ENVIRONMENTAL PRODUCT DECLARATION

as per *ISO 14025* and *EN 15804+A1*

Owner of the Declaration	dormakaba International Holding GmbH
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-DOR-20190173-IBC5-EN
Issue date	29.01.2020
Valid to	28.01.2025

TS 93 door closer system including slide channel G-N

dormakaba

Institut Bauen und Umwelt e.V.

ECO PLATFORM EPD VERIFIED

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1. General Information

dormakaba

Programme holder

IBU – Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

Declaration number

EPD-DOR-20190173-IBC5-EN

This declaration is based on the product category rules:

Building Hardware products, 01.08.2021
(PCR checked and approved by the SVR)

Issue date

29.01.2020

Valid to

28.01.2025

Dipl.-Ing. Hans Peters
(Chairman of Institut Bauen und Umwelt e.V.)

Florian Pronold
(Managing Director Institut Bauen und Umwelt e.V.)

TS 93 door closer system including slide channel G-N

Owner of the declaration

dormakaba International Holding GmbH
DORMA Platz 1
58256 Ennepetal
Germany

Declared product / declared unit

The declared unit is one (1) piece of an average TS 93 EN 2-5 slide rail door closer consisting of:
- one closer
- a slide rail G-N and
- the respective packaging materials

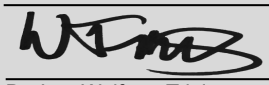
Scope:

This EPD refers to the life cycle of an average TS 93 door closer from dormakaba. The different technical characteristics are described in chapter 2.3. The production site is located in Singapore.
The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

The EPD was created according to the specifications of EN 15804+A1. In the following, the standard will be simplified as *EN 15804*.

Verification

The standard EN 15804 serves as the core PCR
Independent verification of the declaration and data according to ISO 14025:2011
☐ internally ☒ externally



Dr.-Ing. Wolfram Trinius,
(Independent verifier)

2. Product

2.1 Product description/Product definition

The TS 93 series comprises a modular system that meets practically every conceivable functional requirement by easily combining the available door closer models and various slide rails. It enables doors to be optimally equipped for a wide range of applications and in a wide variety of designs. The backcheck feature ensures the safe deceleration and restraint of a door which has been flung open or caught by a gust of wind. This effectively reduces the risk of the door and wall being damaged. The strongly decreasing opening torque makes it easy to enter the door, slowing the closing cycle between 120° and 70° (approx. values for pull-side door leaf fixing). The standard closing delay enables, for example, greater accessibility and easy transport of objects, which is ideal for people with luggage, hospital beds, etc.

The G-N slide channel assembly is non-handed and can be combined with all door closer models. Thanks to oblong holes in the fixing adapters, the slide channel can be effectively adjusted to variations in the drill hole pattern while keeping the gap between door closer body and slide channel aligned and parallel.

The EPD covers following variants:
- EN 1-5
- ANSI 1-5
- EN 2-5
- EN 5-7
- Basic
- 2S

For placing TS 93 on the market in the European Union/European Free Trade Association (EU/EFTA, with the exception of Switzerland), Regulation (EU) No. 305/2011 of the Construction Product Regulations (CPR) applies. The product needs a declaration of performance taking into consideration the /EN 1154/ for slide channel door closer applicable for fire and smoke check doors. The CE mark for building products is available. For the application and use the respective national provisions apply.

2.2 Application

The TS 93 system can be used universally. Depending on the accessories, can be used on single-panel or double-panel fire and smoke protection doors. The door closer can also be used on standard doors.

2.3 Technical Data

The technical specifications of the products within the scope of the EPD are listed below.

Data and features	TS 93 B/G*	
Variable closing force (spring strength)	EN 2-5	EN 5-7
Standard doors	≤ 1250 mm	≤ 1600 mm
External doors, outward opening	≤ 1250 mm	≤ 1600 mm
For fire and smoke check doors	≤ 1250 mm	≤ 1600 mm
Non-handed	•	•
Arm assembly type	Slide channel	Slide channel
Closing force variable by means of adjustment screw	•	•
Closing speed adjustable by valve	•	•
Latching speed adjustable by valve	•	•
Backcheck (BC/ÖD) adjustable at valve	•	•
Delayed action (DC/SV) adjustable at valve	•	•
Hold-open	○	○
Weight in kg	3,5	5,2
Length (L) in mm	275	285
Overall depth (B) in mm	53	62
Height (H) in mm	60	71
CE mark for building products	•	•

• yes – no ○ optional

** B = Standard model for pull-side door leaf fixing/push-side transom fixing*

G = Special model for push-side door leaf fixing/pull-side transom fixing

Data and features	TS 93 Basic B*	TS 93 B/G* 2S
Variable closing force (spring strength)	EN 2-5	EN 2-5
Standard doors	≤ 1250 mm	≤ 1250 mm
External doors, outward opening	≤ 1250 mm	≤ 1250 mm
For fire and smoke check doors	≤ 1250 mm	≤ 1250 mm
Non-handed	•	•
Arm assembly type	Slide channel	Slide channel
Closing force variable by means of adjustment screw	•	•
Closing speed adjustable by valve	•	•
Latching speed adjustable by valve	•	○
Backcheck (BC/ÖD) adjustable at valve	•	•
Delayed action (DC/SV) adjustable at valve	•	•
Hold-open	○	○
Weight in kg	3,5	3,5
Length (L) in mm	275	275
Overall depth (B) in mm	53	53
Height (H) in mm	60	60
CE mark for building products	•	•

• yes – no ○ optional

** B = Standard model for pull-side door leaf fixing/push-side transom fixing*

G = Special model for push-side door leaf fixing/pull-side transom fixing

Data and features	TS 93 B/G*	
Variable closing force (spring strength)	EN 1-5	ANSI 1-5
Standard doors	≤ 1250 mm	≤ 1250 mm
External doors, outward opening	≤ 1250 mm	≤ 1250 mm
For fire and smoke check doors	≤ 1250 mm	≤ 1250 mm
Non-handed	•	•
Arm assembly type	Slide channel	Slide channel
Closing force variable by means of adjustment screw	•	•
Closing speed adjustable by valve	•	•
Latching speed adjustable by valve	•	•
Backcheck (BC/ÖD) adjustable at valve	•	•
Delayed action (DC/SV) adjustable at valve	•	•
Hold-open	○	○
Weight in kg	3,5	3,5
Length (L) in mm	275	275
Overall depth (B) in mm	53	53
Height (H) in mm	60	60
CE mark for building products	•	•

• yes – no ○ optional

** B = Standard model for pull-side door leaf fixing/push-side transom fixing*

G = Special model for push-side door leaf fixing/pull-side transom fixing

Product according to the CPR, based on a hEN: performance data of the product in accordance with the declaration of performance with respect to its essential characteristics

according to

- /EN 1154/:2003-04 (door closer with G-N),
- /EN 1158/:2003-04 (TS 93 with door coordinator)
- /EN 1155/:2003-04 (TS 93 with hold-open system).

Accessibility according to /DIN 18040/ is given. The CE-mark for building products is available.

2.4 Delivery status

The following dimensions can be provided on delivery for the declared unit - TS 93 door closer system:

Dimensions (mm)	Closer	Packaging	Slide rail	Packaging
Length	275.49	286.69	417.00	470.00
Width	53.45	94.45	31.00	46.00
Height	60.54	107.05	21.50	32.00

2.5 Base materials/Ancillary materials

For the main product components, the declared door closer TS 93 EN 2-5 including G-N XEA slide channel and packaging, the following material proportions result in mass percentages of the various basic materials in kg:

Constituents	TS 93 EN 2-5	Slide Channel G-N	Declared Unit	Mass proportion
Steel	1.236	0.401	1.637	35%
Grey Cast Iron	1.623	0.000	1.623	35%
Aluminum	0.343	0.337	0.680	15%
Paper & Cardboard	0.218	0.061	0.279	6%
Zinc Die Cast	0.000	0.124	0.124	3%
Wood	0.114	0.000	0.114	2%
Other	0.090	0.000	0.090	2%
Paint	0.034	0.032	0.066	1%
Plastics & Rubber	0.022	0.006	0.028	1%
Brass	0.015	0.000	0.015	0%

The products include partial articles which contain substances listed in the Candidate List (date: 16.01.2020) exceeding 0.1 percentage by mass in the alloy:

- Lead (Pb): 7439-290-1 (CAS-No.)

The Candidate List can be found on the /ECHA/ website address: https://echa.europa.eu/de/home.

2.6 Manufacture

The door closers are manufactured and assembled at the production facility in Singapore.
The plant in Singapore is certified to the quality management system /ISO 9001/, which ensures consistent quality of dormakaba's products.

2.7 Environment and health during manufacturing

The Environmental Management System in the Singapore production is certified to /ISO 14001/ and the Energy Management System is certified to /ISO 50001/.

2.8 Product processing/Installation

dormakaba deploys its own, specially-trained assembly teams to install the product systems.

2.9 Packaging

Packaging contains the following mass percentages in kg:

Constituents	TS 93 EN 2-5 incl. G-N	Mass proportion
Paper & Cardboard	0.279	70.7%
Wood	0.114	28.8%
PE Plastic	0.002	0.5%

2.10 Condition of use

Product maintenance is not required if used as designated. During installation of a TS 93, the standard safety regulations must be complied with and the provisions of the professional liability associations observed.

2.11 Environment and health during use

There are no impact relations between product, environment and health during use.

2.12 Reference service life

The reference service life for the EN variants is 20 years. This corresponds with approx. 25,000 closing cycles per year based on around 500,000 closing cycles in accordance with /DIN EN 1154/. The ANSI variant is tested according to ANSI Grade 1 which corresponds with 1.5 million closing cycles.

2.13 Extraordinary effects

Fire

In accordance with the applicable standards, the upper door closer complies with the requirements on door closing devices to be used on fire and smoke protection doors.

Water

Unforeseen water ingress, e.g. caused by activation of a sprinkler system or flooding, does not have any impact on the function and usability or service life of the upper door closer thanks to its metallurgical product features.

Mechanical destruction

No environmental hazard is associated with mechanical destruction.

2.14 Re-use phase

With reference to the material composition of the product system in accordance with section 2.6, the following possibilities arise:

Re-use

During refurbishment or de-construction, door closers can be easily segregated and re-used for the same application. The product characteristics (very long useful life without material fatigue) form a solid basis for this.

Material recycling

The metallurgical materials contained in the materials are suitable for material recycling.

Energy recovery

The plastics contained in the materials are suitable for energetic recovery.

Landfilling

As the product contains lubricants and hydraulic oil, landfilling is not possible.

2.15 Disposal

Waste during the production phase

Cuttings incurred during the manufacturing phase are directed towards metallurgical recycling and energy recovery. Cuttings are collected separately and collected by a disposal company. Following European Waste Catalogue Codes are relevant:

- /EWC/ 07 02 03 Plastic waste
- /EWC/ 12 01 01 Ferrous metal filings and turnings
- /EWC/ 12 01 03 Non-ferrous metal filings and turnings

Packaging
Packaging incurred for installation in the building is directed towards energy recovery.

- /EWC/ 15 01 01 Paper and cardboard packaging
- /EWC/ 15 01 02 Plastic packaging

End of Life
All materials are directed to energy recovery or metallurgical recycling.

- /EWC/ 17 02 03 Plastics
- /EWC/ 17 04 01 Copper, bronze, brass
- /EWC/ 17 04 02 Aluminum
- /EWC/ 17 04 05 Iron and steel

2.16 Further information

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3. LCA: Calculation rules

3.1 Declared Unit

The declared unit is one (1) door closer system, consisting of the following items:
- the door closer TS 93 EN 2-5
- the slide channel G-N
- the respective packaging materials

Declared Unit

Name	Value	Unit
Mass of the declared unit	4.656	kg
Declared unit	1	piece/product
Conversion factor to 1 kg	0.215	-
conversion factor [Mass/Declared Unit]	4.656	-

3.2 System boundary

Type of the EPD: cradle to gate - with options

Modules A1-3, A4, and A5
The product stage (A1-3) begins with considering the production of the necessary raw materials and energies, including all corresponding upstream chains and the actual procurement transports. Furthermore, the entire manufacturing phase was mapped, including the treatment of production waste until end-of-waste status (EoW) was reached. In addition, both the distribution transports from Singapore and Ennepetal (Germany) (A4) and the packaging waste generated during installation (A5) were taken into account. Product losses as well as power-consuming tools, auxiliary materials, and installation materials, were not considered in A5.

Modules C2-C3
The modules include the environmental impacts for the treatment of the waste categories until end-of-waste status (EoW) is reached, including the associated transports at the end of the product life cycle.

Module D
Identification of the benefits and costs of the product outside the system boundary. For plastics, these consist of energy credits from thermal utilisation (C3) in the form of the average European electricity mix or thermal energy from natural gas. Recycling of metal scrap results in credits of the respective raw materials.

3.3 Estimates and assumptions

It was assumed that End of Life thermal waste incineration plants are plants with an R1 factor (energy conversion efficiency or energy efficiency of waste incineration plants according to the European Waste Framework Directive) >0.6. Since there is no usable dataset for recycling brass, it was assumed that the loads from recycling aluminum were comparable to those from recycling brass and the corresponding dataset was chosen as a substitute. Since the mass fraction of brass is far below 1%, the impact of this assumption on the overall result is considered negligible.

3.4 Cut-off criteria

The effect associated with the neglected mass shares is less than 5% of the effect categories per module. The minimum limit of 1% total mass and the use of renewable and non-renewable primary energy is not exceeded.
The pallets used for transportation are cut off since they are used 20 times on average. The effect on a single product system is therefore negligible.

3.5 Background data

The software system for holistic balancing /GaBi 9.2/ was used to model the life cycle. The entire manufacturing process as well as the energy consumption were modelled on the basis of manufacturer-specific data. However, generic background datasets were used for the upstream and downstream processes. The majority of the background datasets used were taken from the current version of the /GaBi 9.2/ database. /Ecoinvent/ datasets and datasets from other databases were only used for substances which in any case have only a very small mass fraction and could theoretically be excluded.

The datasets contained in the databases are documented online. Where possible, German datasets were used for modules A1-3, and the corresponding European datasets for distribution transports (A4) and disposal scenarios (C modules).

3.6 Data quality

The background datasets used for accounting purposes originate from the respective updated /GaBi/ databases at the time of calculation.

The data for the examined products was captured on the basis of evaluations of internal production and environmental data, the collection of LCA-relevant data within the supply chain, as well as the evaluation of relevant data for the energy supply. The collected data were checked for plausibility and consistency. Very good representativity can be assumed.

3.7 Period under review

The life cycle assessment data were collected for the 2018 observation period.

3.8 Geographic Representativeness

Land or region, in which the declared product system is manufactured, used or handled at the end of the product´s lifespan: Global

3.9 Allocation

All required energies, raw materials, and supplies could be clearly assigned to the declared product. No by-products are produced and no allocation is required.
In module A1-A3, credits are issued for recycling of metallurgical waste. Packaging materials and the combustible product parts are incinerated at the end of life in a waste incineration plant. Metallurgical parts are recycled. Any emissions that occur are taken into account in the model. Depending on their elementary composition and the resulting heating values, credits for recycling are taken into account in module D.

3.10 Comparability

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to *EN 15804* and the building context, respectively the product-specific characteristics of performance, are taken into account.
The used background database has to be mentioned.

The background database used is /GaBi 9.2/ Service Pack 39.

4. LCA: Scenarios and additional technical information

Transport from manufacturer to point of use (A4)

Name	Value	Unit
Transport distance (Lorry)	725	km
Capacity utilisation (including empty runs)	61	%
Transport distance (Container Ship)	13,775	km

Assembly (A5)

There are no environmental burdens during assembly. Module A5 covers only the environmental burdens for the disposal of the packaging.

Name	Value	Unit
Output substances following waste treatment on site	0.395	kg

End of Life (C1-C4)

Name	Value	Unit
Collected separately waste type	4.261	kg
Recycling	4.079	kg
Energy recovery	0.182	kg

Reuse, recovery and recycling potential (D), relevant scenario data

Metals are used for material recycling, plastics and packaging materials for energy recovery. The resulting credits are allocated to Module D.

Name	Value	Unit
Materials for energy recovery	0.182	kg
R1-factor	>60	%
Lower calorific value	43	MJ/kg

5. LCA: Results

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE NOT DECLARED; MNR = MODULE NOT RELEVANT)

Product stage			Construction process stage		Use stage							End of life stage				Benefits and loads beyond the system boundaries
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	MND	MND	MNR	MNR	MNR	MND	MND	MND	X	X	MND	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A1: 1 piece TS 93 EN 2-5 incl. G-N

Parameter	Unit	A1-A3	A4	A5	C2	C3	D
Global warming potential (GWP)	kg CO_2 eq	1.3E+01	1.18E+00	4.04E-01	3.72E-02	4.89E-01	-5.36E+00
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC11 eq	2.91E-08	1.53E-16	9.63E-17	9.34E-18	3.35E-10	2.24E-12
Acidification potential of land and water (AP)	kg SO_2 eq	4.41E-02	2.74E-02	9.42E-05	1.61E-04	7.23E-05	-2.5E-02
Eutrophication potential (EP)	kg PO_4^3 eq	3.93E-03	3.08E-03	1.85E-05	4.06E-05	1.38E-04	-1.38E-03
Formation potential of tropospheric ozone photochemical oxidants (POCP)	kg Ethen eq	3.16E-03	9.86E-04	1.43E-06	-5.91E-05	3.7E-06	-1.44E-03
Abiotic depletion potential for non fossil resources (ADPE)	kg Sb eq	1.85E-04	4.24E-08	8.03E-09	3.28E-09	4.42E-08	-1.66E-04
Abiotic depletion potential for fossil resources (ADPF)	MJ	1.48E+02	1.47E+01	1.45E-01	5.09E-01	1.3E-01	-5.79E+01

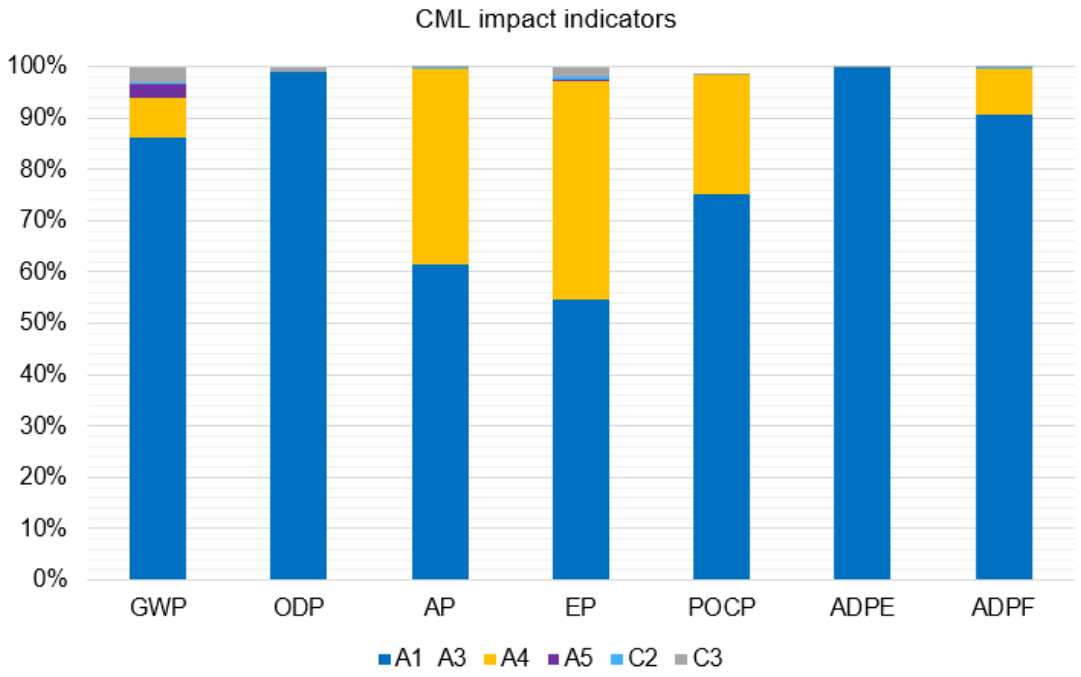
RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A1: 1 piece TS 93 EN 2-5 incl. G-N

Parameter	Unit	A1-A3	A4	A5	C2	C3	D
Renewable primary energy as energy carrier (PERE)	MJ	3.48E+01	2.4E-01	4.57E+00	3.04E-02	1.68E-02	-2.92E+01
Renewable primary energy resources as material utilization (PERM)	MJ	4.54E+00	0	-4.54E+00	0	0	0
Total use of renewable primary energy resources (PERT)	MJ	3.94E+01	2.4E-01	2.42E-02	3.04E-02	1.68E-02	-2.92E+01
Non renewable primary energy as energy carrier (PENRE)	MJ	1.52E+02	1.48E+01	2.46E-01	5.11E-01	1.8E+01	-6.91E+01
Non renewable primary energy as material utilization (PENRM)	MJ	1.8E+01	0	-8.18E-02	0	-1.79E+01	0
Total use of non renewable primary energy resources (PENRT)	MJ	1.7E+02	1.48E+01	1.64E-01	5.11E-01	1.48E-01	-6.91E+01
Use of secondary material (SM)	kg	0	0	0	0	0	3.92E-01
Use of renewable secondary fuels (RSF)	MJ	0	0	0	0	0	0
Use of non renewable secondary fuels (NRSF)	MJ	0	0	0	0	0	0
Use of net fresh water (FW)	m^3	7.9E-02	4.12E-04	1.17E-03	5.12E-05	1.01E-03	-7.53E-02

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A1: 1 piece TS 93 EN 2-5 incl. G-N

Parameter	Unit	A1-A3	A4	A5	C2	C3	D
Hazardous waste disposed (HWD)	kg	9.66E-05	1.99E-07	2.2E-09	2.84E-08	6.13E-08	-3.53E-07
Non hazardous waste disposed (NHWD)	kg	2E+00	3.58E-04	1.24E-02	4.31E-05	2.35E-02	-1.33E+00
Radioactive waste disposed (RWD)	kg	8.56E-03	1.83E-05	7.55E-06	1.05E-06	5.74E-06	-4.47E-03
Components for re-use (CRU)	kg	0	0	0	0	0	0
Materials for recycling (MFR)	kg	1.36E+00	0	0	0	4.08E+00	0
Materials for energy recovery (MER)	kg	0	0	1.9E-03	0	1.82E-01	0
Exported electrical energy (EEE)	MJ	0	0	6.1E-01	0	4.4E-01	0
Exported thermal energy (EET)	MJ	0	0	1.11E+00	0	1.08E+00	0

6. LCA: Interpretation



All /CML/ indicators are significantly dominated by the production stage and the material and energetic upstream chains (module A1-A3). Transport from the gate to the construction phase (module A4) also has a significant impact, especially on the environmental impact categories EP, AP and POCP.

Global warming potential (GWP) is dominated by the aluminum (46 %) and grey cast iron (19 %).

Paper and cardboard used for packaging have the highest impact (86 %) on **ozone depletion potential (ODP).**

The container ship transport in module A4 has a significant impact (37 %) on **acidification potential (AP)**. This is followed by aluminum (36 %) and ship transport in module A1-A3 (9 %).

Eutrophication potential (EP) is dominated by the container ship transport in module A4 (39 %), aluminum (24 %) and ship transport in module A1-A3 (9 %).

Formation potential of tropospheric ozone photochemical oxidants (POCP) is dominated by aluminum (40 %), the container ship transport in modules A4 (35 %) and A1-A3 (9 %).

Aluminum (61 %) and zinc (31 %) have the highest impact on the **abiotic depletion potential for non-fossil resources (ADPE)**.

Abiotic depletion potential for fossil resources (ADPF) is dominated by aluminum (46 %), followed by grey cast iron (15 %), electricity (7 %) and ship transport in module A1-A3 (7 %).

7. Requisite evidence

This Environmental Product Declaration does not require any evidence relating to the material composition of the product and its area of applicability.

8. References

/EN 1154/
DIN EN 1154: 2003-04: Building hardware – Controlled door closing devices – Requirements and test methods (includes amendment A1:2002); German version EN 1154:1996 + A1:2002

/EN 1155/
DIN EN 1155: 2003-04: Building hardware – Electrically-powered hold-open devices for swing doors – Requirements and test methods (includes amendment A1:2002); German version EN 1155:1997 + A1:2002

/EN 1158/
DIN EN 1158:2003-04: Building hardware – Door coordinator devices – Requirements and test methods (includes amendment A1:2002); German version EN 1158:1997 + A1:2002

/EN 13501-2/
DIN EN 13501-2:2016-12: Fire classification of construction products and building elements - Part 2: Classification using data from fire resistance tests, excluding ventilation services; German version EN 13501-2:2016

/EN 14600/
DIN EN 14600:2006-03: Doorsets and openable windows with fire resisting and/or smoke control characteristics - Requirements and classification; German version EN 14600:2005

/EN 14637/
DIN EN 14637:2008-07: Building hardware - Electrically controlled hold-open systems for fire/smoke door assemblies - Requirements, test methods, application and maintenance; German version EN 14637:2007

/DIN 18040/
DIN 18040-1:2010-10: Construction of accessible buildings - Design principles - Part 1: Publicly accessible buildings

/ISO 9001/
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/ISO 14001/
DIN EN ISO 14001:2009-11: Environmental management systems – Requirements with guidance for use (/ISO 14001/:2004 + Cor. 1:2009)

/ISO 50001/
DIN EN ISO 50001:2018-12: Energy management systems - Requirements with guidance for use (ISO 50001:2018); German version EN ISO 50001:2018

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/ECHA/
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/Ecoinvent/
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/EWC/
European Waste Catalogue: Commission Decision on the European List of Waste (COM 2000/532/EC)

/GaBi 9.2/
GaBi 9.2. Software System and Holistic Accounting Database, Version 9.2.0.58. Stuttgart, Echterdingen: thinkstep AG, Service Package/SP 39 [accessed 27.09.2019].

/PCR Part A/
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/PCR: B/
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