 | 4.63E-05 | 9.41E-03 | 1.51E-01 | 2.39E-06 | 1.93E-04 | 1.35E-04 | 1.04E-05 | -8.92E-03 |
| GWP-total | kg $CO_2$ eq. | 1.91E-02 | 1.57E-03 | 1.14E-04 | 9.99E-03 | 1.51E-01 | 2.39E-06 | 2.01E-04 | 1.35E-04 | 1.59E-05 | -8.91E-03 |
| GWP-fossil | kg $CO_2$ eq. | 1.90E-02 | 1.51E-03 | 4.63E-05 | 9.41E-03 | 1.51E-01 | 2.39E-06 | 1.93E-04 | 1.35E-04 | 1.04E-05 | -8.92E-03 |
| GWP-biogenic | kg $CO_2$ eq. | 1.30E-04 | 6.34E-05 | 6.78E-05 | 5.78E-04 | -8.58E-05 | -1.36E-09 | 8.13E-06 | 9.28E-10 | 5.52E-06 | 1.54E-05 |
| GWP-luluc | kg $CO_2$ eq. | 1.28E-05 | 7.19E-08 | 1.67E-08 | 1.43E-06 | 1.56E-04 | 2.47E-09 | 9.22E-09 | 6.39E-09 | 5.95E-08 | -6.43E-06 |
| ODP | kg CFC 11 eq. | 5.62E-11 | 9.75E-17 | 4.01E-18 | 4.29E-15 | 8.24E-13 | 1.30E-17 | 1.25E-17 | 2.87E-17 | 1.99E-17 | 3.44E-15 |
| AP | mol $H^+$ eq. | 7.98E-05 | 7.63E-06 | 8.46E-08 | 1.63E-05 | 5.36E-04 | 8.47E-09 | 2.18E-07 | 1.70E-08 | 7.12E-08 | -2.88E-05 |
| EP-freshwater | kg P eq. | 6.11E-08 | 1.91E-10 | 1.74E-09 | 1.00E-08 | 8.10E-08 | 1.28E-12 | 2.45E-11 | 6.97E-12 | 1.67E-10 | -3.73E-09 |
| EP-marine | kg N eq. | 1.37E-05 | 3.79E-06 | 3.68E-08 | 4.02E-06 | 1.16E-04 | 1.84E-09 | 8.48E-08 | 4.68E-09 | 1.95E-08 | -5.19E-06 |
| EP-terrestrial | mol N eq. | 1.50E-04 | 4.17E-05 | 3.03E-07 | 5.14E-05 | 1.27E-03 | 2.00E-08 | 9.64E-07 | 7.84E-08 | 2.03E-07 | -5.66E-05 |
| POCP | kg NMVOC eq. | 4.26E-05 | 7.61E-06 | 1.05E-07 | 1.46E-05 | 3.44E-04 | 5.45E-09 | 2.34E-07 | 1.35E-08 | 5.86E-08 | -1.68E-05 |
| ADP-minerals&metals* | kg Sb eq. | 1.05E-06 | 2.41E-11 | 5.08E-13 | 4.56E-09 | 4.10E-09 | 6.48E-14 | 3.09E-12 | 2.97E-13 | 6.03E-13 | -4.81E-08 |
| ADP-fossil* | MJ | 2.18E-01 | 2.10E-02 | 5.36E-04 | 1.43E-01 | 1.62E+00 | 2.56E-05 | 2.69E-03 | 5.90E-05 | 1.32E-04 | -7.54E-02 |
| WDP* | $m^3$ | 2.87E-03 | 6.65E-06 | 2.65E-06 | 4.42E-04 | 5.80E-02 | 9.17E-07 | 8.52E-07 | 1.28E-05 | 1.14E-06 | -1.43E-03 |
| 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.

## Resource use indicators

| Results per functional unit | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Indicator | Unit | A1-A3 | A4 | A5 | B2 | B6 | C1 | C2 | C3 | C4 | D |
| PERE | MJ | 4.66E-02 | 1.01E-04 | 3.99E-06 | 3.62E-03 | 5.55E-01 | 8.78E-06 | 1.30E-05 | 1.57E-05 | 1.97E-05 | -8.97E-03 |
| 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 | 0.00E+00 |
| PERT | MJ | 4.66E-02 | 1.01E-04 | 3.99E-06 | 3.62E-03 | 5.55E-01 | 8.78E-06 | 1.30E-05 | 1.57E-05 | 1.97E-05 | -8.97E-03 |
| PENRE | MJ | 2.18E-01 | 2.10E-02 | 5.36E-04 | 1.43E-01 | 1.62E+00 | 2.56E-05 | 2.69E-03 | 5.90E-05 | 1.32E-04 | -7.54E-02 |
| PENRM | 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 | 0.00E+00 |
| PENRT | MJ | 2.18E-01 | 2.10E-02 | 5.36E-04 | 1.43E-01 | 1.62E+00 | 2.56E-05 | 2.69E-03 | 5.90E-05 | 1.32E-04 | -7.54E-02 |
| SM | 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 | 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 | 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 | 0.00E+00 |
| FW | $m^3$ | 9.65E-05 | 1.78E-07 | 5.54E-08 | 1.23E-05 | 1.38E-03 | 2.18E-08 | 2.28E-08 | 3.05E-07 | 3.40E-08 | -4.29E-05 |
| Acronyms | PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water | | | | | | | | | | |

## Waste indicators

| Results per functional unit | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Indicator | Unit | A1-A3 | A4 | A5 | B2 | B6 | C1 | C2 | C3 | C4 | D |
| Hazardous waste disposed | kg | 6.74E-09 | 4.18E-13 | 1.54E-14 | 1.65E-08 | 1.19E-09 | 1.88E-14 | 5.36E-14 | 3.38E-14 | 2.52E-14 | 6.73E-12 |
| Non-hazardous waste disposed | kg | 1.61E-03 | 8.48E-07 | 6.24E-05 | 4.95E-04 | 8.18E-04 | 1.29E-08 | 1.09E-07 | 1.23E-05 | 6.62E-04 | -8.89E-04 |
| Radioactive waste disposed | kg | 3.11E-06 | 8.35E-09 | -3.90E-09 | 5.44E-07 | 4.00E-05 | 6.32E-10 | 1.07E-09 | 1.99E-09 | 1.12E-09 | 3.70E-07 |

## Output flow indicators

| Results per functional unit | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Indicator | Unit | A1-A3 | A4 | A5 | B2 | B6 | 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 | 0.00E+00 |
| Material for recycling | 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 | 5.43E-03 |
| Materials for energy recovery | 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 | 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 | 0.00E+00 | 0.00E+00 | 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 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

# Results for each escalator

To demonstrate the full life cycle potential environmental impact of each escalator, LCIA results for each escalator are shown in table below in this section.

## Mandatory impact category indicators according to EN 15804

| Results for each escalator | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Indicator | Unit | A1-A3 | A4 | A5 | B2 | B6 | C1 | C2 | C3 | C4 | D |
| GWP-GHG | kg $CO_2$ eq. | 3.32E+04 | 2.65E+03 | 8.11E+01 | 1.65E+04 | 2.65E+05 | 4.19E+00 | 3.39E+02 | 2.36E+02 | 1.83E+01 | -1.56E+04 |
| GWP-total | kg $CO_2$ eq. | 3.35E+04 | 2.76E+03 | 2.00E+02 | 1.75E+04 | 2.65E+05 | 4.19E+00 | 3.53E+02 | 2.36E+02 | 2.79E+01 | -1.56E+04 |
| GWP-fossil | kg $CO_2$ eq. | 3.32E+04 | 2.65E+03 | 8.11E+01 | 1.65E+04 | 2.65E+05 | 4.19E+00 | 3.38E+02 | 2.36E+02 | 1.82E+01 | -1.56E+04 |
| GWP-biogenic | kg $CO_2$ eq. | 2.27E+02 | 1.11E+02 | 1.19E+02 | 1.01E+03 | -1.50E+02 | -2.38E-03 | 1.42E+01 | 1.63E-03 | 9.67E+00 | 2.70E+01 |
| GWP-luluc | kg $CO_2$ eq. | 2.24E+01 | 1.26E-01 | 2.92E-02 | 2.51E+00 | 2.74E+02 | 4.33E-03 | 1.62E-02 | 1.12E-02 | 1.04E-01 | -1.13E+01 |
| ODP | kg CFC 11 eq. | 9.84E-05 | 1.71E-10 | 7.03E-12 | 7.51E-09 | 1.44E-06 | 2.28E-11 | 2.19E-11 | 5.02E-11 | 3.50E-11 | 6.02E-09 |
| AP | mol $H^+$ eq. | 1.40E+02 | 1.34E+01 | 1.48E-01 | 2.85E+01 | 9.39E+02 | 1.48E-02 | 3.83E-01 | 2.97E-02 | 1.25E-01 | -5.05E+01 |
| EP-freshwater | kg P eq. | 1.07E-01 | 3.35E-04 | 3.05E-03 | 1.76E-02 | 1.42E-01 | 2.25E-06 | 4.29E-05 | 1.22E-05 | 2.93E-04 | -6.54E-03 |
| EP-marine | kg N eq. | 2.41E+01 | 6.64E+00 | 6.45E-02 | 7.04E+00 | 2.04E+02 | 3.23E-03 | 1.49E-01 | 8.20E-03 | 3.41E-02 | -9.10E+00 |
| EP-terrestrial | mol N eq. | 2.62E+02 | 7.30E+01 | 5.31E-01 | 9.00E+01 | 2.22E+03 | 3.51E-02 | 1.69E+00 | 1.37E-01 | 3.56E-01 | -9.92E+01 |
| POCP | kg NMVOC eq. | 7.46E+01 | 1.33E+01 | 1.84E-01 | 2.56E+01 | 6.03E+02 | 9.54E-03 | 4.09E-01 | 2.37E-02 | 1.03E-01 | -2.94E+01 |
| ADP-minerals&metals* | kg Sb eq. | 1.85E+00 | 4.22E-05 | 8.89E-07 | 7.98E-03 | 7.18E-03 | 1.14E-07 | 5.41E-06 | 5.20E-07 | 1.06E-06 | -8.43E-02 |
| ADP-fossil* | MJ | 3.81E+05 | 3.68E+04 | 9.38E+02 | 2.51E+05 | 2.83E+06 | 4.48E+01 | 4.71E+03 | 1.03E+02 | 2.30E+02 | -1.32E+05 |
| WDP* | $m^3$ | 5.02E+03 | 1.16E+01 | 4.64E+00 | 7.74E+02 | 1.02E+05 | 1.61E+00 | 1.49E+00 | 2.25E+01 | 2.00E+00 | -2.51E+03 |
| 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.

## Resource use indicators

| Results for each escalator | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Indicator | Unit | A1-A3 | A4 | A5 | B2 | B6 | C1 | C2 | C3 | C4 | D |
| PERE | MJ | 8.16E+04 | 1.77E+02 | 6.98E+00 | 6.34E+03 | 9.72E+05 | 1.54E+01 | 2.27E+01 | 2.74E+01 | 3.45E+01 | -1.57E+04 |
| 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 | 0.00E+00 |
| PERT | MJ | 8.16E+04 | 1.77E+02 | 6.98E+00 | 6.34E+03 | 9.72E+05 | 1.54E+01 | 2.27E+01 | 2.74E+01 | 3.45E+01 | -1.57E+04 |
| PENRE | MJ | 3.81E+05 | 3.68E+04 | 9.38E+02 | 2.51E+05 | 2.83E+06 | 4.48E+01 | 4.71E+03 | 1.03E+02 | 2.30E+02 | -1.32E+05 |
| PENRM | 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 | 0.00E+00 |
| PENRT | MJ | 3.81E+05 | 3.68E+04 | 9.38E+02 | 2.51E+05 | 2.83E+06 | 4.48E+01 | 4.71E+03 | 1.03E+02 | 2.30E+02 | -1.32E+05 |
| SM | 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 | 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 | 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 | 0.00E+00 |
| FW | $m^3$ | 1.69E+02 | 3.12E-01 | 9.71E-02 | 2.15E+01 | 2.42E+03 | 3.82E-02 | 4.00E-02 | 5.35E-01 | 5.96E-02 | -7.52E+01 |
| 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 for each escalator | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Indicator | Unit | A1-A3 | A4 | A5 | B2 | B6 | C1 | C2 | C3 | C4 | D |
| Hazardous waste disposed | kg | 1.18E-02 | 7.32E-07 | 2.70E-08 | 2.88E-02 | 2.08E-03 | 3.29E-08 | 9.39E-08 | 5.92E-08 | 4.42E-08 | 1.18E-05 |
| Non-hazardous waste disposed | kg | 2.83E+03 | 1.49E+00 | 1.09E+02 | 8.66E+02 | 1.43E+03 | 2.27E-02 | 1.90E-01 | 2.15E+01 | 1.16E+03 | -1.56E+03 |
| Radioactive waste disposed | kg | 5.44E+00 | 1.46E-02 | -6.83E-03 | 9.54E-01 | 7.00E+01 | 1.11E-03 | 1.88E-03 | 3.48E-03 | 1.96E-03 | 6.48E-01 |

## Output flow indicators

| Results for each escalator | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Indicator | Unit | A1-A3 | A4 | A5 | B2 | B6 | 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 | 0.00E+00 |
| Material for recycling | 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 | 9.51E+03 |
| Materials for energy recovery | 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 | 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 | 0.00E+00 | 0.00E+00 | 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 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

# References

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

## ISO 14040:2006
Environmental management – Life cycle assessment - Principles and framework

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

## EN 15804:2012+A2:2019
Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products

## PCR 2019:14
Construction Products. Version 1.3.4, 2025-06-20

## C-PCR-025
(TO PCR 2019:14) for ESCALATORS AND MOVING WALKS

## ISO 25745-3:2015
Energy performance of lifts, escalators and moving walks — Part 3: Energy calculation and classification of escalators and moving walks

# Glossary

## ENVIRONMENTAL PRODUCT DECLARATION (EPD)
An EPD is a type III declaration, complying with ISO14025, which provides results about a product' s environmental performance and facilitates comparison between different products with the same function (Functional Unit and escalator characteristics). The results are based on the Life Cycle Analysis done in accordance with ISO 14040.

## LIFE CYCLE ASSESSMENT (LCA)
LCA is a method that quantifies the total environment impact of products or activities over their entire life cycle and life cycle thinking. Life cycle assessment is based on ISO 14040 and ISO 14044 standards and comprises four phases: goal and scope definition, inventory data collection and analysis, environmental impact assessment, and interpretation of results. The results of LCA are used in communication and product development purposes, for example.

## LIFE CYCLE IMPACT ASSESSMENT (LCIA)
The phase of life cycle assessment aimed at understanding and evaluating the magnitude and significance of the potential environmental impacts of a product system throughout the life cycle of the product.

## GLOBAL WARMING POTENTIAL (GWP)
It is expressed in kg carbon dioxide ($CO_2$) equivalent. This indicator expresses global warming potential and refers to carbon footprint. It considers gaseous substances such as carbon dioxide ($CO_2$), methane ($CH_4$), laughing gas ($N_2O$) over 100 years. These substances have an ability to absorb infrared radiation in the earth' s atmosphere. They let sunlight reach the earth' s surface and trap some of the infrared radiation emitted back into space causing an increase in the earth' s surface temperature.

## LIFE CYCLE INVENTORY (LCI)
The phase of life cycle assessment involving the compilation and quantification of inputs and outputs for a product system throughout its life cycle.

## FUNCTIONAL UNIT (FU)
The quantified performance of a product system for use, as a reference unit.

## PRODUCT CATEGORY RULES (PCR)
Product Category Rules (PCR) defines the rules and requirements for EPDs of a certain product category. They are a key part of ISO 14025 as they enable transparency and comparability between EPDs.

EPD®

OTIS electric

Otis Electric Elevator Co., Ltd.
Add:28 Jiuhuan Rd, Shangcheng District, Hangzhou, China
Tel:+86 571 8514 0888
Hotline:400-885-0000