Environmental Product Declaration

In accordance with ISO 14025 and EN 15804+A1 for:

Wooden door

from

Daloc

Programme:	The International EPD® System www.environdec.com
Programme operator:	EPD International AB
EPD owner	Daloc, Box 43 54521 Töreboda
EPD registration number:	S-P-01392
First date of publication:	2019-01-15
Validity date:	2024-01-14
Geographical scope:	Europe
PCR used	PCR 2012:01. Construction products and construction services. Version 2.2. of 2017-05-30

Wooden door with wood frame

Wooden door with wood frame – glass

Wooden door with steel frame

Wooden door with steel frame - glass

General information

Information about the organization

Owner of the EPD:
Daloc AB, +46 506-19000, daloc@daloc.se, Box 43 54521 Töreboda.

Product-related or management system-related certifications:
Daloc is quality- and environmental certified according to ISO 9001 and ISO 14001.

Name and location of production site:
Daloc Trädörrar AB, Töreboda.

About the company

The Daloc Group comprises several companies whose products and services complement each other. The Group develops, manufactures and markets steel and wooden doors. Daloc AB, Daloc Trädörrar AB, Orresta Dörr AB and Secor AB, which are franchisors to the Secor chain, operate under the parent company Daloc Futura AB. All products are manufactured in our state-of-the-art facilities in Sweden. The doors are sold via our dealers and our own sales offices in the Nordic countries and established channels in other European countries.

Product information

Product name:
Daloc Wooden door T48 and T65 (model names). The customer can make specific choices about for instance to include glass or not. Based on this the four different product types have been generated (see *Product types)*.

Product description:
Solid door suitable for use in areas when the requirements for sound reduction are high while the door must also be fire resistant. The wooden doors are common in public areas such as offices, schools, hospitals, surgeries and sports halls. The life span of the door is depending on door model, operation, maintenance and surrounding environment. In correct condition the doors life span is expected to be more than 25 years (excluding wear parts, such as seals and hardware). Technical standards met and other product information can be seen for each door model in the door catalog on Dalocs website, https://www.daloc.se/arkitekter-byggare/dokumentation.html.

UN CPC code:
316 – Builders' joinery and carpentry of wood (including cellular wood panels, assembled parquet panels, shingles and shakes)

Geographical scope:
Europe

LCA information

PCR used:
The PCR (Product category rules) that has been used in this EPD is *PCR 2012:01. Construction products and construction services. Version 2.2. of 2017-05-30*

Declared unit:
One wooden door delivered to the customer.

Time representativeness:
Most production data are from the years 2017 and 2018, the database data are from 2011 – 2017 and no data is older than 10 years.

Database(s) and LCA software used:
Databases used are mainly Ecoinvent 3.4 and Thinkstep´s own database from 2017. The LCA software used in is GaBi 8.

Data quality:
The quality of the data is judged to be good, since it is up to date data and it is collected directly from the production site.

System diagram:
A flowchart of the system is presented in the figure below.

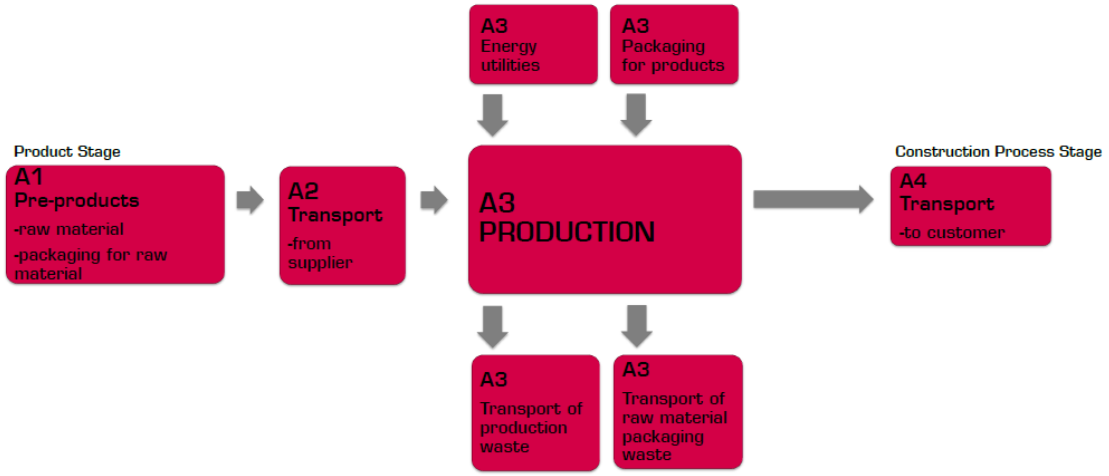


Figure 1 – Flow chart of the system

- Module A1: Several raw materials for the wooden doors are produced, including packaging material.
- Module A2: Raw materials and packaging are transported to the production site at Daloc in Töreboda.
- Module A3: The raw materials are assembled in several production steps with wooden doors as the output in the production process.
- Module A4: Transport of manufactured wooden doors to customer.

Description of system boundaries and delimitations:
This study is a so called *cradle-to-gate with options* according to the definition in the PCR used. All life cycle impacts until the transport to the customer are included, see flowchart above. According to the PCR used the Polluter Pays Principle is applied in the system. For the waste management, this means that impacts occurring at the material recycling plant shall be allocated to the next life cycle. The life cycle starts by extracting raw materials used for the products, which in defining the boundary towards the nature.

The product is only produced at one production site, in Töreboda, Sweden, sold by Daloc Trädörrar AB.

There are several design options for the door to be produced. In order to capture the different options, results for four alternative design options are presented in the results, from *Alternative 1* to *Alternative 4*. This is further elaborated on in the section *Product types*.

Life cycle stages, included and excluded:
The life cycle stages included are A1-A4.

The life cycle stages excluded are A5, B1-B7, C1-C4 and D.

See table in the section presenting the *Product system*.

Allocations made:
Waste wood from the wooden door production is generating heat to the production via a nearby incineration plant. The wooden door production does not need all the energy generated. The remainder is transferred to the steel door production. In a similar manner, the corresponding environmental burden of the wood is transferred to the steel door production. By this procedure, allocations could be avoided.

Data used:
Site-specific production data have been retrieved for 2017 and 2018 from the production site. Some of the data are modelled by using EPDs in the model calculations (for instance Fritz EGGER, 2014). In some cases generic data has been used from databases such as Ecoinvent 3.4 and Thinksteps database from 2017.

100 % of the material used and declared by Daloc has been covered in the analysis, i.e. no cut-off or omissions have been made.

Raw materials:
The raw materials used in each product type are presented below, as percentage of total weight.

Raw material	Alternative 1 - Wooden door with wood frame (%)	Alternative 2 - Wooden door with wood frame - glass (%)	Alternative 3 - Wooden door with steel frame (%)	Alternative 4 - Wooden door with steel frame - glass (%)
Chip board	25.5	19.7	8.6	7.4
Solid wood	35.0	13.8	31.3	12.4
Flax particle board	29.0	6.4	25.3	5.9
Glass	0.0	52.7	0.0	46.9
Laminate	4.2	2.5	3.5	2.5
Adhesive	1.1	0.7	0.9	0.7
Waterbourne paint	1.0	0.7	0.4	0.3
Plastic	1.3	0.9	1.2	0.6
Mild steel	3.0	2.5	27.3	22.2
Mineral wool	0.0	0.0	1.5	1.0
Total	100	100	100	100

Packaging:
Packaging materials are used both for protecting the raw material used and the product delivered to the customer. The main packaging materials for the raw material are corrugated board, wooden pallets and plastic. The main raw materials for the products are corrugated board and wooden pallets.

Transportation:
The transportation included in this study are transport of raw materials and its packaging, products to customers and its packaging and waste materials from the production site. The transport is mainly carried out by truck and in some cases by boat. Weighted averages for all transport distances and modes for the raw materials were calculated per declared unit.

Energy utilities:
Both electricity and heat are used at the production sites. The specific mix used at the production has been collected from Daloc. All heat is generated from the wood incineration plant at the facility. Oil is also used at the facility, but not for heating purposes. The oil is used for regulating the moisture content in the wood to cope with the small tolerances in the production. About half of the electricity consumed is bought as hydropower certificates. The model calculation is based on Vattenfall´s EPD for hydropower and has a global warming potential of 1 kWh electricity10.5 g CO2e. The remainder is a residual electricity mix, based on 42.77% fossil, 40.55% nuclear and 16.68% renewable sources[1].

Secondary material:
The secondary materials used in the wooden door production are mainly wood and recycled carbon steel scrap.

Secondary fuel:
No secondary fuel is used

Direct emissions from production site:
There are four different solvents emitted to the air from the site. These are: 2-butoxietanol, 2-(2-butoxietoxi)etanol, 2-dimetylaminoetanol and 2-metylpropan-1-ol.

Waste:
Wastes are generated from the packaging used for the raw materials as well as from the production. Packaging material for raw materials are mainly wooden pallets, cardboard and plastic. Production waste could consist of for example of scrap-metal and color residues in water.

Scenario for module A4:
According to the PCR followed scenario description for module A4 shall be included. Below table presents the details on the product transport to the customers.

Vehicle type used for transport	**Vehicle load capacity**	**Fuel type and consumption**	**Capacity utilisation (%)**	**Distance to construction site (km)**	**Bulk density of transported products**
Long distance truck	17 tonne payload	Diesel, 3.7 l/10 km.	85	440	Unknown.

Product types:
Daloc is manufacturing different types of wooden doors. To cover a broad product portfolio the result is presented for four different types of wooden doors. These are:

For each alternative below, the surface layer of the door leaf could the covered by paint, laminate or veneer. To avoid too many alternatives an average is assumed where the surface layer of the door is covered by 1/3 of each material. This is except from the alternatives where the door leaf is partly covered by glass.

[1] https://www.ei.se/sv/for-energiforetag/el/ursprungsmarkning-av-el/#hanchor1

- **Alternative 1**

Wooden door with wood frame

Description:

The door leaf and the door frame are made of wooden products. Weight: 53 kg. See picture below.

- **Alternative 2**

Wooden door with wood frame – glass

The door leaf and the door frame are made of wooden products. A glass sheet is attached in the door leaf. Weight: 73 kg. See picture below.

- **Alternative 3**

Wooden door with steel frame

Description:

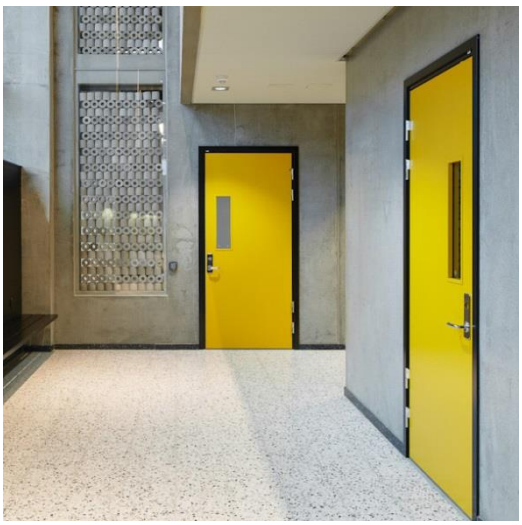
The door leaf is made of wooden products and the door frame is made of carbon steel. Weight: 62 kg. See picture below.

- **Alternative 4**

Wooden door with steel frame - glass

Description:

The door leaf is made of wooden products and the door frame is made of carbon steel. A glass sheet is attached in the door leaf. Weight: 82 kg. See picture below.



Separate tables for these four alternatives are presented in the section *Environmental Performance*.

Co-products:

No co-products produced.

Recycling of product:

When the product no longer will be used, remove it by removing the fasteners used during installation. For further information on waste management, see the construction product declarations available on Dalocs website, https://www.daloc.se/.

More information:
This Environmental Product Declaration (EPD) has been carried out by IVL Swedish Environmental Research Institute. This EPD is in accordance with ISO 14025 and EN 15804. It is a third party externally verified document that reports environmental data of products based on Life Cycle Assessment (LCA) and other relevant information.

Guidance on safe and effective installation, use and disposal of the product can be supplied by Daloc.

For more information about Daloc see https://www.daloc.se/.

Product system

The life cycle stages included in the analysis is illustrated in the table below, according to EN15804. If a stage is included, it is indicated with an ”X” and if it is not included ”MND” (Module Not Declared) is noted.

Product stage			**Construction process stage**		**Use stage**							**End of life stage**					**Resource recovery stage**
Raw material	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction, demolition	Transport	Waste processing	Disposal		Reuse, recycling or energy recovery potentials
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4		D
X	X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND		MND

Content declaration

For construction product EPDs compliant with EN 15804, the content declaration shall list, as a minimum, substances contained in the products that are listed in the “Candidate List of Substances of Very High Concern for Authorisation” when their content exceeds the limits for registration with the European Chemicals Agency.

No substances occur on the REACH candidate list of SVHC (Candidate List of Substances of Very High Concern) in the products of the EPD.

Environmental performance

Alternative 1 – Wooden door with wood frame

Below results are representative for 1 wooden door (alternative 1) delivered to the customer.

Potential environmental impact

PARAMETER	UNIT	A1	A2	A3	A1-A3	A4	A1-A4*
Global warming potential (GWP)	kg CO_2 eq.	28	2.3	19	49	1.4	50
Acidification potential (AP)	kg SO_2 eq.	0.10	0.01	0.04	0.15	3.2E-03	0.15
Eutrophication potential (EP)	kg PO_4^{3-} eq.	0.06	1.8E-03	0.02	0.08	8.0E-04	0.08
Formation potential of tropospheric ozone (POCP)	kg C_2H_4 eq.	0.01	-1.3E-03[2]	0.03	0.04	-1.1E-03	0.04
Ozone layer depletion potential (ODP)	kg R11-e	8.0E-09	6.1E-14	4.3E-07	4.4E-07	3.8E-14	4.4E-07
Abiotic depletion potential – Elements	kg Sb eq.	4.8E-05	1.7E-07	4.8E-07	4.9E-05	1.1E-07	4.9E-05
Abiotic depletion potential – Fossil resources	MJ, net calorific value	465	31	208	703	19	722

* Additional information

Use of resources

PARAMETER		UNIT	A1	A2	A3	A1-A3	A4	A1-A4*
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	649	1.5	669	1226	1.0	1321
	Used as raw materials	MJ, net calorific value	9.0	0	116	125	0	125
	TOTAL	MJ, net calorific value	658	1.5	785	1351	1.0	1446
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	461	31	290	782	19	800
	Used as raw materials	MJ, net calorific value	0.34	1.5E-03	4.0E-04	0.34	1.0E-03	0.34
	TOTAL	MJ, net calorific value	461	31	290	782	19	801
Secondary material		kg	23	0	5.0	27	0	27
Renewable secondary fuels		MJ, net calorific value	-	-	-	-	-	-
Non-renewable secondary fuels		MJ, net calorific value	-	-	-	-	-	-
Net use of fresh water		m^3	0.13	2.8E-03	0.10	0.23	1.9E-03	0.23

* Additional information

Waste production and output flows

Waste production

PARAMETER	UNIT	A1	A2	A3	A1-A3	A4	A1-A4*
Hazardous waste disposed	kg	3.4E-03	1.6E-06	0.01	0.01	1.1E-06	0.01
Non-hazardous waste disposed	kg	1.02	2.3E-03	6.8	7.8	1.6E-03	7.8
Radioactive waste disposed	kg	0.02	4.2E-05	0.03	0.05	2.6E-05	0.05

* Additional information

[2] Probably an overestimation in the NO-emissions to air and an underestimation in the NO_2 emissions to air in the Thinkstep data set used. NO has a reducing POCP effect as it reduces the ozone level. The same can be found for all transports, i.e. A2 and A4 for all products.

Alternative 2 – Wooden door with wood frame – glass

Below results are representative for 1 wooden door (alternative 2) delivered to the customer.

Potential environmental impact

PARAMETER	UNIT	A1	A2	A3	A1-A3	A4	A1-A4*
Global warming potential (GWP)	kg CO_2 eq.	65	2.8	19	87	1.9	89
Acidification potential (AP)	kg SO_2 eq.	0.43	0.01	0.04	0.48	4.3E-03	0.49
Eutrophication potential (EP)	kg PO_4^{3-} eq.	0.06	1.9E-03	0.02	0.09	1.1E-03	0.09
Formation potential of tropospheric ozone (POCP)	kg C_2H_4 eq.	0.01	-1.8E-03	0.03	0.04	-1.5E-03	0.04
Ozone layer depletion potential (ODP)	kg R11-e	4.7E-09	7.4E-14	4.3E-07	4.4E-07	5.2E-14	4.4E-07
Abiotic depletion potential – Elements	kg Sb eq.	1.5E-04	2.1E-07	4.8E-07	1.6E-04	1.6E-07	1.6E-04
Abiotic depletion potential – Fossil resources	MJ, net calorific value	907	37	208	1151	26	1177

* Additional information

Use of resources

PARAMETER		UNIT	A1	A2	A3	A1-A3	A4	A1-A4*
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	377	1.9	669	954	1.4	1049
	Used as raw materials	MJ, net calorific value	9.0	0	116	125	0	125
	TOTAL	MJ, net calorific value	386	1.9	785	1079	1.4	1174
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	924	37	290	1251	26	1277
	Used as raw materials	MJ, net calorific value	0.11	1.9E-03	4.0E-04	0.12	1.4E-03	0.12
	TOTAL	MJ, net calorific value	924	37	290	1251	26	1277
Secondary material		kg	14	0	5.0	19	0	19
Renewable secondary fuels		MJ, net calorific value	-	-	-	-	-	-
Non-renewable secondary fuels		MJ, net calorific value	-	-	-	-	-	-
Net use of fresh water		m^3	0.17	3.5E-03	0.10	0.28	2.6E-03	0.28

* Additional information

Waste production and output flows

Waste production

PARAMETER	UNIT	A1	A2	A3	A1-A3	A4	A1-A4*
Hazardous waste disposed	kg	3.5E-03	2.0E-06	0.01	0.01	1.5E-06	0.01
Non-hazardous waste disposed	kg	4.1	2.9E-03	6.8	11	2.2E-03	11
Radioactive waste disposed	kg	0.02	5.0E-05	0.03	0.06	3.5E-05	0.06

* Additional information

Alternative 3 – Wooden door with steel frame

Below results are representative for 1 wooden door (alternative 3) delivered to the customer.

Potential environmental impact

PARAMETER	UNIT	A1	A2	A3	A1-A3	A4	A1-A4*
Global warming potential (GWP)	kg CO_2 eq.	64	4.1	19	87	1.6	88
Acidification potential (AP)	kg SO_2 eq.	0.18	0.01	0.04	0.23	3.7E-03	0.24
Eutrophication potential (EP)	kg PO_4^{3-} eq.	0.06	3.3E-03	0.02	0.09	9.3E-04	0.09
Formation potential of tropospheric ozone (POCP)	kg C_2H_4 eq.	0.02	-2.3E-03	0.03	0.05	-1.2E-03	0.05
Ozone layer depletion potential (ODP)	kg R11-e	-1.2E-07	1.1E-13	4.3E-07	3.1E-07	4.4E-14	3.1E-07
Abiotic depletion potential – Elements	kg Sb eq.	2.1E-04	3.1E-07	4.8E-07	2.1E-04	1.3E-07	2.1E-04
Abiotic depletion potential – Fossil resources	MJ, net calorific value	797	56	208	1060	22	1082

* Additional information

Use of resources

PARAMETER		UNIT	A1	A2	A3	A1-A3	A4	A1-A4*
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	666	2.7	669	1245	1.2	1340
	Used as raw materials	MJ, net calorific value	9.0	0	116	125	0	125
	TOTAL	MJ, net calorific value	675	2.7	785	1369	1.2	1465
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	816	56	290	1162	22	1184
	Used as raw materials	MJ, net calorific value	0.37	2.6E-03	4.0E-04	0.38	1.2E-03	0.38
	TOTAL	MJ, net calorific value	817	56	290	1162	22	1184
Secondary material		kg	22	0	5.0	27	0	27
Renewable secondary fuels		MJ, net calorific value	-	-	-	-	-	-
Non-renewable secondary fuels		MJ, net calorific value	-	-	-	-	-	-
Net use of fresh water		m^3	0.15	4.9E-03	0.10	0.25	2.2E-03	0.25

* Additional information

Waste production and output flows

Waste production

PARAMETER	UNIT	A1	A2	A3	A1-A3	A4	A1-A4*
Hazardous waste disposed	kg	2.1E-03	2.8E-06	0.01	0.01	1.3E-06	0.01
Non-hazardous waste disposed	kg	3.2	4.0E-03	6.8	9.9	1.8E-03	9.9
Radioactive waste disposed	kg	0.02	7.4E-05	0.03	0.05	3.0E-05	0.05

* Additional information

Alternative 4 – Wooden door with steel frame - glass

Below results are representative for 1 wooden door (alternative 4) delivered to the customer.

Potential environmental impact

PARAMETER	UNIT	A1	A2	A3	A1-A3	A4	A1-A4*
Global warming potential (GWP)	kg CO_2 eq.	104	4.7	19	128	2.1	130
Acidification potential (AP)	kg SO_2 eq.	0.51	0.01	0.04	0.57	4.9E-03	0.58
Eutrophication potential (EP)	kg PO_4^{3-} eq.	0.07	3.5E-03	0.02	0.10	1.2E-03	0.10
Formation potential of tropospheric ozone (POCP)	kg C_2H_4 eq.	0.02	-2.8E-03	0.03	0.05	-1.6E-03	0.05
Ozone layer depletion potential (ODP)	kg R11-e	-1.3E-07	1.2E-13	4.3E-07	3.0E-07	5.8E-14	3.0E-07
Abiotic depletion potential – Elements	kg Sb eq.	3.3E-04	3.6E-07	4.8E-07	3.3E-04	1.8E-07	3.3E-04
Abiotic depletion potential – Fossil resources	MJ, net calorific value	1266	63	208	1537	29	1566

* Additional information

Use of resources

PARAMETER		UNIT	A1	A2	A3	A1-A3	A4	A1-A4*
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	389	3.1	669	1061	1.6	1063
	Used as raw materials	MJ, net calorific value	9.0	0	116	125	0	125
	TOTAL	MJ, net calorific value	398	3.1	785	1186	1.6	1188
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	1305	63	290	1658	29	1687
	Used as raw materials	MJ, net calorific value	0.15	3.1E-03	4.0E-04	0.15	1.6E-03	0.15
	TOTAL	MJ, net calorific value	1305	63	290	1659	29	1688
Secondary material		kg	14	0	5.0	18	0	18
Renewable secondary fuels		MJ, net calorific value	-	-	-	-	-	-
Non-renewable secondary fuels		MJ, net calorific value	-	-	-	-	-	-
Net use of fresh water		m^3	0.19	5.8E-03	0.10	0.30	2.9E-03	0.30

* Additional information

Waste production and output flows

Waste production

PARAMETER	UNIT	A1	A2	A3	A1-A3	A4	A1-A4*
Hazardous waste disposed	kg	1.9E-03	3.3E-06	0.01	0.01	1.7E-06	0.01
Non-hazardous waste disposed	kg	6.4	4.8E-03	6.8	13.1	2.4E-03	13.1
Radioactive waste disposed	kg	0.02	8.5E-05	0.03	0.06	4.0E-05	0.06

* Additional information

Global warming potential (GWP)

The raw materials (module A1) were identified as hotspot for the product for several environmental impact categories. To exemplify this, the Global warming potential for the different alternatives are presented in the pie charts below. A1 is subdivided and the separate raw materials are presented, (e.g. mild steel and adhesives etc.) and the transport modules A2 & A4 are presented aggregated. A3 is also a major contributor, also presented separately.

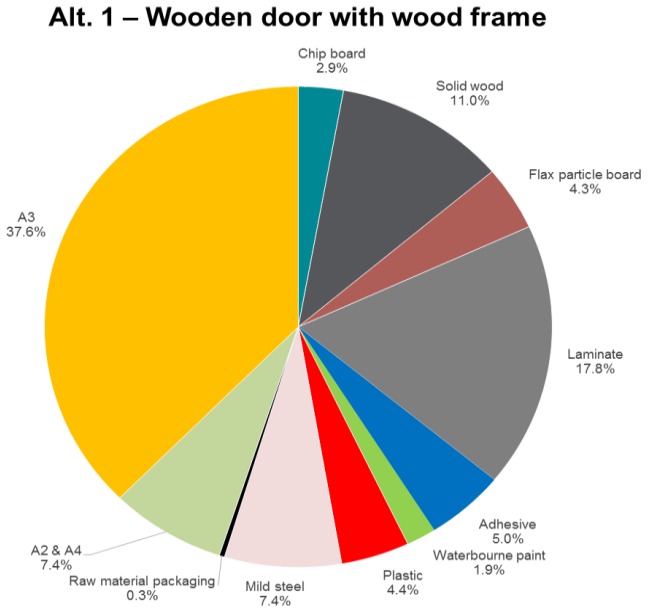


Figure 2 – Alternative 1 – Wooden door with wood frame

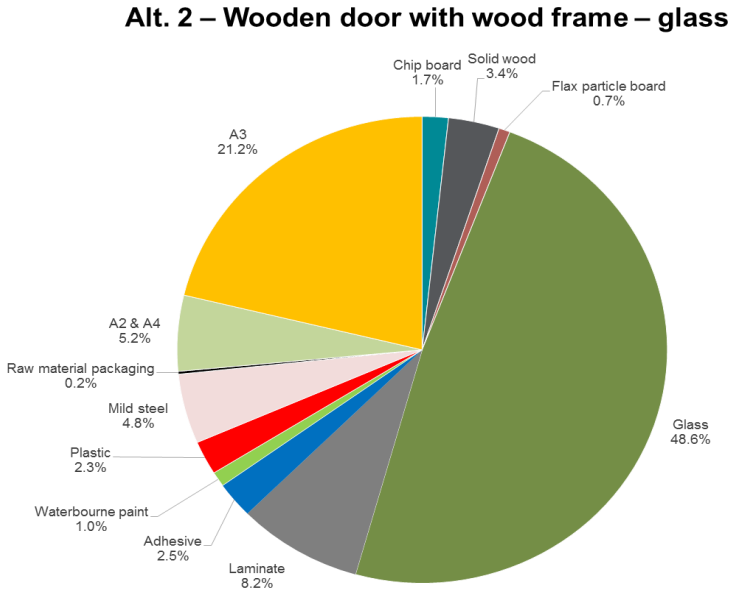


Figure 3 – Alternative 2 – Wooden door with wood frame – glass

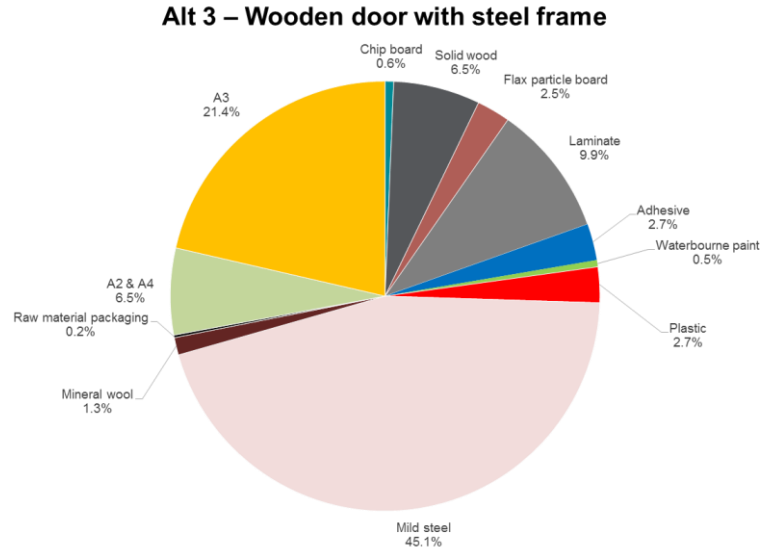


Figure 4 – Alternative 3 – Wooden door with steel frame

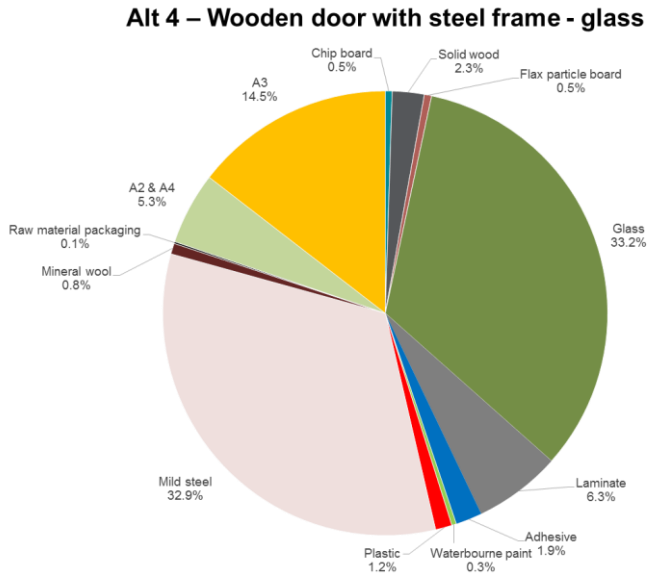


Figure 5 – Alternative 4 – Wooden door with steel frame – glass

Additional information

Four different volatile organic compounds (VOC) are used in the production[3]. Most of the VOC are emitted to air in the door manufacturing before the use-phase. Measurements according to SS-EN ISO 16000-9:2006 regarding volatile organic compounds (VOC and VVOC/SVOC), carcinogenic substances and formaldehyde after 28 days have been performed on the wooden doors. The tested doors are in compliance with the tested requirements of M1 and with the Recommended class according to Byggvarubedömningen (RISE, 2018).

[3] 2-butoxietanol, 2-(2-butoxietoxi)etanol, 2-dimetylaminoetanol, 2-metylpropan-1-ol.

Programme-related information and verification

The EPD owner has the sole ownership, liability, and responsibility for the EPD. Environmental product declarations within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804.

Programme:	The International EPD® System EPD International AB Box 210 60 SE-100 31 Stockholm Sweden www.environdec.com info@environdec.com
EPD registration number:	S-P-01392
Published:	2019-01-15
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Product Category Rules:	PCR 2012:01. Construction products and construction services. Version 2.2 of 2017-05-30
Product group classification:	UN CPC 316 – Builders' joinery and carpentry of wood (including cellular wood panels, assembled parquet panels, shingles and shakes)
Reference year for data:	2017
Geographical scope:	Europe

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product category rules (PCR): PCR 2012:01. Construction products and construction services. Version 2.2 of 2017-05-30.
PCR review was conducted by: The Technical Committee of the International EPD® System. Chair: Massimo Marino. Contact via info@environdec.com
Independent third-party verification of the declaration and data, according to ISO 14025:2006: ☐ EPD process certification ☒ EPD verification
Third party verifier: Carl-Otto Nevén, NEVÉN Miljökonsult, carlotto.neven@bredband.net Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: ☒ Yes ☐ No

References

- Ecoinvent (2017). Ecoinvent 3.4. https://www.ecoinvent.org/database/ecoinvent-34/ecoinvent-34.html
- EN 15804:2012+A1:2013, Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.
- Fritz EGGER (2014) EUROSPAN® Raw Chipboard. https://epd-online.com/
- General Programme Instructions of the International EPD® System. Version 3.0 of 11/12/2017.
- PCR 2012:01. Construction products and construction services. Version 2.2 of 2017-05-30
- LCA Methodology Report for EPD of steel- and wooden doors – Daloc
- RISE (Research Institutes of Sweden AB). (2018) Assessment, reference 7P04246.
- Thinkstep (2017). GaBi Databases. http://www.gabi-software.com/international/databases/gabi-databases/
- ThinkStep (2018) Gabi 8 (LCA software).

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