Environnemental Product Declaration

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

OTIS LINK™ ESCALATOR
OTIS ELEVATOR COMPANY

Programme:	The International EPD® System - www.environdec.com
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Geographical scope:	China, Europe, US

OTIS

Made to move you™

About Otis

Otis gives people freedom to connect and thrive in a taller, faster, smarter world. The global leader in the manufacture, installation and servicing of elevators and escalators, we move 2 billion people a day and maintain approximately 2.1 million customer units worldwide – the industry's largest service portfolio. You'll find us in the world's most iconic structures, as well as residential and commercial buildings, transportation hubs and everywhere people are on the move.

Headquartered in Connecticut, USA, Otis is 70,000 people strong, including 40,000 field professionals, all committed to meeting the diverse needs of our customers and passengers in more than 200 countries and territories.

To learn more, visit otis.com and follow us on LinkedIn, Instagram, Facebook and Twitter @OtisElevatorCo

About Link™ Escalator platform

Otis industry-leading Link escalators are reliable, safe and stylish. Custom-made solutions complement any unique environment, whether that's welcoming patrons into a luxury fashion store or busy travelers to a streamlined airport. And with easy maintenance and maximum uptime, Link keeps moving people in ways that guide and delight.

We focus on delivering a more sustainable experience. We have applied innovative thinking every step of the way – from design and manufacturing to installation and throughout the product lifecycle: energy efficient with sleep mode and Otis ReGenTM drive as a standard; efficient lubrification automated system; use of recyclable materials (see page 23) for Link manufacturing and exposed finishes (skirt panels, decking, floorplate, decorative panels) are made of an extremely durable stainless steel and non-toxic powder coating for carbon steel.

OTIS LINK OVERVIEW

Maximum rise: 13 m (42'8")
Inclination: 30°, 35°
Step width: 1 000mm (40") or 600mm (24") or 800mm (32")

Results interpretation

The mandatory environmental impact indicators used and the associated impact methods listed in Annex C of EN 15804+A2 (CEN, 2019) (p. 60ff.) are declared. Optional indicators have been calculated and presented in the LCA background report, they are not published in this EPD.

+ The characterization methodology referenced in the EN15804+A2 is used for the calculation.

+ Long-term emissions (> 100 years) are not accounted for in the impact assessment.

The following table shows the mandatory environmental impact indicators declared:

CORE ENVIRONMENTAL IMPACT INDICATORS	UNIT	REFERENCE
Global Warming Potential total (GWP-total)	kg CO_2 eq.	IPCC 2013 AR5
Global Warming Potential fossil fuels (GWP-fossil)	kg CO_2 eq.	IPCC 2013 AR5
Global Warming Potential biogenic (GWP-biogenic)	kg CO_2 eq.	IPCC 2013 AR5
Global Warming Potential land use and land use change (GWP-luluc)	kg CO_2 eq.	IPCC 2013 AR5
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC 11 eq.	WMO (2014) + integrations
Acidification potential, Accumulated Exceedance (AP)	mol H^+ eq.	Seppälä et al. (2006); Posch et al. (2008)
Eutrophication potential, fraction of nutrients reaching freshwater end compartment (EP-freshwater)	kg PO_4 eq.	EUTREND model (Struijs et al, 2009b) as implemented in ReCiPe 2008
Eutrophication potential, fraction of nutrients reaching marine end compartment (EP-marine)	kg N eq.	EUTREND model (Struijs et al, 2009b) as implemented in ReCiPe 2008
Eutrophication potential, accumulated Exceedance (EP-terrestrial)	mol N eq.	Seppälä et al. (2006); Posch et al. (2008)
Formation potential of tropospheric ozone (POCP)	kg NMVOC eq.	LOTOS-EUROS model (Van Zelm et al, 2008) as implemented in ReCiPe 2008
Abiotic depletion potential for non-fossil resources (ADP minerals & metals)	kg Sb eq.	van Oers et al. (2002) (based on Guinée et al. 2002)
Abiotic depletion for fossil resources potential (ADP-fossil)[1]	MJ, net calorific value	van Oers et al. (2002)
Water (user) deprivation potential, deprivation-weighted water consumption (WDP)[1]	m^3 world eq. deprived	Available WAter REmaining (AWARE) Boulay et al. (2016)

The pattern of results for the Link™ escalator is quite comparable to those of the Otis Gen2®/Gen360™ elevators. For more details about the EPDs on Gen2/Gen360 visit https://www.environdec.com/home. For impact categories GWP and ADPF, the life cycle performance of the Link escalator is dominated by the energy consumption from operation of the escalator (module B6).

Second most relevant – and for most of the indicators, the life cycle performance of the Link escalator is dominated by the materials manufacturing in the upstream section (modules A1-A3) followed by the material's manufacturing of the replacement parts over the lifetime of the escalator, 20 years (module B2). Carbon footprint for the entire life cycle of the escalator is 287 tons of CO2eq. Detailed results can be seen from the tables above. If the studied escalator is installed in Europe, the carbon footprint for the entire life cycle of the product will be reduced by 46 % and by 33% in USA.

In more detail,

USE STAGE– MODULE B6: OPERATIONAL ENERGY USE

The impacts are driven primarily by the electricity consumption during use stage (20 years), creating approximately 90-85% of GWP and ADP of fossil "ADPF", and almost 90% of AP, EP terrestrial-marine and POCP. The annual energy consumption of the Link escalator is 15 732 kWh, calculation was done according to ISO 25745-3 methodology.

The impacts for B6 were calculated using the energy production fuel mixes for China, EU and USA which is predominantly fossil based. This directly results in the large GWP impacts for the operational usage stage.

PRODUCT STAGE – MODULES A1-A3: RAW MATERIAL SUPPLY & OTIS MANUFACTURING

The global warming potential of modules A1-A3 is mainly caused by material manufacturing, with all steel and aluminum related production activity having the highest share of 98 % of the impacts The impacts for the Link escalator are caused by materials manufacturing of ferrous and non-ferrous metals, which created approx.7% of Climate change "GWP total" and 8% of ADP of fossil "ADPF" and almost 10% of AP, EP terrestrial-marine and POCP. In all impact categories, the Manufacturing has a minor contribution to the impact categories.

The continuous efforts to reduce the environmental footprint over the year through multi-channel initiatives such as: considering reusable and recyclable package for the components, eliminating the painting and welding operations, having a positive impact on greenhouse gas emissions and wastes helps limiting impact from the manufacturing step A3.

In terms of waste production, the amount of hazardous waste disposed is negligible and will occur during materials manufacturing. Breclav factory reduced its production of hazardous waste by 75% versus 2015 baseline and maintained high percentage of recyclable waste content of more than 97% of total industrial process waste. From year 2015 till 2021, Breclav factory reduced production of greenhouse emissions by 23% by reducing energy consumption by implementing best energy management practices and upgrading to more efficient.

The OMC factory's photovoltaics has been put into use in mid-2021 reducing carbon emissions by 160T that year, and it they are expected to provide clean energy (30% of the energy to be used in the factory) by the end of 2022. As well, OMC factory has completed 100% LED light coverage. In other aspects, new energy vehicle charging station has been installed in factory to promote energy saving and emission reduction. Factory is planning to complete the Otis carbon emission target by 2025.

TRANSPORT A3-A5 – MODULE A4

Last, the importance of the A4 Transport from Manufacturing to building site stage is minor, less than 1% for all the impact categories.

Additional information

SUBSTANCES AND EMISSIONS

During the development phase as well as for the industrialization, there is a high focus on the limited use of chemicals. Our engineers are referring to REACH, RoHS regulations to avoid substances which impact the environment and the human health (i.e. Methylene Chloride (Dichloromethane) use is eliminated at OTIS facilities).

The Link™ escalator is made possible as halogen free thanks to the use of specific cables and wiring (optional).

To the best of our knowledge and based on the data provided by our suppliers, hazardous substances are avoided during the design stage, to be in accordance with EU REACH (candidate list of substances of very high concern 'SVHC') and ROHS requirements.

Upon request Otis can provide the information about substances identified by the European Chemical Agency as candidates for Annex XIV of REACH, in a concentration above 0.1% weight by weight in articles.

ENERGY EFFICIENCY ISO25745 CLASSIFICATION OF THE LINK ESCALATOR

The Use phase is the longest phase in the life cycle of the escalator, 20 years for the Link Escalators, and the B6 Energy Consumption module is one of the most relevant stages impacting the environment.

It's therefore important for Otis to continuously improve the energy efficiency of the escalators, and help our customers reduce the amount of the electricity used.

Therefore, our escalators are designed to achieve the best possible energy efficiency classification, according to the international ISO 25745-1 & 3 energy efficiency standard for escalators.

The Link escalator has received the A+++ class energy rating, a certificate of conformity has been provided by a third party and can be made available upon request.

ENERGY EFFICIENCY CLASS (ISO25745)	ENERGY CONSUMPTION	
	DAILY	ANNUAL
A+++	43,1 kWh	15 732 kWh

Table 8. Energy Efficiency Class of the Link escalator according to ISO 25745-3 standard
* The results of the energy calculation are based on the typical energy consumption of a Link Escalator.

Product information

SINCE THERE IS NOT YET A PCR AVAILABLE FOR ESCALATORS, THIS STUDY HAS CONSIDERED THE GENERAL PCR FOR CONSTRUCTION PRODUCTS (2019:14) OF THE INTERNATIONAL EPD SYSTEM (THE INTERNATIONAL EPD SYSTEM, 2020).

This Environmental Product Declaration (EPD) for the Link escalator has been developed according to the mentioned PCR 2019:14 Construction products, version 1.11. The General Program Instructions of the International EPD System apply for the current EPDs development, as well as the EN 15804:2012 + A2:2019 (CEN, 2019) (called "EN 15804" in the document). The LCA study has been conducted in accordance with the ISO 14040/44 & ISO 14025 standards and the PCR 2019:14 for Construction products. Conformance of the background LCA study as well as the final EPDs with the guiding PCR and with ISO 14040, and 14044 was verified by The International EPD System.

The following tables depict the technical specifications for the considered Link escalator and other additional specifications. The figures correspond to a typical configuration, being the representative unit of the complete range of the Link escalator:

INDEX	REPRESENTATIVE VALUES
COMMERCIAL NAME (as stated in the operating manual or sales catalogue)	**LINK™**
Application	Indoor, semi-outdoor, outdoor
Type of installation	New generic escalator
Main purpose	Transport of passengers
Type of Escalator	Electric
Vertical Rise	4.5 m (up to 13m)
Speed	0.5 m/s
Inclination	30° (or 35°)
Number of flat steps at both landings	2 (up to 3)
Step/pallet width	1000 mm (or 600 mm or 800 mm)
Balustrade height at landing	1000 mm (or 930 mm)
Direction of travel	Up (or Down)
Number of operating days per year	365
Designed Reference Service Life (RSL)	20 years
Number of passengers during considered period	8 000 passengers / day
Average weight of passengers	75 kg
Geographic region or intended installation region (specific country or continent)	China, Europe, US
Recommended application (main market)	Mainly in Commercial - Shopping Mall, Super Market and other Commercial Environment
Standards compliance	The Link escalators are compliant with required Codes and Standards, especially with the latest version of EN115 or optional as the fire resistance

Table 1. Specifications for the declared Link escalator

The LCA study has been conducted in accordance with the ISO 14040/44 & ISO 14025 standards and the PCR 2019:14 for Construction products. Conformance of the background LCA study as well as the final EPDs with the guiding PCR and with ISO 14040, and 14044 was verified by The International EPD System.

The LCA study was completed in 2022 and is based on 2020 data i.e. not older than 5 years as per the requirement stated in EN15804. It includes the escalator manufacturing, its transport and installation, use and end of life. We covered the whole life cycle of the Link escalator, manufactured in China. As main scenario, it is considered that the escalator is installed, used and send to end of life treatment within Europe. Beside the EU scenario, further scenarios for installation, use-phase and EoL were calculated under China and USA conditions

The Link escalator is produced in two plants: (OMC plant, Jiaxing, China and BV plant, Bř eclav, Czech republic) with components' suppliers also from China, and some from Europe (Austria, Czech republic and Hungary). The escalators are installed either in China, in Europe and in the US thus all three regions are considered for the scenarios.

The total mass of the Link escalator is 6599 kg with the capacity to move 6000 people per Hour. It has a rise of 4,5m, step width of 1m, inclination of 30°, and speed of 0.5m/s. The escalator is mainly composed of ferrous metal. The LCA was conducted with a lifetime of 20 years, without considering a modernization. The designed reference service life considered for the LCA study is a typical data. Depending on maintenance and modernization activities and frequency of use or replacement of components, the usage phase of an escalator can be up to 20-25 years.

PRODUCT FUNCTION AND DECLARED UNIT

The results in the EPD are presented for a declared unit of 1 unit of escalator.

The functional unit is necessary to ensure comparability of LCA results. This is particularly critical when different systems are being assessed, to ensure that such comparisons are made on a common basis. LCA results presented in this EPD may not be comparable with results from other LCA studies or EPDs, if they do not comply with EN 15804 or have been calculated for a different functional unit.

Life Cycle Approach of Otis Link™ Escalator

We design our escalators with a life-cycle approach and ensure continual improvements by reducing their potential environmental impacts at each life cycle stage.

The study scope is a typical "cradle to grave" assessment, from the raw material needed to build up the lift up to its end of life where the escalator is removed and disposed.

FOR COMPLIANCE WITH EN 15804, THE PCR DEFINES THE PRODUCT LIFE CYCLE TO BE COVERED WITH THE INFORMATION MODULES A TO D:

- The Product stage (A1-A3) includes the raw material extraction and production, transport to the manufacturing site, and manufacturing and assembly of components, considering the demand of energy, auxiliary and operational materials and packaging. The data collection is from year 2020.
- The Construction process stage (A4-A5) includes the transportation to the installation site by mainly truck and the installation, considering the energy demand and auxiliary material.
- The Use stage (B1-B7) includes the maintenance, considering the transportation of employees to the installation site and auxiliary materials, including preventive maintenance parts production and energy use during operation and standby. All other modules are not relevant and modernization is not part of this stage.
- The End-of-life stage (C1-C4) includes the deconstruction, considering the energy demand and auxiliary materials, the transportation by mainly truck to waste processing facilities, the waste processing, considering sorting, and the waste disposal, considering a scenario with recycling, incineration and landfill.
- Finally, the benefits and loads beyond the system boundaries stage (D) includes the potential for recycling by substitution of primary material and energy recovery.

The following picture summarizes the modules covered in the LCA calculation according to PCR for Construction product. Also according to PCR, this is a cradle-to-grave assessment plus module D (A+B+C+D), wherein the construction and maintenance of capital equipment and indirect activities are excluded from the system boundary. The scenarios included in the study are currently in use and are representative for one of the most probable alternatives.

GEOGRAPHICAL COVERAGE

Escalator components are either manufactured at Otis owned and operated sites in China and Czech Republic, or purchased from a Tier 1 supplier. The Link Escalator is then assembled by Otis manufacturing sites, packed and sent to installation sites around Europe, China and US. The Link escalators are compliant with required Codes and Standards, especially with the latest version of EN115 or optional as the fire resistance.

In Otis sites, it only takes place the manufacturing of components, no pure material production applies. The Link Escalator can be installed in different locations around Europe, China and US. For this reason, the European grid mix (2017), Chinese grid mix (2017) and US grid mix (2018) have been used to simulate the energy associated to installation and maintenance works as well as for the energy used during the 20 years of service life considered.

In order to consider a general scenario possible for the end-of-life of the escalator's components, for the calculation of the results metals have been considered as "recycled" and landfilling or incineration for the rest of the materials. The GaBi 2019 LCI database provides the life cycle inventory data for several of the raw and process materials obtained from the background system.

LIFE CYCLE STAGE	INFORMATION MODULE		INCLUDED/EXCLUDED
A1-A3* Product Stage (China)	A1	Raw material supply	Included
	A2	Transport of raw materials	Included
	A3	Manufacturing (incl. production and transport of packaging materials)*	Included
A4-A5 Construction Process (EU 27, China, USA)	A4	Transport to construction site	Included
	A5	Installation (incl. packaging waste treatment)*	Included
B1-B7 Use Stage (EU 27, China, USA)	B1	Use	Excluded
	B2	Maintenance (preventive maintenance)	Included
	B3	Repair	Excluded: It is an intervention that cannot be programmed or foreseen, because it depends on the building application and users' behavior
	B4	Replacement	Excluded
	B5	Refurbishment	Excluded
	B6	Operational energy use	Included
	B7	Operational water use	Excluded; not applicable
C1-C4 End-of-life Stage (EU 27, China, USA)	C1	Deconstruction	Included
	C2	Transport to end-of-life	Included
	C3	Waste processing	Included
	C4	Waste disposal	Included
D Benefits and loads beyond the system boundary (EU 27, China, USA)	D	Reuse, recovery, recycling, potential	Included

The quality and cut-off criteria were considered, as per the EN 15804. Therefore, the total mass of the Link Escalator materials considered equals the total mass of the escalator. All inflows and outflows, for which data are mandatory, are included in the LCA calculations.

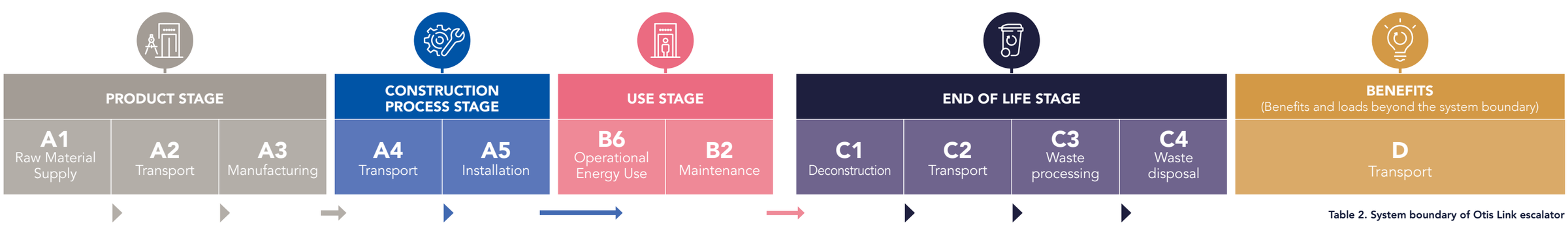


Table 2. System boundary of Otis Link escalator

ISO Certified Otis factories

Otis sustainable development and environment strategy, leading to more and more energy efficient escalators, incorporates also the production. All our manufacturing plants and facilities in China and Europe have taken their commitment to continuously improve their environmental performance.

Beclav factory is already certified the ISO 9001, ISO 14001 and ISO 45001 in the scope of design, development, manufacture, installation and servicing of escalators and moving walkways and in the scope of sales and installation, servicing, escalators and mowing walkway. We have established and applied an Occupational Health and Safety management, Quality management system and also Environmental Management system. We are continuously and rigorously monitoring both recyclable and non-recyclable waste, as well as hazardous waste, water consumption and greenhouse gas emissions. We are constantly reducing all these indicators.

By moving progressively from supplied packaging and logistics to in-house, we are currently also dealing with packaging management. We are able to recycle such packaging material and use it again or as a box filling to secure the product. Our factory manages energy consumption and reduce greenhouse gas emissions following our " Otis Global Standard 193" energy management system. Factory follows the Otis Global environmental, social and governance (ESG) targets aligned with the United Nations Sustainable Development, among others target to reduce Scope 1 and Scope 2 emissions 50% by 2030, Reach carbon neutrality for factory electricity by 2030 and achieve eligibility for zero-waste-to-landfill certification by 2025.

OMC Factory has certified ISO14001 Environmental Management and ISO9001 Quality Management. Current OMC factory is scheduled to achieve the ISO50001 Energy Management System Certification in Oct 2022. The certifications are publicly available on Otis website. ISO50001 specifies the requirements for establishing, implementing, maintaining and improving an energy management system, whose purpose is to enable an organization to follow a systematic approach in achieving continual improvement of energy performance, including energy efficiency, energy security, energy use and consumption. It establishes for Otis a more systematic and sustainable approach to continually reduce energy within the facilities, and therefore the costs and the Greenhouse gases (GHG) emissions into the atmosphere.

Our major customers and as importantly Governments care about how the escalators are manufactured and are becoming more conscious about the energy performance and the environmental protection. The reduction of energy consumption during in-house manufacturing through ISO 50001 is continuously supporting our energy efficiency during operations.

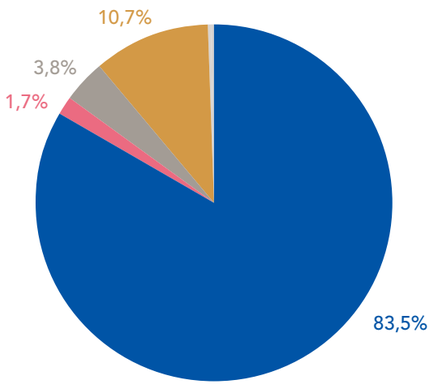
In OMC factory, 2,440 square meters solar panels have been installed on manufacturing roof area, which contributes about 30% towards the energy consumed in the factory every day.

Our European facility (in Breclav, Czech Republic) is also certified OHSAS 18001 Occupational Health and Safety Management Standard, to ensure our employee's health and safety, which is one of our core values at Otis. The implementation of the standard helps us to protect our employees against possible occupational risks and to reduce the likelihood of accidents in the workplace along with improving the safety performance of our products and protect all those that are using our equipment.

Picture 2. OMC factory

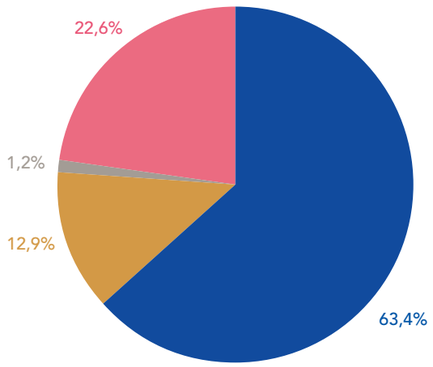
Content declaration

The tables below show a material summary of the Link Escalator studied and its packaging, as delivered and installed in a building. Data are provided by Otis according to the cut-off rules described in the appropriate section.



MATERIAL	MASS (kg)	MASS (%)
Ferrous metals (zinc coated steel, stainless steel, cast iron)	5 509	83,5
Non-ferrous metals (aluminum, copper)	113	1,7
Plastics & rubbers	249	3,8
Inorganic materials (concrete, glass)	707	10,7
Organic materials (paper, wood, cardboard)	8	0,1
Electric & Electronic Equipment (cables, switch, PCB, LED, relay etc.)	12	0,2
Total mass	**6 599**	**100**

Table 3. Material summary of the Link Escalator unit



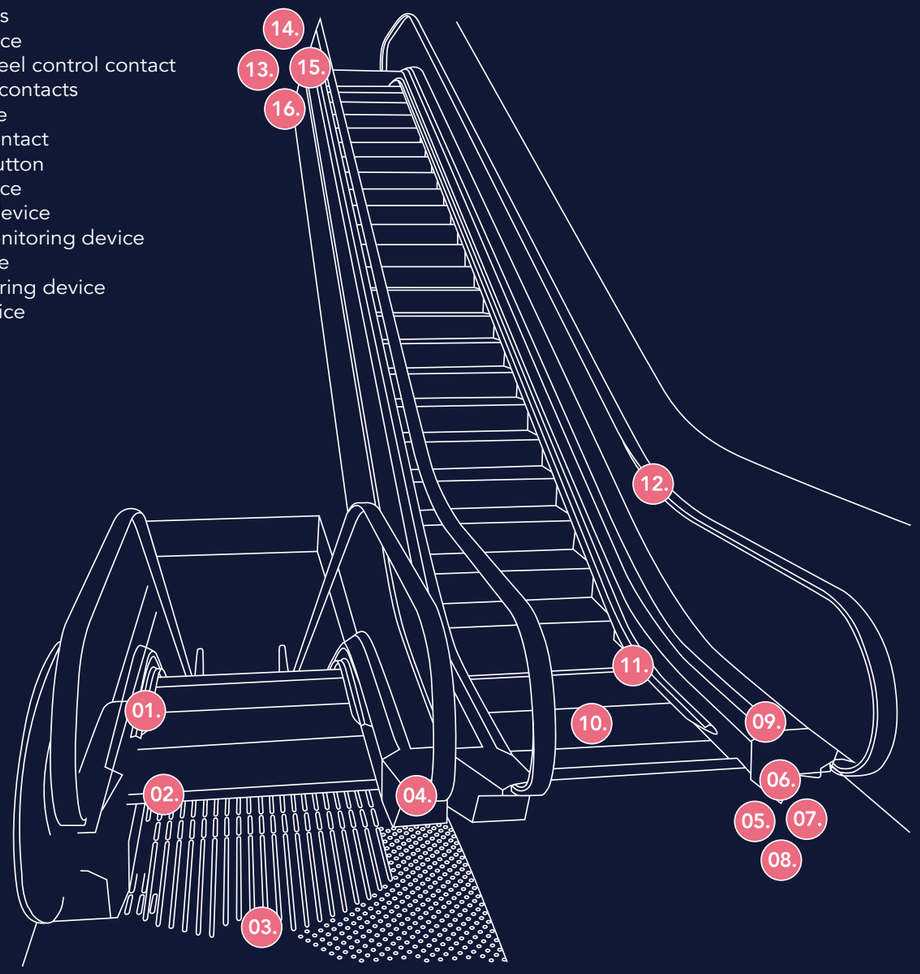
MATERIAL	MASS (kg)	MASS (%)
Wood	146	63,4
Plastic (PE-LD)	30	12,9
Carboard	3	1,2
Metals	52	22,6
Total mass	**231**	**100**

Table 4. Material summary of packaging of the Link Escalator unit

Otis, we believe that when it comes to safety, just meeting code is not enough. That's why we deliver a wide range of superior safety features to avoid entrapment, freewheeling and other safety risks. See all of our standard and premium safety features at otis.com or talk to your sales representative.

LINK ESCALATOR MAIN FEATURES

01. Anti-static brush for step
02. Comb plate safety device
03. Floor plate contacts
04. Handrail entry device
05. Chain and step wheel control contact
06. Step chain control contacts
07. Missing step device
08. Handrail broken contact
09. Emergency stop button
10. Upthrust track device
11. Skirt panel safety device
12. Handrail speed monitoring device
13. Non-reversal device
14. Overspeed monitoring device
15. Motor thermal device
16. Auxiliary brake



Environmental indicators

ENVIRONMENTAL INDICATORS AND INFORMATION FOR THE LINK™ ESCALATOR IN ACCORDANCE WITH EN 15804:2012+A2:2019

A. The results for the complete service lifetime of the Link Escalator were calculated according to the EN 15804 standard and reported in the following tables per entire life cycle of the escalator.
B. Assumptions are presented in the verified LCA Background report.
C. The definition of the listed impact categories is given in the Glossary section of this declaration.
D. The kg CO2 eq./kWh of electricity consumed bduring the use stage is as follows:
China: 0,826 kg CO2 eq./kWh - USA: 0,520 kg CO2 eq./kWh - EU: 0,401 kg CO2 eq./kWh

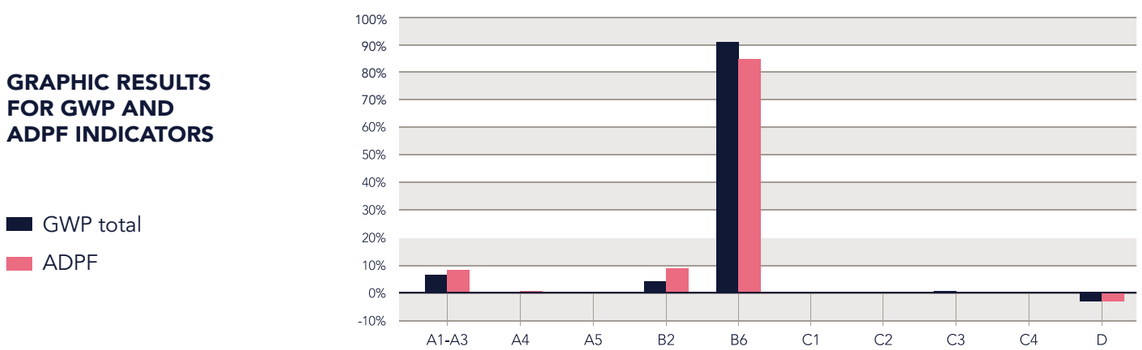
CHINA SCENARIO

CORE ENVIRONMENTAL IMPACT INDICATORS

	A1-A3	A4	A5	B2	B6	C1	C2	C3	C4	D
GWP - total [kg CO2 eq.]	2,10E+04	5,22E+02	3,72E+02	1,32E+04	2,60E+05	8,13E+01	5,08E+02	1,63E+03	4,26E+01	-1,01E+04
GWP - fossil [kg CO2 eq.]	2,11E+04	5,00E+02	1,76E+02	1,30E+04	2,60E+05	7,94E+01	4,87E+02	1,62E+03	1,11E+01	-1,01E+04
GWP - biogenic [kg CO2 eq.]	-1,32E+02	2,12E+01	1,95E+02	2,24E+02	0,00E+00	1,29E+00	2,11E+01	1,15E+01	3,15E+01	4,53E+00
GWP - luluc [kg CO2 eq.]	1,14E+01	2,05E-02	6,54E-01	6,69E+00	2,25E+02	6,57E-01	1,75E-02	2,77E-01	5,24E-03	-5,88E+00
ODP [kg CFC-11 eq.]	4,27E-09	8,45E-14	2,16E-13	4,18E-11	1,62E-09	1,49E-14	6,30E-14	2,31E-12	4,24E-14	-2,49E-11
AP [Mole of H+ eq.]	9,95E+01	1,68E+00	4,58E-01	5,95E+01	9,01E+02	3,69E-01	3,80E+00	1,28E+00	8,03E-02	-3,44E+01
EP - freshwater [kg P eq.]	1,57E-02	6,25E-05	3,10E-04	1,62E-02	9,09E-02	2,47E-04	6,11E-05	2,86E-04	5,27E-05	-4,17E-03
EP - marine [kg N eq.]	1,69E+01	7,61E-01	1,93E-01	1,01E+01	1,92E+02	1,73E-01	1,87E+00	4,25E-01	2,19E-02	-5,79E+00
EP - terrestrial [Mole of N eq.]	1,80E+02	8,36E+00	2,20E+00	1,11E+02	2,09E+03	1,93E+00	2,06E+01	5,01E+00	2,39E-01	-6,19E+01
POCP [kg NMVOC eq.]	5,27E+01	1,52E+00	4,40E-01	3,35E+01	5,72E+02	3,76E-01	3,51E+00	1,16E+00	7,51E-02	-1,93E+01
ADPF [MJ]	2,64E+05	6,91E+03	1,45E+03	2,94E+05	2,67E+06	1,08E+03	6,85E+03	2,94E+03	1,43E+02	-1,09E+05
ADPE [kg Sb eq.]	1,23E-01	1,94E-05	9,51E-06	9,69E-03	2,13E-02	6,56E-06	1,90E-05	2,85E-05	9,13E-07	-1,14E-01
WDP [m³ world equiv.]	3,01E+05	4,38E+00	3,89E+01	4,10E+04	8,13E+04	7,92E-01	3,30E+00	3,00E+02	1,15E+00	-1,15E+04

Caption: GWP - total = global warming potential; GWP - fossil = global warming potential (fossil fuel only); GWP - biogenic = global warming potential (biogenic); GWP - luluc = global warmng potential (land use only); ODP = ozone depletion; AP = acidification terrestrial and freshwater; EP - freshwater = eutrophication potential (freshwater); EP - marine = eutrophication potential (marine); EP- terrestric = eutrophication potential (terrestrial); POCP = photochemical ozone formation; ADPE = abiotic depletion potential (element), ADPF = abiotic depletion potential (fossil) WDP = water scarcity.

GRAPHIC RESULTS FOR GWP AND ADPF INDICATORS



INDICATORS DESCRIBING RESOURCE USE

	A1-A3	A4	A5	B2	B6	C1	C2	C3	C4	D
PERE [MJ]	2,12E+04	4,67E+01	2,35E+03	1,45E+04	6,12E+05	6,26E+01	3,85E+01	8,35E+02	1,70E+01	-8,35E+03
PERM [MJ]	2,35E+03	0,00E+00	-2,23E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-1,13E+02	0,00E+00	0,00E+00
PERT [MJ]	2,36E+04	4,67E+01	1,22E+02	1,45E+04	6,12E+05	6,26E+01	3,85E+01	7,22E+02	1,70E+01	-8,35E+03
PENRE [MJ]	2,55E+05	6,91E+03	2,73E+03	2,94E+05	2,67E+06	1,09E+03	6,85E+03	1,09E+04	1,43E+02	-1,09E+05
PENRM [MJ]	9,26E+03	0,00E+00	-1,28E+03	8,21E-02	0,00E+00	0,00E+00	0,00E+00	-7,98E+03	0,00E+00	0,00E+00
PENRT [MJ]	2,64E+05	6,91E+03	1,45E+03	2,94E+05	2,67E+06	1,09E+03	6,85E+03	2,94E+03	1,43E+02	-1,09E+05
SM [KG]	1,61E+03	0,00E+00	0,00E+00	1,21E+03	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 [m3]	7,04E+03	1,10E-01	1,01E+00	9,66E+02	1,94E+03	7,30E-02	8,42E-02	7,12E+00	3,29E-02	-2,83E+02

Caption: 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 resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES AND OUTPUT FLOWS

	A1-A3	A4	A5	B2	B6	C1	C2	C3	C4	D
HWD [KG]	1,75E-01	3,22E-08	4,85E-05	1,08E-01	3,06E-04	5,03E-05	2,80E-08	4,55E-07	1,43E-08	-1,75E-04
NHWD [KG]	9,46E+02	2,78E-01	1,23E+01	4,07E+03	1,15E+03	1,72E-01	2,62E-01	2,42E+02	7,01E+02	-1,47E+02
RWD [KG]	2,58E+00	3,55E-03	1,13E-02	2,21E+00	5,18E+01	2,00E-03	2,86E-03	7,46E-02	1,31E-03	-1,01E+00
CRU [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
MFR [KG]	0,00E+00	0,00E+00	0,00E+00	1,18E+03	0,00E+00	0,00E+00	0,00E+00	4,79E+03	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	0,00E+00	0,00E+00	0,00E+00
EEE [MJ]	0,00E+00	0,00E+00	5,01E+02	2,78E+03	0,00E+00	0,00E+00	0,00E+00	2,77E+03	0,00E+00	0,00E+00
EET [MJ]	0,00E+00	0,00E+00	9,04E+02	5,62E+03	0,00E+00	0,00E+00	0,00E+00	5,70E+03	0,00E+00	0,00E+00

Caption: HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy

BIOGENIC CARBON CONTENT OF PRODUCT AND PACKAGING

	A1 - A3
BIOG. C IN PACKAGING [KG]	6,11E+01
BIOG. C IN PRODUCT [KG]	3,48E+00

Caption: Biog. C in packaging = Biogenic carbon content in packaging; Biog. C in product = Biogenic carbon content in product

ADDITIONAL GWP INDICATOR ACCORDING TO PCR FOR CONSTRUCTION PRODUCTS

	A1 - A3	A4	A5	B2	B6	C1	C2	C3	C4	D
IPCC AR5 GWP100, EXCL BIOGENIC CARBON [KG CO2 EQ.]	1,98E+04	4,84E+02	1,72E+02	1,21E+04	2,44E+05	7,71E+01	4,72E+02	1,58E+03	2,01E+01	-9,52E+03

Environmental indicators

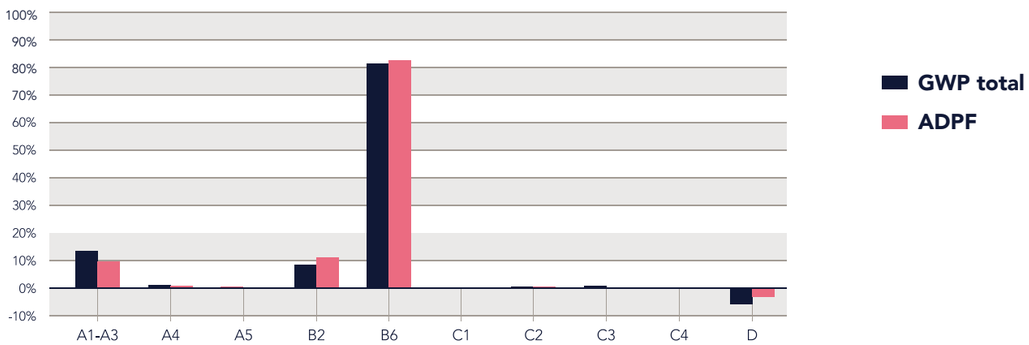
EUROPE SCENARIO

CORE ENVIRONMENTAL IMPACT INDICATORS

	A1 – A3	A4	A5	B2	B6	C1	C2	C3	C4	D
GWP - total [kg CO2 eq.]	2,10E+04	1,96E+03	3,66E+02	1,30E+04	1,26E+05	8,13E+01	5,08E+02	1,53E+03	1,07E+01	-8,22E+03
GWP - fossil [kg CO2 eq.]	2,11E+04	1,95E+03	1,71E+02	1,30E+04	1,25E+05	7,94E+01	4,85E+02	1,52E+03	1,07E+01	-8,21E+03
GWP - biogenic [kg CO2 eq.]	-1,32E+02	3,37E+00	1,95E+02	5,74E+01	1,06E+03	1,29E+00	2,26E+01	1,23E+01	0,00E+00	-7,05E-01
GWP - luluc [kg CO2 eq.]	1,14E+01	3,03E+00	6,52E-01	6,82E+00	1,77E+02	6,57E-01	1,16E-02	2,42E-01	3,14E-02	-5,66E+00
ODP [kg CFC-11 eq.]	4,27E-09	2,69E-13	2,75E-13	4,19E-11	2,99E-09	1,49E-14	5,17E-14	3,32E-12	4,15E-14	-2,97E-11
AP [Mole of H+ eq.]	9,95E+01	5,75E+01	4,30E-01	5,94E+01	2,60E+02	3,69E-01	3,71E+00	8,13E-01	7,61E-02	-2,31E+01
EP - freshwater [kg P eq.]	1,57E-02	1,25E-03	3,21E-04	1,61E-02	3,36E-01	2,47E-04	1,05E-04	4,65E-04	1,79E-05	-4,90E-03
EP - marine [kg N eq.]	1,69E+01	1,55E+01	1,88E-01	1,01E+01	6,18E+01	1,73E-01	1,85E+00	3,30E-01	1,98E-02	-3,83E+00
EP - terrestrial [Mole of N eq.]	1,80E+02	1,70E+02	2,13E+00	1,10E+02	6,49E+02	1,93E+00	2,03E+01	3,95E+00	2,17E-01	-4,05E+01
POCP [kg NMVOC eq.]	5,27E+01	4,27E+01	4,23E-01	3,33E+01	1,68E+02	3,76E-01	3,45E+00	8,62E-01	5,99E-02	-1,33E+01
ADPF [MJ]	2,64E+05	2,49E+04	1,43E+03	2,94E+05	2,23E+06	1,08E+03	6,94E+03	2,62E+03	1,42E+02	-9,86E+04
ADPE [kg Sb eq.]	1,23E-01	8,82E-05	1,02E-05	9,69E-03	3,68E-02	6,56E-06	1,47E-05	3,98E-05	1,01E-06	-1,14E-01
WDP [m³ world equiv.]	3,01E+05	1,36E+01	3,62E+01	4,10E+04	2,01E+04	7,92E-01	9,59E-01	2,56E+02	1,15E+00	-1,11E+04

Caption: GWP - total = global warming potential; GWP - fossil = global warming potential (fossil fuel only); GWP - biogenic = global warming potential (biogenic); GWP - luluc = global warmng potential (land use only); ODP = ozone depletion; AP = acidification terrestrial and freshwater; EP - freshwater = eutrophication potential (freshwater); EP - marine = eutrophication potential (marine); EP- terrestric = eutrophication potential (terrestrial); POCP = photochemical ozone formation; ADPE = abiotic depletion potential (element), ADPF = abiotic depletion potential (fossil) WDP = water scarcity.

GRAPHIC RESULTS FOR GWP AND ADPF INDICATORS



INDICATORS DESCRIBING RESOURCE USE

	A1 -A3	A4	A5	B2	B6	C1	C2	C3	C4	D
PERE [MJ]	2,12E+04	3,62E+02	2,37E+03	1,46E+04	1,03E+06	6,26E+01	2,19E+01	1,14E+03	1,91E+01	-1,37E+04
PERM [MJ]	2,35E+03	0,00E+00	-2,23E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-1,13E+02	0,00E+00	0,00E+00
PERT [MJ]	2,36E+04	3,62E+02	1,40E+02	1,46E+04	1,03E+06	6,26E+01	2,19E+01	1,02E+03	1,91E+01	-1,37E+04
PENRE [MJ]	2,55E+05	2,50E+04	2,71E+03	2,66E+05	2,23E+06	1,09E+03	6,95E+03	1,06E+04	1,42E+02	-9,86E+04
PENRM [MJ]	9,26E+03	0,00E+00	-1,28E+03	2,84E+04	0,00E+00	0,00E+00	0,00E+00	-7,98E+03	0,00E+00	0,00E+00
PENRT [MJ]	2,64E+05	2,50E+04	1,43E+03	2,94E+05	2,23E+06	1,09E+03	6,95E+03	2,61E+03	1,42E+02	-9,86E+04
SM [KG]	1,61E+03	0,00E+00	0,00E+00	1,21E+03	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 [m3]	7,04E+03	5,81E-01	9,72E-01	9,66E+02	9,99E+02	7,30E-02	3,92E-02	6,43E+00	3,50E-02	-2,85E+02

Caption: 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 resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES AND OUTPUT FLOWS

	A1 - A3	A4	A5	B2	B6	C1	C2	C3	C4	D
HWD [KG]	1,75E-01	3,41E-07	4,85E-05	1,08E-01	5,88E-04	5,03E-05	6,74E-07	6,61E-07	1,51E-08	-1,60E-04
NHWD [KG]	9,46E+02	1,54E+00	1,23E+01	4,10E+03	1,58E+03	1,72E-01	7,10E-01	2,43E+02	7,07E+02	-1,11E+00
RWD [KG]	2,58E+00	1,76E-02	2,34E-02	2,24E+00	3,31E+02	2,00E-03	7,45E-03	2,79E-01	1,49E-03	-2,52E+00
CRU [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
MFR [KG]	0,00E+00	0,00E+00	0,00E+00	1,18E+03	0,00E+00	0,00E+00	0,00E+00	4,79E+03	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	0,00E+00	0,00E+00	0,00E+00
EEE [MJ]	0,00E+00	0,00E+00	5,01E+02	2,78E+03	0,00E+00	0,00E+00	0,00E+00	2,77E+03	0,00E+00	0,00E+00
EET [MJ]	0,00E+00	0,00E+00	9,04E+02	5,62E+03	0,00E+00	0,00E+00	0,00E+00	5,70E+03	0,00E+00	0,00E+00

Caption: HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy

BIOGENIC CARBON CONTENT OF PRODUCT AND PACKAGING

	A1 - A3
BIOG. C IN PACKAGING [KG]	6,11E+01
BIOG. C IN PRODUCT [KG]	3,48E+00

Caption: Biog. C in packaging = Biogenic carbon content in packaging; Biog. C in product = Biogenic carbon content in product

ADDITIONAL GWP INDICATOR ACCORDING TO PCR FOR CONSTRUCTION PRODUCTS

	A1 - A3	A4	A5	B2	B6	C1	C2	C3	C4	D
IPCC AR5 GWP100, EXCL BIOGENIC CARBON [KG CO2 EQ.]	1,98E+04	1,90E+03	1,67E+02	1,21E+04	1,21E+05	7,71E+01	4,69E+02	1,49E+03	1,03E+01	-7,80E+03

Environmental indicators

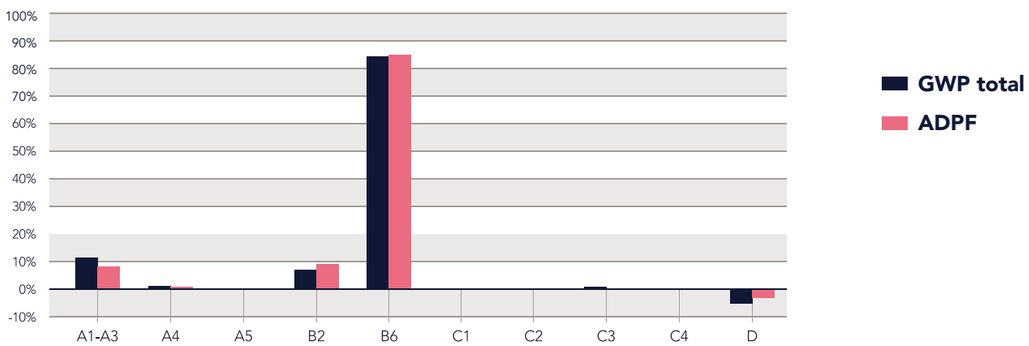
US SCENARIO

CORE ENVIRONMENTAL IMPACT INDICATORS

	A1 – A3	A4	A5	B2	B6	C1	C2	C3	C4	D
GWP - total [kg CO2 eq.]	2,10E+04	1,72E+03	3,68E+02	1,30E+04	1,63E+05	8,13E+01	5,24E+02	1,56E+03	1,07E+01	-8,23E+03
GWP - fossil [kg CO2 eq.]	2,11E+04	1,72E+03	1,73E+02	1,30E+04	1,63E+05	7,94E+01	5,02E+02	1,55E+03	1,07E+01	-8,23E+03
GWP - biogenic [kg CO2 eq.]	-1,32E+02	3,68E+00	1,95E+02	5,67E+01	8,05E+01	1,29E+00	2,19E+01	1,16E+01	0,00E+00	5,13E+00
GWP - luluc [kg CO2 eq.]	1,14E+01	9,32E-01	6,43E-01	6,79E+00	5,50E+01	6,57E-01	0,00E+00	1,53E-01	3,14E-02	-4,97E+00
ODP [kg CFC-11 eq.]	4,27E-09	2,20E-13	1,40E-13	1,29E-08	8,48E-10	1,49E-14	1,46E-08	1,77E-12	4,15E-14	-9,64E-07
AP [Mole of H+ eq.]	9,95E+01	5,75E+01	5,35E-01	6,02E+01	2,55E+02	3,69E-01	4,65E+00	8,19E-01	7,61E-02	-2,56E+01
EP - freshwater [kg P eq.]	1,57E-02	4,87E-04	3,05E-04	1,61E-02	1,02E-01	2,47E-04	1,60E-04	2,91E-04	1,79E-05	-3,91E-03
EP - marine [kg N eq.]	1,69E+01	1,53E+01	2,40E-01	1,02E+01	5,73E+01	1,73E-01	1,99E+00	3,28E-01	1,98E-02	-3,92E+00
EP - terrestrial [Mole of N eq.]	1,80E+02	1,68E+02	2,76E+00	1,12E+02	6,14E+02	1,93E+00	2,18E+01	3,94E+00	2,17E-01	-4,15E+01
POCP [kg NMVOC eq.]	5,27E+01	4,25E+01	5,55E-01	3,40E+01	1,63E+02	3,76E-01	4,16E+00	8,62E-01	5,99E-02	-1,41E+01
ADPF [MJ]	2,64E+05	2,18E+04	1,49E+03	2,94E+05	2,72E+06	1,08E+03	7,14E+03	3,02E+03	1,42E+02	-9,72E+04
ADPE [kg Sb eq.]	1,23E-01	6,61E-05	1,17E-05	9,68E-03	3,65E-02	6,56E-06	0,00E+00	3,85E-05	1,01E-06	-1,14E-01
WDP [m³ world equiv.]	3,01E+05	1,14E+01	2,75E+01	4,10E+04	3,39E+04	7,92E-01	0,00E+00	2,67E+02	1,15E+00	-1,10E+04

Caption: GWP - total = global warming potential; GWP - fossil = global warming potential (fossil fuel only); GWP - biogenic = global warming potential (biogenic); GWP - luluc = global warmng potential (land use only); ODP = ozone depletion; AP = acidification terrestrial and freshwater; EP - freshwater = eutrophication potential (freshwater); EP - marine = eutrophication potential (marine); EP- terrestric = eutrophication potential (terrestrial); POCP = photochemical ozone formation; ADPE = abiotic depletion potential (element), ADPF = abiotic depletion potential (fossil) WDP = water scarcity.

GRAPHIC RESULTS FOR GWP AND ADPF INDICATORS



INDICATORS DESCRIBING RESOURCE USE

	A1 -A3	A4	A5	B2	B6	C1	C2	C3	C4	D
PERE [MJ]	2,12E+04	1,66E+02	2,34E+03	1,45E+04	5,14E+05	6,26E+01	0,00E+00	7,70E+02	1,91E+01	-6,96E+03
PERM [MJ]	2,35E+03	0,00E+00	-2,23E+03	2,52E-04	0,00E+00	0,00E+00	0,00E+00	-1,13E+02	0,00E+00	0,00E+00
PERT [MJ]	2,36E+04	1,66E+02	1,08E+02	1,45E+04	5,14E+05	6,26E+01	0,00E+00	6,56E+02	1,91E+01	-6,96E+03
PENRE [MJ]	2,55E+05	2,18E+04	2,78E+03	2,95E+05	2,73E+06	1,09E+03	7,14E+03	1,10E+04	1,42E+02	-9,73E+04
PENRM [MJ]	9,26E+03	0,00E+00	-1,28E+03	1,44E-03	0,00E+00	0,00E+00	0,00E+00	-7,98E+03	0,00E+00	0,00E+00
PENRT [MJ]	2,64E+05	2,18E+04	1,50E+03	2,95E+05	2,73E+06	1,09E+03	7,14E+03	3,02E+03	1,42E+02	-9,73E+04
SM [KG]	1,61E+03	0,00E+00	0,00E+00	1,21E+03	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 [m3]	7,04E+03	3,59E-01	7,51E-01	9,66E+02	1,03E+03	7,30E-02	0,00E+00	6,51E+00	3,50E-02	-2,72E+02

Caption: 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 resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES AND OUTPUT FLOWS

	A1 - A3	A4	A5	B2	B6	C1	C2	C3	C4	D
HWD [KG]	1,75E-01	1,60E-07	4,84E-05	1,08E-01	2,52E-04	5,03E-05	0,00E+00	4,00E-07	1,51E-08	-1,57E-04
NHWD [KG]	9,46E+02	1,01E+00	1,01E+01	4,10E+03	7,91E+02	1,72E-01	0,00E+00	2,42E+02	7,07E+02	2,68E+02
RWD [KG]	2,58E+00	1,15E-02	1,88E-02	2,23E+00	2,51E+02	2,00E-03	0,00E+00	2,25E-01	1,49E-03	-1,61E+00
CRU [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
MFR [KG]	0,00E+00	0,00E+00	0,00E+00	1,18E+03	0,00E+00	0,00E+00	0,00E+00	4,79E+03	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	0,00E+00	0,00E+00	0,00E+00
EEE [MJ]	0,00E+00	0,00E+00	5,25E+02	2,78E+03	0,00E+00	0,00E+00	0,00E+00	2,77E+03	0,00E+00	0,00E+00
EET [MJ]	0,00E+00	0,00E+00	1,34E+02	5,62E+03	0,00E+00	0,00E+00	0,00E+00	5,70E+03	0,00E+00	0,00E+00

Caption: HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy

BIOGENIC CARBON CONTENT OF PRODUCT AND PACKAGING

	A1 - A3
BIOG. C IN PACKAGING [KG]	6,11E+01
BIOG. C IN PRODUCT [KG]	3,48E+00

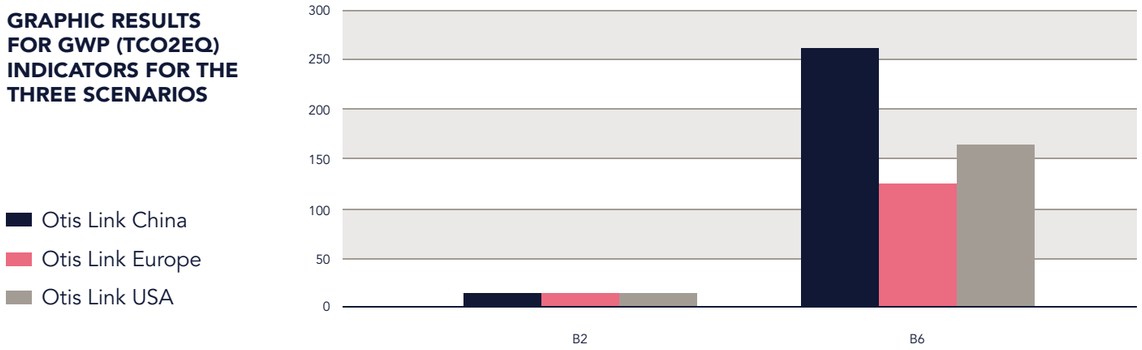
Caption: Biog. C in packaging = Biogenic carbon content in packaging; Biog. C in product = Biogenic carbon content in product

ADDITIONAL GWP INDICATOR ACCORDING TO PCR FOR CONSTRUCTION PRODUCTS

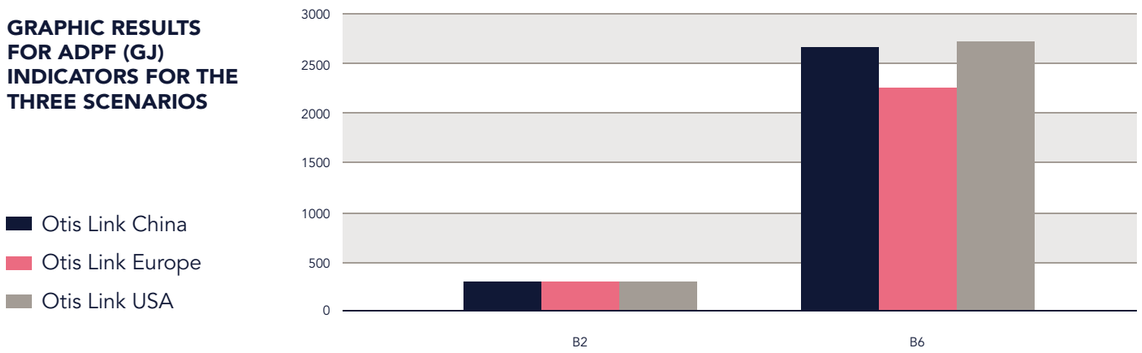
	A1 - A3	A4	A5	B2	B6	C1	C2	C3	C4	D
IPCC AR5 GWP100, EXCL BIOGENIC CARBON [KG CO2 EQ.]	1,98E+04	1,67E+03	1,69E+02	1,21E+04	1,55E+05	7,71E+01	4,82E+02	1,52E+03	1,03E+01	-7,82E+03

Environmental indicators

GRAPHIC RESULTS FOR GWP (TCO2EQ) INDICATORS FOR THE THREE SCENARIOS



GRAPHIC RESULTS FOR ADPF (GJ) INDICATORS FOR THE THREE SCENARIOS



RECYCLING AND WASTE TREATMENT DECLARATION

The modules considered for the end-of-life scenario includes waste processing (C3) and disposal (C4)

- The modules considered for the end-of-life scenario includes waste processing (C3) and disposal (C4).
- The Link Escalator is mainly composed of ferrous metal (mainly steel).
- Due to this composition, there is a high potential of recyclability at the end-of life for approximately 70% of the components. Steel and non-ferrous metals as well as the electronic equipment - contributing approximately to 85% of the escalator's composition - can all be recycled.
- For the inert materials fraction (approx. 10%) landfilling is assumed in this EPD as a realistic and conservative approach.
- Incineration is considered for the minor proportion (5%) of combustible materials (e.g., plastic parts).
- For any of these waste treatment plants European, Chinese or US average datasets were used when available

Programme related information & verification

Program	The International EPD® System EPD International AB Box 210 60, SE-100 31 Stockholm, Sweden www.environdec.com
EPD registration number	S-P-05405
Published	2022-03-31
Valid until	2027-03-31
Revision number	0.0
Product Category Rules	EN15804 :2012 + A2:2019 as Core PCR PCR 2019 :14 Construction Products, version 1.1 ISO14025
Product group classification	Escalator
Reference year for data	2020
Geographical scope	Global/China, Europe, US

ISO standard ISO 21930 and CEN standard EN 15804 serves as the core Product Category Rules (PCR).

Product category rules (PCR):
PCR 2019:14 Construction Products, version 1.1

PCR review was conducted by:
The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members.
Review chair: Claudia A. Peña, University of Concepción, Chile.
The review panel may be contacted via the Secretariat www.environdec.com/contact.

Independent verification of the declaration and data, according to EN ISO 14025:2010:
☐ External ■ Internal
Covering
☐ EPD process certification (internal) ■ EPD verificaction (external)

Third party verifier:
Yannick Le Guern - ELYS Conseil S.A.S.U
In case of individual verifiers:
Approved by: The International EPD® System Technical Committee, supported by the Secretariat

Procedure for follow-up during EPD validity involves third party verifier:
■ Yes ☐ No

The EPD owner has the sole ownership, liability and responsibility of the EPD. EPDs of construction products may not be comparable if they do not comply with EN 15804+A2:2019.

CONTACT INFORMATION

EPD owner:	LCA author:	Programme operator:
OTIS	sphera®	EPD®
Otis a.s. Jana Opletala 3506/45, Břeclav, 690 02 Czech Republic **Otis Elevator Manufacturing Co., Ltd.** No.7, Xin Er Road, Haining Jiaxing City, Zhejiang Province, China **www.otis.com**	**SPHERA** Hauptstraße 111-113 70771 Leinfelden-Echterdingen, Germany **www.sphera.com**	**EPD International AB** **info@environdec.com**

Results presented in this document do not constitute comparative assertions. EPDs within the same product category, but from different programmes may not be comparable.

However, these results can be used to compare with similar products presented in other EPDs that follow the same PCR and are according to the same functional unit and have equivalent performance characteristics (UC, travelled height, stops, load, speed and geographical region).

References

A. General Programme Instructions of the International EPD® System. Version 2.5.

B. PCR 2019:14 Construction Products

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

ISO 14025:2010
Sustainability of construction works – Environmental labels and declarations — Type III environmental declarations — Principles and procedures.

ISO (2006) ISO 14040
Environmental management – Life cycle assessment – Principles and framework.

EN ISO (2012) ISO 25745-1
Energy performance of lifts, escalators, and moving walks – Part 1: Energy measurement and verification.

EN ISO (2014) ISO 25745-3
Energy Performance of lifts, escalators and moving walks - Part3: Energy calculation and classification of escalators and moving walks.

ISO 14001:2004
Environmental management systems - Requirements with guidance for use.

ISO 9001:2015
Quality management systems – Requirements.

OHSAS 18001:2007
Occupational Health and Safety management systems - Requirements.

ISO 50001:2011
Energy management systems - Requirements with guidance for use.

EN115-1:2017
Safety of escalators and moving walks – Part 1: Construction and installation

ASME A17.1-2019
Safety Code for Elevators and Escalators. Provides the foundation for many state and city codes.

Glossary

ABIOTIC DEPLETION POTENTIAL (ADP)
ADP is expressed in kg Antimony (Sb) equivalent for non-fossil resources and in MJ for fossil resources. In the CML method the non-fossil resources include e.g. silver, gold, copper, lead, zinc and aluminium.

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 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 (CO2) equivalent. This indicator expresses global warming potential and refers to carbon footprint. It considers gaseous substances such as carbon dioxide (CO2), methane (CH4), laughing gas (N2O) 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 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 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.

REACH
Registration, Evaluation, Authorisation and restriction of Chemicals – European Union Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 that addresses the production and use of chemical substances, and their potential impacts on both human health and the environment.

ROHS
Restriction of Hazardous Substances Directive - RoHS 1 Directive 2002/95/EC and RoHS 2 Directive 2011/65/EU.

WEEE
Waste Electrical and Electronic Equipment Directive - European Community Directive 2012/19/EU

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