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ENVIRONMENTAL PRODUCT DECLARATION

EVOLUTION®
In accordance with ISO 14025

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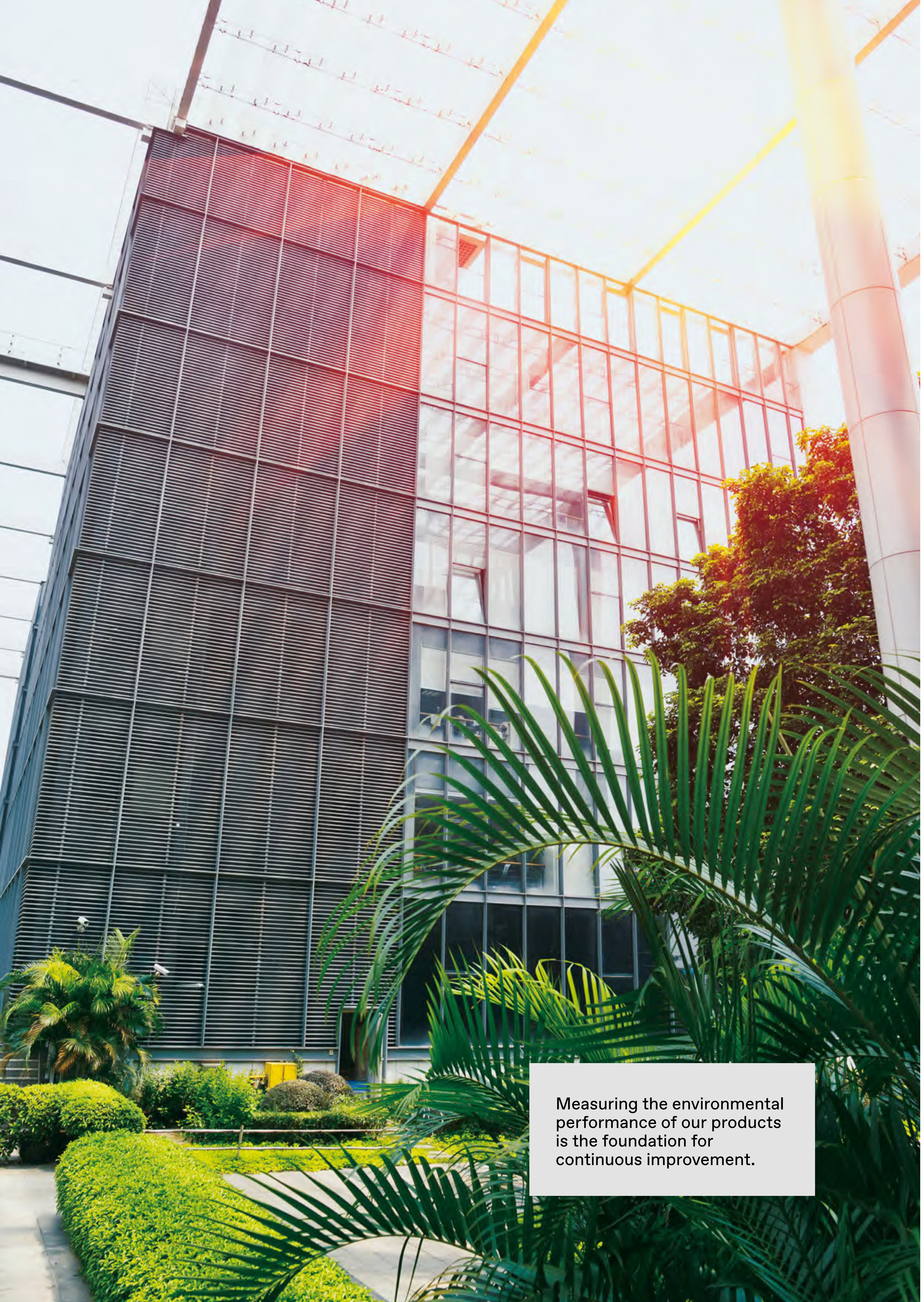
EPD®



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Program-related information & mandatory statement

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About this EPD®

Introduction

At TK Elevator, we have a strong sense of responsibility towards our customers, employees, society and the environment. Our aim is always to develop solutions that go far beyond the industry standards in all these areas.

Within the context of sustainability, we want to understand the environmental performance of our products. That is why we develop Life Cycle Assessments (LCAs) to identify relevant fields of action and enhance the design process. Our goal is to minimize the environmental impact of our products. To communicate the results of LCAs to the public and ensure transparency regarding the environmental impact of our products, we publish EPDs.

The benefit for our customers is solutions that fulfil the highest demands in terms of efficiency and product responsibility. In addition, they can use EPDs in the context of their green building certifications and introduce elevators into the life cycle assessment of their buildings.

What is an EPD®?

An EPD® provides information about the environmental performance of a product. In the case of this publication, the results refer to TK Elevator's "EVOLUTION®" series elevators.

Development of this EPD

Both the EPD® and the underlying LCA study have been developed and third-party-verified in accordance with the product category rules (PCRs) for elevators within the framework of the International EPD® system and its general program instructions for type III environmental declarations according to ISO 14025.

Furthermore, development and verification also follow ISO 14040/44 and the calculation of the energy demand is carried out in accordance with ISO 25745-2. The characterization method used to calculate impact categories on midpoint level is CML2001, as requested by the PCRs.

Data collection

The data used in the present study is a combination of measured, calculated and estimated data. The main data sources are the internal data of TK Elevator, generic databases such as GaBi and data from Tier 1 suppliers.

Description of functional unit (FU)

According to the PCRs for elevators, the functional unit is defined as "transportation of a load over a distance, expressed in ton [t] over a kilometer [km] travelled, i.e. ton-kilometer [tkm]."

Comparability of results

EPD®s within the same product category but from different program operators may not be comparable.

Comparability within the same product category and program operator is only achievable, if the FU and the performance characteristics in Table 1 (usage category, travel height, number of stops, load, speed and geographical region) are equivalent.

Key terms

- **Environmental product declaration according to ISO 14025:** Type III environmental declarations provide quantified environmental data using predetermined parameters.
- **Life-cycle assessment (LCA) according to ISO 14040:** "Compilation and evaluation of the inputs, outputs and the potential environmental impact of a product system throughout its life cycle."
- **Product category rules (PCR) according to ISO 14025:** "A set of specific rules, requirements and guidelines for developing Type III environmental declarations."
- **Functional unit (FU) according to ISO 14040:** "The quantified performance of a product system for use as a reference unit."

About us

With customers in over 100 countries served by more than 50,000 employees, TK Elevator achieved sales of around €8 billion in the fiscal year 2018/2019. Over 1,000 locations around the world provide an extensive network that guarantees closeness to customers.

At our manufacturing site in Guaíba, state of Rio Grande do Sul, south of Brazil, we employ around 800 people. With a production area of 27,000 m^2, this site attends the Latin America market.

The manufacturing site was purchased in 1999 by TK Elevator from the company Sûr S/A and recently we became responsible to be cluster lead for belt elevators in all over the world. Here is where we concentrate our expertise and experience in engineering and manufacturing elevator systems and parts, developing innovations and continuously optimizing existing components.

Using state-of-the-art methods and flexible production techniques, we proudly supply for customers in all Latin America and also for other countries.

All our processes are certified in accordance with the following international standards:

- DIN EN ISO 9001: Quality Management System.
- DIN EN ISO 14001: Environmental Management System.
- DIN EN ISO 45001: Occupational Health and Safety Management System.

Recently we have been also approved to be certified to ISO 50001 (Energy Management Systems).

With our annual production capacity of around 3,800 elevators, we achieve an export rate of around 25%, proudly serving customers around the globe.

The EVOLUTION® elevator system

The evolution elevator system

The new evolution elevator system has been designed to meet the requirements of the future. Drawing on all our decades of experience and expertise across the group, we set out to develop a range of elevators that would combine maximum quality, compactness and technology with an attractive design.

Boasting innovative features for long life, low maintenance and optimized energy performance, this revolutionary system for new installations and renovations reflects the expertise of TK Elevator on an international level.

Next-level efficiency

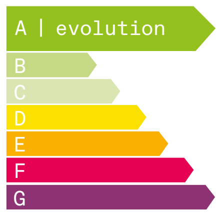
- New, high-efficiency drive motor
- LED lighting
- Passive cooling of the control system
- Situational adjustment of ride quality and main landing
- Class A* energy efficiency (according to ISO 25745-2)

Next-level reliability

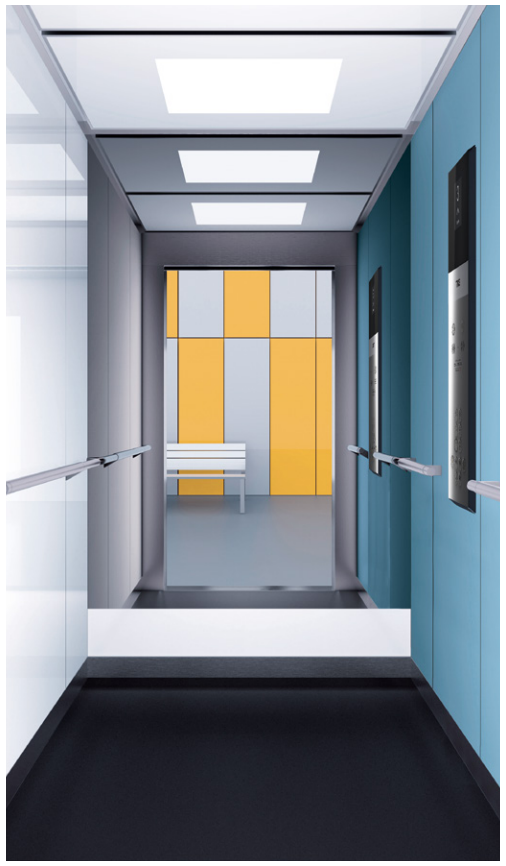
- Robust design
- High-quality materials
- Future-proof control system
- Efficient maintenance

Energy efficiency

With this configuration, the evolution elevator achieves class A energy efficiency according to ISO 25745-2. This classification is based on the internal calculation carried out for the underlying LCA reference unit, and it is also influenced by capacity, usage-related parameters and energy-saving features.



Energy efficiency of the evolution elevator (calculated for the reference unit specified in table 1).



The evolution elevator series complies with all relevant international standards and regulations:

- EN 81: Safety rules for the construction and installation of lifts).
  - Part 20: Passenger and goods/ passenger lifts.
  - Part 50: Design rules, calculations, examinations and tests of lift components.
- Type-tested system: certification by notified body.
- CE marking in compliance with EU legal requirements to guarantee health, safety and environmental protection.
- ISO 25745-2 (part 1): Lifts, energy efficiency.

The evolution elevator system

Table 1: Specification of assessed elevator according to the PCRs

EVOLUTION®		
Index	**Representative values for the reference unit**	**Application range of the elevator model**
Type of installation	New installation	New installation or modernization
Commercial name	EVOLUTION® 100, 200, 300	
Main purpose	Transport of passengers	Transport of passengers and goods
Type of lift	Electric, without machine room (MRL)	-
Type of drive system	Gearless traction drive	
Rated load [Q]	1050kg	600 to 1575 kg
Rated speed	1,75 m/s	1,0 to 3,0 m/s
Number of stops	16	2 to 35
Travelled height	44,06m	Up to 107m
Number of operating days per year	360	-
Applied usage category (UC) according to ISO 25745-2	3	1 to 6
Designed reference service life (RSL)	20 years with no modernizations considered	-
Geographic region of installation	Porto Alegre, Brazil (considered grid mix LATAM - Latin America average)	
Functional unit (FU), calculated acc. to PCRs expressed in tonne [t] over a kilometre [km] travelled	2200,4 tkm	-

Representative installation

The reference for the underlying life-cycle assessment (LCA) study was an elevator installed in a residential building in Porto Alegre. Its configuration corresponds to the typical and most representative application range of the evolution series. For energy consumption during operation, the RSA - Latin America average grid mix was considered.1

Value and relevance of functional unit (FU)

The FU is determined by the physical characteristics of the assessed elevator (e.g. rated load, rated speed, travelled height) and parameters that are chosen based on its assumed use (e.g. use category, trips per day, operating days per year). Because of the installation of the assessed elevator in a residential building with an expressive travelled height in particular the usage related parameters are high and lead to high value of the FU.

Content declaration

A detailed composition of the reference elevator in quantitative terms according to the PCRs is set out in Figure 1. This content declaration considers all life-cycle phases and cut-off rules according to the PCRs.

Over 87 % of the material belongs to the material category "Ferrous metals". This includes the guide rails, counterweight, cabin and the doors.

Inorganic materials represent close to 3 % of total content and represent another significant share. Another important categories are "Plastics & rubbers", which accounts for approximately 2,5 % and "Electrics & electronics" with more than 2% of the total weight. The subsystems in which are included these materials are mostly Counterweight, Traction drive, Human Interface devices, Inverter and others.

1 The Brazilian grid mix should not be considered as representative for the entire geographical scope of application of this EPD, which is whole of Latin America, even though the results of environmental impacts would have been better due to the increase of AP (acidification potential) of approximately 37% when considered RSA-LATAM grid mix. However the calculations with the Brazilian grid mix are also available in the underlying LCA report of this EPD.

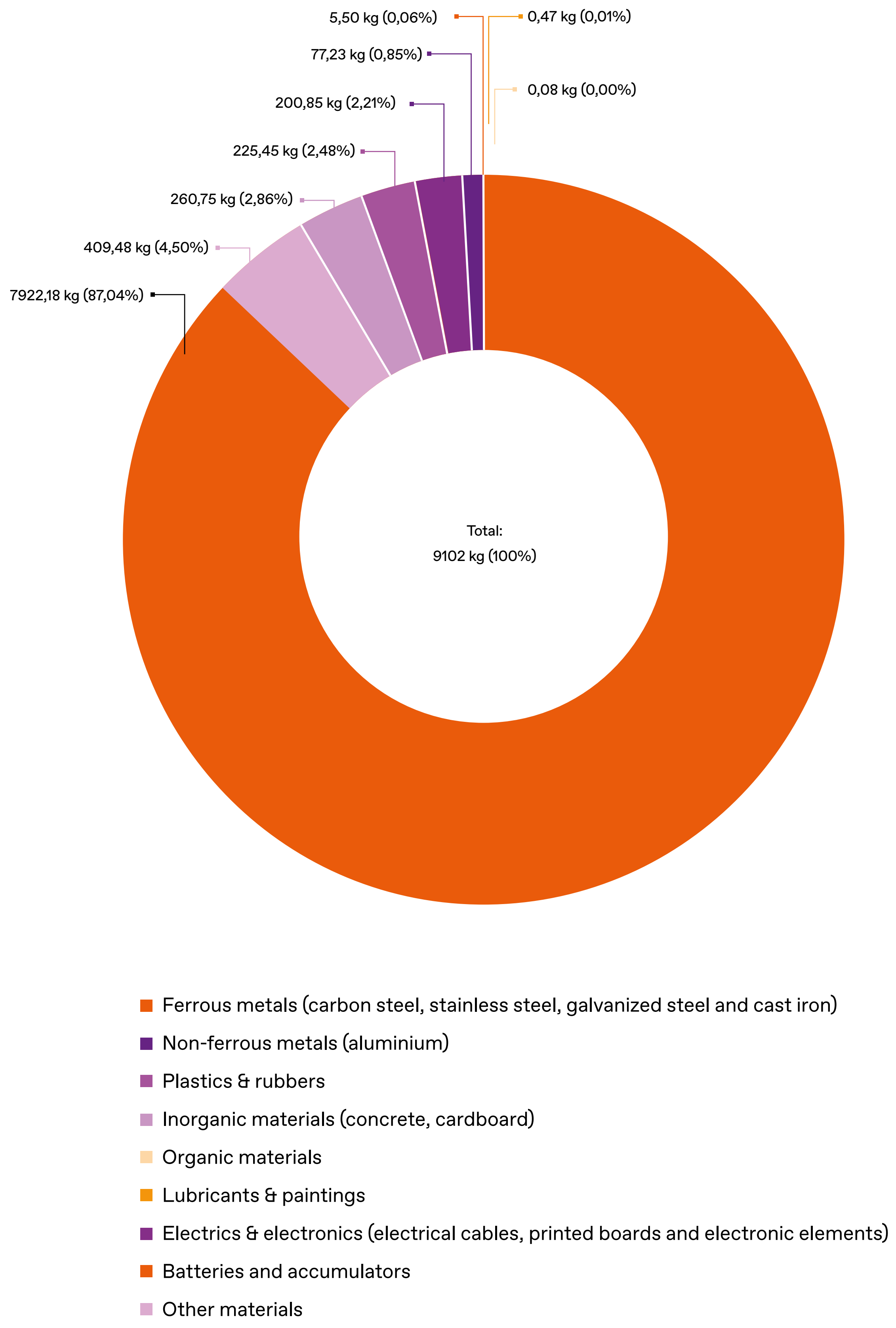


Fig 1: Material balance of the assessed elevator (excluding spare parts)

Life-cycle assessment

According to the PCRs, the life-cycle is assessed in three stages, each consisting of further information modules. The resulting system boundaries are presented in the figure below:

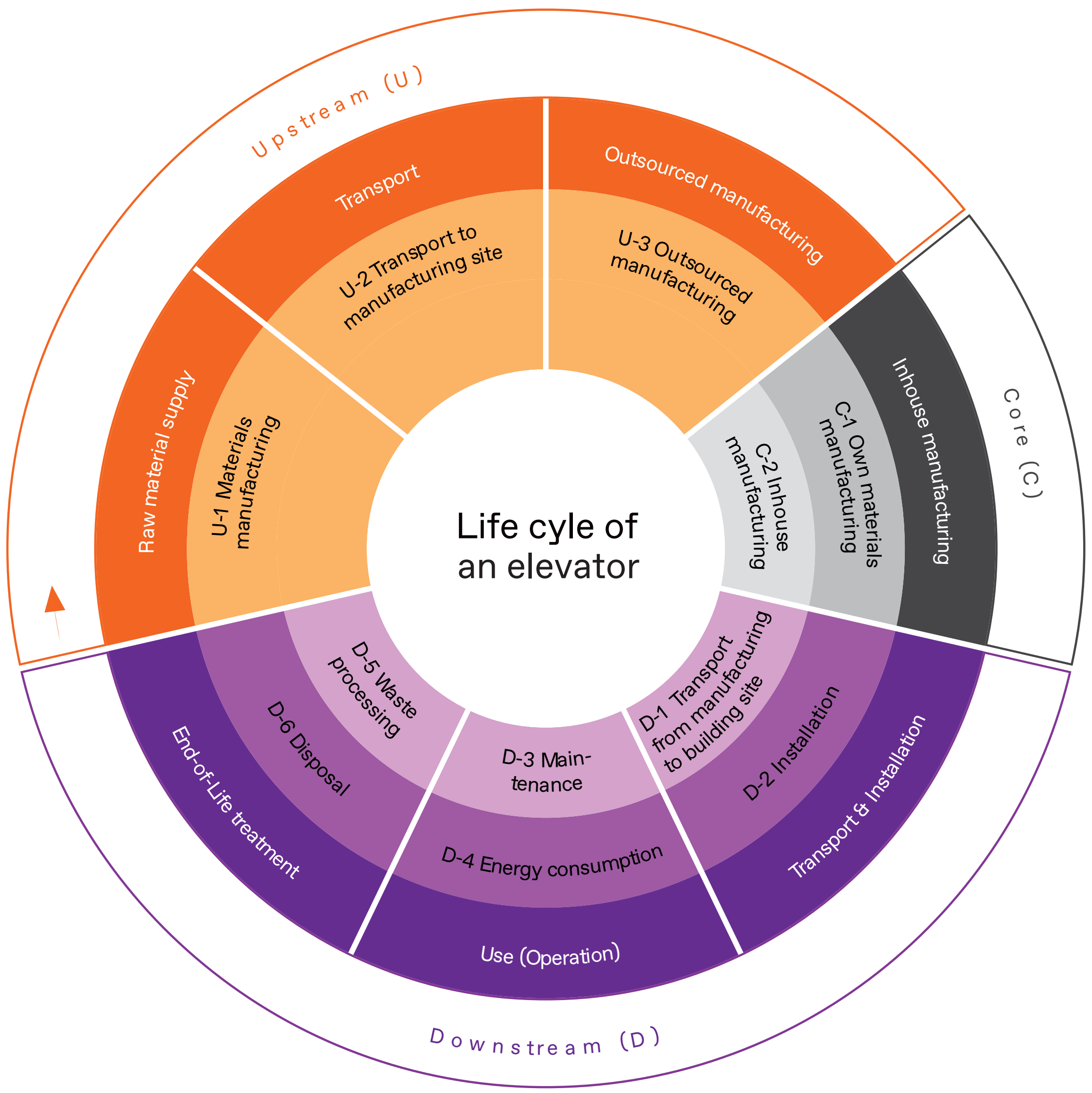


Fig 2: Life-cycle stages and respective information modules according to the PCRs.

Results of the study

The following section contains the results of the underlying LCA study according to the PCRs. The disclosure of results is structured in three categories: potential environmental impacts, use of resources, waste production and output flows. The tables show results per FU (in grey fields) and in absolute figures for the full reference service life of 20 years (in white fields).

Potential environmental impacts

Results are presented below for six different impact categories. For a detailed description and explanation of each impact category, please read the glossary on page 18 of this brochure. The characterization method used to calculate the impact categories on a midpoint level is CML 2001.

Table 2: Impact category results by information module

Impact Category		GWP	AP	EP	POCP	ADP – Elements	ADP – Fossil fuels
Unit	FU	kg CO_2-eq./tkm	kg SO_2-eq./tkm	kg $(PO_4)^{3-}$-eq./tkm	kg C_2H_4-eq./tkm	kg Sb-eq./tkm	MJ/tkm
	Abs.	kg CO2-eq.	kg SO2-eq.	kg (PO4)3-eq.	kg C2H4-eq.	kg Sb-eq.	MJ
Upstream	U-1 Materials manufacturing	1,11E+01	3,60E-02	2,95E-03	3,42E-03	1,75E-04	1,32E+02
		2,44E+04	7,91E+01	6,48E+00	7,53E+00	3,85E-01	2,90E+05
	U-2 Trans. to manufact.-site	7,78E-01	7,00E-03	9,38E-04	1,55E-04	3,47E-08	1,05E+01
		1,71E+03	1,54E+01	2,06E+00	3,41E-01	7,64E-05	2,32E+04
	U-3 Out-sourced manufacturing	4,93E-01	3,26E-03	7,28E-04	2,84E-04	8,34E-08	6,11E+00
		1,09E+03	7,17E+00	1,60E+00	6,25E-01	1,83E-04	1,34E+04
Core	C-1 Own materials manufacturing	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	0,00E+00	0,00E+00
	C-2 In-house manufacturing	1,11E-01	5,09E-04	3,56E-05	3,77E-05	3,59E-08	1,15E+00
		2,43E+02	1,12E+00	7,83E-02	8,30E-02	7,90E-05	2,52E+03
Downstream	D-1 Transport to building site	-5,12E-01	8,84E-04	2,01E-04	5,99E-05	9,95E-08	3,24E+00
		-1,13E+03	1,95E+00	4,42E-01	1,32E-01	2,19E-04	7,12E+03
	D-2 Installation	9,30E-01	3,73E-04	9,55E-05	1,82E-04	1,15E-06	9,27E-01
		2,05E+03	8,21E-01	2,10E-01	4,01E-01	2,53E-03	2,04E+03
	D-3 Maintenance	1,76E-01	3,83E-04	1,13E-04	5,38E-05	2,56E-08	2,44E+00
		3,87E+02	8,42E-01	2,49E-01	1,18E-01	5,62E-05	5,38E+03
	D-4 Energy consumption	7,95E+00	6,33E-02	3,44E-03	3,40E-03	1,18E-06	8,86E+01
		1,75E+04	1,39E+02	7,56E+00	7,49E+00	2,59E-03	1,95E+05
	D-5 Waste processing	2,15E-02	5,25E-05	1,28E-05	-1,77E-05	2,07E-09	2,91E-01
		4,74E+01	1,15E-01	2,81E-02	-3,89E-02	4,55E-06	6,40E+02
	D-6 Disposal	9,85E-03	5,59E-05	7,82E-06	3,53E-06	3,11E-09	1,28E-01
		2,17E+01	1,23E-01	1,72E-02	7,76E-03	6,85E-06	2,81E+02
Total Life Cycle		**2,11E+01**	**1,12E-01**	**8,51E-03**	**7,58E-03**	**1,78E-04**	**2,45E+02**
		4,63E+04	**2,46E+02**	**1,87E+01**	**1,67E+01**	**3,91E-01**	**5,39E+05**

Impact category results by life-cycle stage per FU

The figures below show the share of the different life-cycle stages of each impact category in percentages, resulting in a sum of 100%

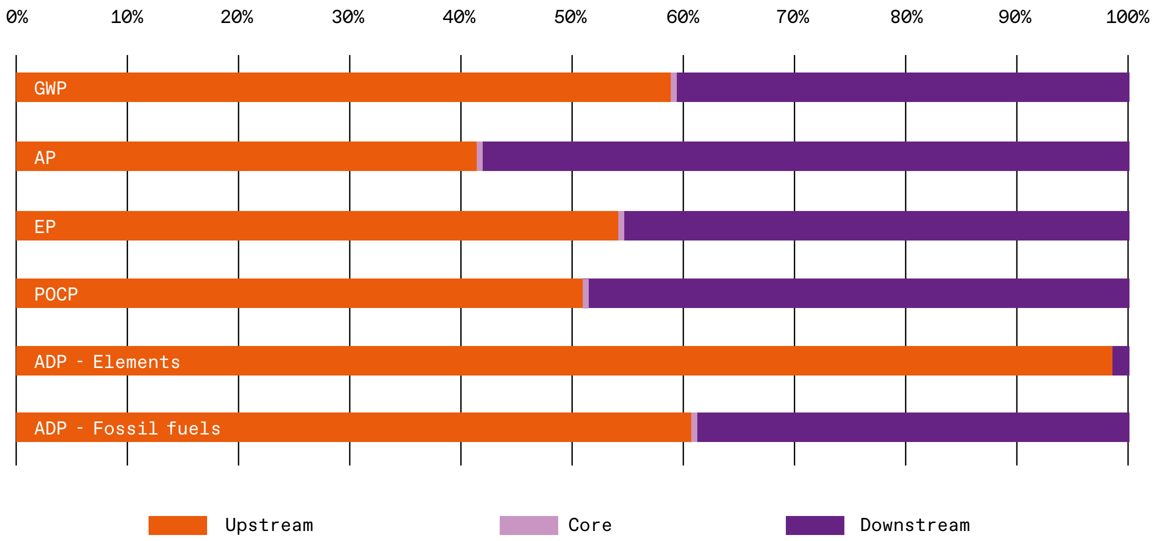


Figure 3: Impact category results by life-cycle stage (in %)

In the figure below, the impact results of the two largest contributors (U-1 and D-4) to the overall results are compared with each other and the sum of the rest of the information modules.

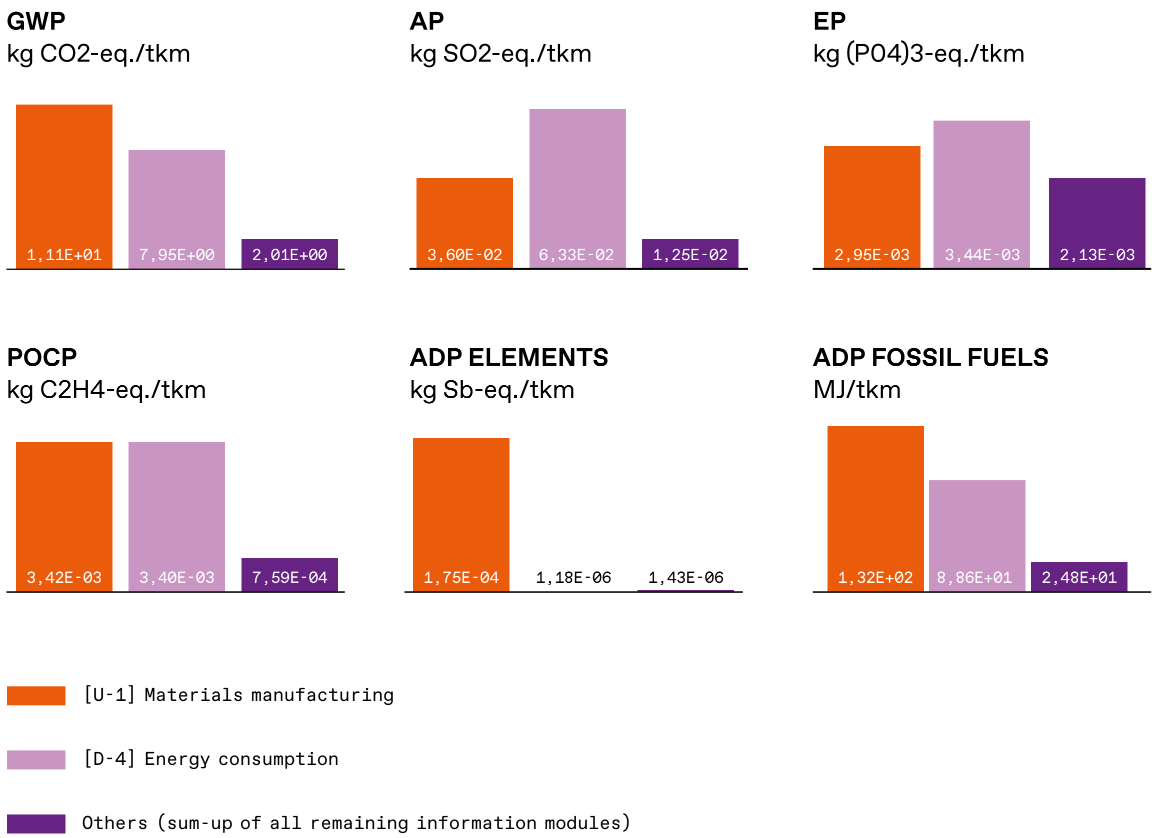


Figure 4: Comparison of impacts of main contributors

Use of resources

At this point the results for the use of resources are presented. These are divided into renewable and non-renewable as well as secondary resources, renewable and non-renewable primary energy, and water.

Table 3: Use of resources by information module

	Environmental Indicator	Non-renewable material resources	Renewable material resources	Non-renewable energy resources	Renewable energy resources	Secondary material resources	Total amount of water
Unit	FU	kg/tkm	kg/tkm	MJNCV/tkm	MJNCV/tkm	kg/tkm	kg/tkm
	Abs.	kg	kg	MJNCV	MJNCV	kg	kg
Upstream	U-1 Materials manufacturing	3,74E+01	8,32E+03	1,39E+02	1,98E+01	1,53E+00	9,16E+03
		8,23E+04	1,83E+07	3,06E+05	4,36E+04	3,37E+03	2,02E+07
	U-2 Trans. to manufact.-site	2,59E-02	2,15E+01	1,05E+01	1,91E-01	0,00E+00	2,14E+01
		5,70E+01	4,74E+04	2,32E+04	4,20E+02	0,00E+00	4,71E+04
	U-3 Outsourced manufacturing	5,31E-01	2,99E+02	6,47E+00	9,96E-01	4,82E-05	2,96E+02
		1,17E+03	6,59E+05	1,42E+04	2,19E+03	1,06E-01	6,51E+05
Core	C-1 Own mate-rials manufac-turing	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	0,00E+00	0,00E+00
	C-2 In-house manufacturing	1,29E-01	1,80E+02	1,23E+00	7,84E-01	3,06E-04	1,78E+02
		2,83E+02	3,95E+05	2,71E+03	1,73E+03	6,74E-01	3,92E+05
Downstream	D-1 Transport to building site	7,55E-01	2,55E+02	3,76E+00	9,58E+00	9,78E-02	2,52E+02
		1,66E+03	5,60E+05	8,27E+03	2,11E+04	2,15E+02	5,55E+05
	D-2 Installation	2,65E-01	1,31E+02	9,90E-01	5,14E-01	1,31E-03	1,30E+02
		5,83E+02	2,89E+05	2,18E+03	1,13E+03	2,88E+00	2,86E+05
	D-3 Maintenance	7,74E-02	3,81E+01	2,45E+00	3,47E-01	0,00E+00	3,74E+01
		1,70E+02	8,38E+04	5,40E+03	7,63E+02	0,00E+00	8,23E+04
	D-4 Energy consumption	9,28E+00	1,69E+04	9,42E+01	6,16E+01	0,00E+00	1,68E+04
		2,04E+04	3,72E+07	2,07E+05	1,36E+05	0,00E+00	3,69E+07
	D-5 Waste processing	2,28E-03	1,76E+00	2,94E-01	1,95E-02	0,00E+00	1,74E+00
		5,02E+00	3,87E+03	6,47E+02	4,29E+01	0,00E+00	3,83E+03
	D-6 Disposal	8,08E-02	6,99E+00	1,32E-01	1,44E-02	0,00E+00	6,82E+00
		1,78E+02	1,54E+04	2,91E+02	3,16E+01	0,00E+00	1,50E+04
Total Life Cycle		4,85E+01	2,61E+04	2,59E+02	9,39E+01	1,63E+00	2,68E+04
		1,07E+05	5,75E+07	5,70E+05	2,07E+05	3,59E+03	5,91E+07

(1) Environmental indicators "Secondary energy resources" and "Recovered energy flow" are not shown because their value = 0.00E+00.

Waste production

In this context the results for the generated waste, divided by hazardous and non-hazardous waste, are shown.

Table 4: Waste production by information module

Environmental Indicator		Hazardous waste disposed	Non-hazardous waste disposed
Unit	FU	kg/tkm	kg/tkm
	Abs.	kg	kg
Upstream	U-1 Materials manufacturing	1,11E-04	3,88E-01
		2,44E-01	8,54E+02
	U-2 Trans. to manufact.-site	1,42E-07	7,03E-04
		3,12E-04	1,55E+00
	U-3 Outsourced manufacturing	1,33E-08	1,22E-01
		2,92E-05	2,69E+02
Core	C-1 Own materials manufacturing	0,00E+00	0,00E+00
		0,00E+00	0,00E+00
	C-2 In-house manufacturing	4,47E-09	1,26E-02
		9,84E-06	2,78E+01
Downstream	D-1 Transport to building site	2,27E-08	1,20E-03
		5,00E-05	2,65E+00
	D-2 Installation	6,47E-09	2,48E-01
		1,42E-05	5,45E+02
	D-3 Maintenance	2,93E-06	3,37E-02
		6,45E-03	7,42E+01
	D-4 Energy consumption	4,23E-08	2,93E-02
		9,31E-05	6,44E+01
	D-5 Waste processing	1,34E-08	4,82E-05
		2,94E-05	1,06E-01
	D-6 Disposal	3,28E-09	5,60E-01
		7,22E-06	1,23E+03
Total Life Cycle		1,14E-04	1,40E+00
		2,51E-01	3,07E+03

Analysis of results / Conclusion

General observations

The upstream stage is the most important contributor to the overall burden of the assessed elevator over its entire life cycle. The contribution shares of this module is around 60% for all categories, while the value for ADP is even greater than 98%.

The downstream stage represents the second highest impact area. In contrast, the core stage has almost no impact and relevance in terms of the environmental burden.

Upstream stage [U-1]- Materials manufacturing

This information module dominates de upstream stage and is the main contributor to overall environmental impact. It generates values of nearly 60 % or more for most of the assessed impact categories (GWP, AP, EP, POCP, ADP-Elements and ADP- Fossil fuels). The high impacts are mainly caused by energy intensive extraction and production processes of raw materials used for the different components of the elevator.

The high level of the results is mainly caused by components made out of carbon steel and other “Ferrous Metals”, which represent close to 90% of the total weight of the assessed elevator.

Nevertheless, in relative terms components with a high share of Electrics and Electronics (based on their specific impact per kg) have the highest impact on the results and are therefore of major relevance in the product life cycle.

Downstream “[D-4] – Energy consumption”

This information module affects the downstream stage the most, causing almost all of its impact in all impact categories. It makes the second highest contribution to the overall environmental burden of the assessed elevator. As a result, operation during the use phase thus also significantly influences overall environmental impact due to the consumed energy.

The analysis of alternative use scenarios, in which the assessed elevator is operated in different locations, showed substantial differences in the overall results for most impact categories (GWP, AP, POCP and ADP – Fossil fuels). These differences can be attributed to the variations between energy sources for different grid mixes. Consequently, the choice of grid mix needs to be carefully considered.

Potential for improvements

The use of ferrous metals, especially carbon and stainless steel, highly affects the impacts of [U-1]. In context of Rails, Fishplate & Mounting Material and Hoistway Doors, components with optimized geometries could be developed in order to provide a weight reduction and therefore lower impacts. At the same time, with reference to the ferrous metals, components made of organics, plastics and rubbers show lower impacts than of ferrous metals also due to a major weight reduction. Thus, using these strategies – if feasible for their application – could provide improvements to the results. In addition, in case of moving parts a reduction of weight results in a lower energy demand and in consequence an optimization of [D-4].

Explanation of negative values GWP for [D-1]

For the Global warming potential (GWP) the impact of [D-1] is negative. Reason for that is that as requested by the PCRs, the burden of the production of waste generated for the packaging (plastic and wood) is allocated. The negative impact is caused by the cradle-to-gate process on wood production, due to the absorption of CO_2 by wood material during its growth (negative CO_2 balance). On the contrary the release of this CO_2 is considered in [D-2] in which the packaging is disposed (positive CO_2 balance).

Explanation of negative values POCP for [D-5]

In case of the Photochemical Ozone Creation Potential (POCP) the value for [D-5] is negative. This negative impact is generated by the use of trucks as means of transport due to the division of NO_X emissions into the two single emissions NO_2 and NO. NO has a negative effect on POCP since it reduces close ground ozone formation.

Avoided burden

For the 'end-of-life phase', the cut-off approach was applied according to the PCRs [D-5 & D-6]. As a consequence, materials expected to be recycled or used for energy recovery are not granted a credit. Following this approach with regard to [U-1], no burden is associated with the amount of scrap included in certain primary materials used (e.g. scrap in steel datasets).

The 'avoided burden' approach represents an alternative way of calculating the results for the end-of-life phase [D-5 & D-6]. Accordingly, a credit is awarded for the inherent recycling potential of a product in the end-of-life phase.

In the table below, the potential of this credit to reduce the overall environmental impact of the assessed elevator is estimated, taking into account the positive impact of using recycled rather than virgin material. However, new results for the total life cycle are not presented because a reliable net scrap calculation for the overall life cycle could not be performed.

For the calculation of the End-of-life phase [D-5 & D-6] with avoided burden approach the following materials of the assessed elevator are assumed to be recycled based on IPEA datasets and adjusted according to tkE BR environment specialists background from which the most current recycling rates were considered (in this context please also see [D-5 & D-6] in section 3.3.1): electronics 20%, plastics 20% and carbon steel 90%.

The estimation of the potential of the avoided burden shows that the chosen approach for the End-of-life phase has a substantial impact on the overall results. Considering the avoided burden the total life cycle impact could be reduced by above 34,73% on average for each impact category. The highest reduction with above 90% occurs for the Abiotic Depletion (ADP - Elements) and the lowest with approximately 13% for the Eutrophication potential (EP).

Table 5: Estimate of potential of avoided burden – impact category results per FU

Impact Category	GWP	AP	EP	POCP	ADP – Elements	ADP – Fossil fuels
Unit	kg CO_2-eq./tkm	kg SO_2-eq./tkm	kg $(PO_4)^{3-}$-eq./tkm	kg C_2H_4-eq./tkm	kg Sb-eq./tkm	MJ/tkm
South America (Average) – Cut-Off Approach – Total Life Cycle per FU	2,11E+01	1,12E-01	8,51E-03	7,58E-03	1,78E-04	2,45E+02
South America (Average) – Cut-Off Approach – EoL phase [D-5 & D-6] per FU	3,14E-02	1,08E-04	2,06E-05	-1,41E-05	5,18E-09	4,19E-01
South America (Average) – Avoid. Burden App. – EoL phase [D-5 & D-6] per FU	-5,73E+00	-1,85E-02	-1,09E-03	-2,55E-03	-1,67E-04	-5,49E+01
Potential Reduction of Avoided Burden – per FU	-5,70E+00	-1,84E-02	-1,07E-03	-2,57E-03	-1,67E-04	-5,45E+01
Potential Reduction of Avoided Burden – in % of Total Life Cycle	-27,09%	-16,43%	-12,52%	-33,86%	-94,02%	-22,24%

* IPEA

Glossary

Table 6: Glossary – Impact Categories

Impact category	Abbreviation	Unit	Characterization method	Description
Global warming potential (100 years)	GWP	kg CO_2-eq.	CML2001 – April 2016	The global warming potential (GWP) is a relative measure of how much heat a greenhouse gas traps in the atmosphere. It is indicated in kg of CO_2 - equivalents for a specified time horizon.
Acidification potential	AP	kg SO_2-eq.	CML2001 – April 2016	The acidification potential describes the acid deposition in plants, soils and surface waters caused by the conversion of air pollutants in acid. It is expressed in kg of SO_2-equivalents.
Eutrophication potential	EP	kg $(PO4)_3$-eq.	CML2001 – April 2016	Eutrophication is the undesired enrichment of waters with nutrients. It induces the growth of plants and algae, which may result in oxy-gen depletion. At an excessive level it affects the biological balance of affected waters, e.g. through fish kills. It is measured in kg of C_2H_4-equivalents.
Photochemical ozone creation potential	POCP	kg C2H4-eq.	CML2001 – April 2016	Photochemical ozone creation potential (also referred to as photochemical smog) quan-tifies the creation of ozone on ground-level where it is considered as a pollutant, while in the high levels of the atmosphere it protects against ultraviolet (UV) light. Ozone on lower levels is a harm to human health and can for example cause inflamed airways or damage lungs. It is expressed in kg of SO_2-equivalents.
Abiotic resource depletion potential – Elements & Fossil	ADP – Elements	kg Sb-eq.	CML2001 – April 2016	Abiotic resources are natural resources which are regarded as non-living. Their human depletion at the current rate is not considered as sustainable and cause of concern due to their scarcity. The depletion of abiotic resources is reflected in two separate impact categories: Elements, such as iron ore, indicated in kg of Sb-equivalents; and Fossil fuels, as for example crude oil, indicated in MJ_{NCV}.tion of abiotic resources is reflected in two separate impact categories: Elements, such as iron ore, indicated in kg of Sb-equivalents; and Fossil fuels, as for example crude oil, indicated in MJ_{NCV}.
	ADP – Fossil fuels	MJ_{NCV}	CML2001 – April 2016	

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