

Owner: Stykka ApS  
No.: MD-24011-EN  
Issued: 04-04-2024  
Valid to: 04-04-2029

3<sup>rd</sup> PARTY VERIFIED

**EPD**

VERIFIED ENVIRONMENTAL PRODUCT DECLARATION | ISO 14025 & EN 15804



**Owner of declaration**

Stykka ApS  
 Fabriksparken 1  
 2600 Glostrup  
 Denmark  
 33587740



**Issued:**

04-04-2024

**Valid to:**

04-04-2029

**Programme**

EPD Danmark  
[www.epddanmark.dk](http://www.epddanmark.dk)



- Industry EPD
- Product EPD

**Basis of calculation**

This EPD is developed in accordance with the European standard EN 15804+A2.

**Comparability**

EPDs of construction products may not be comparable if they do not comply with the requirements in EN 15804. EPD data may not be comparable if the datasets used are not developed in accordance with EN 15804 and if the background systems are not based on the same database.

**Validity**

This EPD has been verified in accordance with ISO 14025 and is valid for 5 years from the date of issue.

**Use**

The intended use of an EPD is to communicate scientifically based environmental information for construction products, for the purpose of assessing the environmental performance of buildings.

**Declared product(s)**

The declared product is one sample kitchen of a type frequently sold by Stykka. Electrical appliances, sinks and water taps are also typically part of the equipment in a kitchen but are not included in the scope of this EPD as they are retrofitted and not supplied by Stykka.

Number of declared datasets/product variations: 1

**Production site**

Fabriksparken 1  
 2600 Glostrup  
 Denmark

**Product(s) use**

A kitchen is a designated space within a household or commercial setting that is used for food preparation, cooking, and other related activities. It typically consists of various components such as cabinets, countertops, and storage areas, designed to facilitate cooking and meal preparation.

**Declared/ functional unit**

1 unit of a kitchen

**Year of production site data (A3)**

2022

**EPD version**

1

**EPD type**

- Cradle-to-gate with modules C1-C4 and D
- Cradle-to-gate with options, modules C1-C4 and D
- Cradle-to-grave and module D
- Cradle-to-gate
- Cradle-to-gate with options

CEN standard EN 15804 serves as the core PCR
Independent verification of the declaration and data, according to EN ISO 14025
<input type="checkbox"/> internal <input checked="" type="checkbox"/> external
Third party verifier:
 Guangli Du

Martha Katrine Sørensen  
 EPD Danmark

**Life cycle stages and modules (MND = module not declared)**

Product			Construction process		Use								End of life				Beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport	Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Re-use, recovery and 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	MND	MND	MND	MND	MND	X	X	X	X	X	

# Product information

## Product description

The main product components are shown in the table below.

Material	Weight-% of declared product
Birch Plywood WBP	71,0%
Countertop (particle board)	16,3%
Stamped and bent sheet metal	7,3%
Polyamide parts	2,6%
Linoleum	1,3%
UV Varnish	1,1%
Linoleum adhesive	0,2%
PVC parts	0,1%
Fastening materials (steel)	0,1%

The kitchen is comprised of the following key components:

- 1x Tall cabinet with space for a fridge and a freezer
- 1x Tall oven cabinet with base and top shelf storage
- 2x Base cabinet with shelf
- 1x Base cabinet with two drawers
- 1x Sink cabinet with shelf storage
- 1x Base cabinet with three drawers
- 1x Countertop with dimensions 2860x625x20mm (Length, Height, Width)

## Product packaging:

The composition of the sales- and transport packaging of the product is shown in the table below.

Material	Weight-% of packaging
Cardboard	95,8%
PE foam	4,2%

## Picture of product(s)

## Representativity

This declaration, including data collection and the modeled foreground system including results, represents the production of 1 kitchen on the production site located in Glostrup, Denmark. Product specific data are based on product specific values collected in 2023. Background data are based on GaBi version 2023.1 and are less than 10 years old. Generally, the used background datasets are of high quality, and the majority of the datasets are only a couple of years old.

## Hazardous substances

The product does not contain substances listed on the "Candidate List of Substances of Very High Concern for authorisation"

(<http://echa.europa.eu/candidate-list-table>)

Last accessed: 01.12.2023

## Essential characteristics

The birch plywood used in this kitchen is FSC and PEFC certified.

Further technical information can be obtained by contacting the manufacturer or on the manufacturer's website: [www.stykka.com](http://www.stykka.com)

## Reference Service Life (RSL)

As the utilisation phase is not taken into account, a reference utilisation period is not specified. This kitchen is designed for disassembly and each part can be traced via a QR-code and refurbished individually. According to PCR, a typical service life for indoor storage furniture is 15 years.



# LCA background

## Declared unit

The LCI and LCIA results in this EPD relates to **1 unit of a kitchen** produced by Stykka.

Name	Value	Unit
Declared Unit	1	Unit
Total weight (excl. packaging)	341,4	kg
Conversion factor to 1 kg (with packaging)	0,00276	
Conversion factor to 1 kg (without packaging)	0,00293	

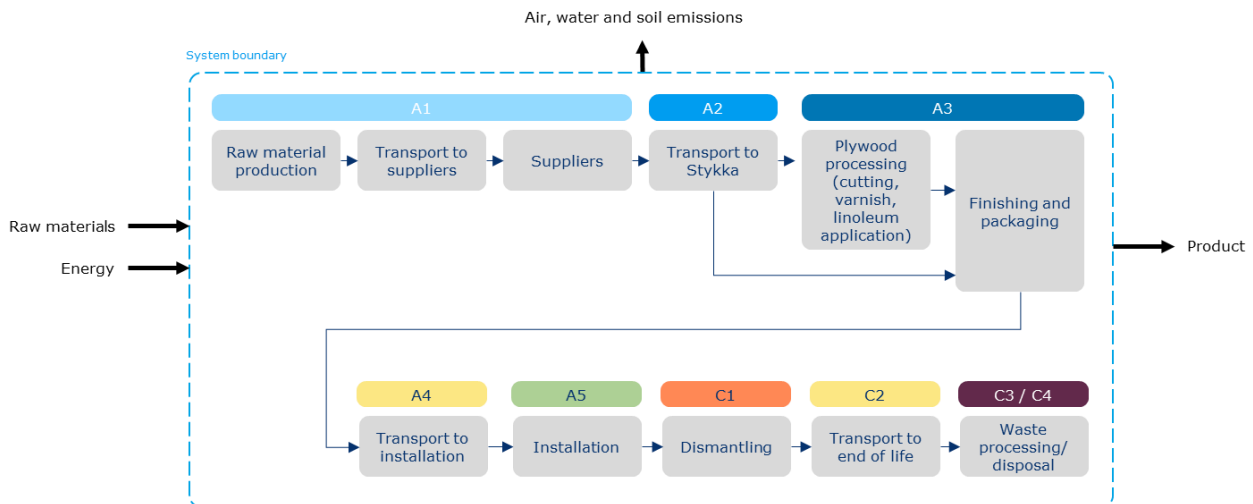
## Functional unit

Not defined

## PCR

This EPD is developed according to the core rules for the product category of construction

## Flowdiagram



products in EN 15804, and the product category rules “NPCR PART A: Construction products and services” together with “NPCR 026 Part B for Furniture” of EPD Norge

## Guarantee of Origin – certificates

Foreground system: There are no “Guarantees of Origin” certificates used in the production. Consumption of electricity modelled with residual-mix for electricity in Denmark.

Background system: Upstream and downstream processes are modelled using GaBi version 2023.1 datasets. For the electricity consumption, residual electricity mixes (DK) have been applied.

### System boundary

This EPD is based on a cradle-to-gate LCA with modules A4, A5, and C1-C4, in which 100 weight-% has been accounted for.

The general rules for the exclusion of inputs and outputs follows the requirements in EN 15804, 6.3.5, where the total of neglected input flows per module shall be a maximum of 5 % of energy usage and mass and 1 % of energy usage and mass for unit processes.

### Product stage (A1-A3) includes:

A1 – Extraction and processing of raw materials

A2 – Transport to the production site

A3 – Manufacturing processes

The product stage comprises the acquisition of all raw materials, products and energy, transport to the production site, packaging and waste processing up to the “end-of-waste” state or final disposal. The LCA results are declared in aggregated form for the product stage, which means, that the sub-modules A1, A2 and A3 are declared as one module A1-A3.

The plywood boards are cut to the required format using a CNC milling machine. They are then sealed with a UV varnish. In addition, the boards, which will later have visible surfaces, are covered with a furniture linoleum.

Other parts such as hinges, handles and connecting elements come from suppliers and are only used on the construction site as part of the installation.

### Construction process stage (A4-A5) includes:

All parts are transported together by lorry to the installation site and then assembled there. This is mainly done manually, sometimes using battery-powered tools such as cordless screwdrivers.

Plastic packaging is sent for incineration, while a large proportion of the cardboard (approx. 80%) is taken back and reused by Stykka. The remaining 20% is also incinerated.

### End of Life (C1-C4) includes:

The kitchen is removed manually and requires no use of electrically operated tools. At most, a cordless screwdriver is used for a few minutes. However, its influence is so small that it is cut off.

Module C2 accounts for the transportation of the kitchen components to its end-of-life route (recycling, reuse, incineration etc.). Distance to all these recycling and incineration facilities is to be 50 km.

As Stykka's business model is the reuse of kitchens and a take-back system is in place, all parts are returned to Stykka in this scenario.

10 % of all parts cannot be reused. Of this 10%, the wooden and plastic parts are sent for incineration with energy recovery. The metal parts are recycled, but with a loss rate of 10%.

### Re-use, recovery and recycling potential (D) includes:

The reused cardboard from A5 substitutes new cardboard. The incinerated cardboard as well as the incinerated PE foam generate credits for the produced electric and thermal energy.

The reused plywood panels substitute plywood panels made from primary material as well as the cutting and coating. Linoleum is not credited as it is being refurbished. It is ensured that the biogenic C is not considered and that only the loads from production of the plywood are credited.

The reused plastic parts are credited for both the substituted primary plastic (PA6 and PVC) and the injection moulding process. They are credited using the same production processes as in A1-A3.

The reused steel parts replace primary steel as well as the stamping and bending processes as in A1-A3.

# LCA results

ENVIRONMENTAL IMPACTS PER 1 KITCHEN									
Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	[kg CO <sub>2</sub> eq.]	-1,57E+02	3,49E+00	8,36E+00	1,99E+01	1,70E+00	5,56E+02	0,00E+00	-3,69E+02
GWP-fossil	[kg CO <sub>2</sub> eq.]	3,99E+02	3,50E+00	2,90E+00	1,97E+01	1,70E+00	5,28E+00	0,00E+00	-3,59E+02
GWP-biogenic	[kg CO <sub>2</sub> eq.]	-5,57E+02	-4,83E-02	5,46E+00	1,98E-01	-2,35E-02	5,50E+02	0,00E+00	-1,02E+01
GWP-Juluc	[kg CO <sub>2</sub> eq.]	6,84E-01	3,18E-02	2,58E-04	4,16E-03	1,55E-02	3,13E-04	0,00E+00	-5,03E-01
ODP	[kg CFC 11 eq.]	8,68E-07	4,47E-13	1,46E-12	4,94E-10	2,18E-13	1,44E-11	0,00E+00	-9,49E-10
AP	[mol H <sup>+</sup> eq.]	2,18E+00	1,69E-02	2,31E-03	3,71E-02	7,18E-03	7,20E-02	0,00E+00	-1,75E+00
EP-freshwater	[kg P eq.]	3,74E-03	1,26E-05	4,85E-07	1,57E-04	6,12E-06	3,77E-06	0,00E+00	-2,59E-03
EP-marine	[kg N eq.]	5,09E-01	8,04E-03	7,19E-04	1,24E-02	3,37E-03	3,43E-02	0,00E+00	-3,83E-01
EP-terrestrial	[mol N eq.]	5,32E+00	8,97E-02	1,08E-02	1,19E-01	3,77E-02	3,96E-01	0,00E+00	-3,93E+00
POCP	[kg NMVOC eq.]	1,44E+00	1,53E-02	1,84E-03	2,88E-02	6,52E-03	8,82E-02	0,00E+00	-1,14E+00
ADPm <sup>1</sup>	[kg Sb eq.]	3,22E-03	2,26E-07	1,24E-08	8,11E-06	1,10E-07	1,36E-07	0,00E+00	-2,91E-03
ADPf <sup>1</sup>	[MJ]	6,65E+03	4,68E+01	2,59E+00	2,64E+02	2,28E+01	4,29E+01	0,00E+00	-5,85E+03
WDP <sup>1</sup>	[m <sup>3</sup> world eq. deprived]	9,28E+01	4,15E-02	9,40E-01	2,32E+00	2,02E-02	1,45E+01	0,00E+00	-7,88E+01
Caption	GWP-total = Globale Warming Potential - total; GWP-fossil = Global Warming Potential - fossil fuels; GWP-biogenic = Global Warming Potential - biogenic; GWP-Juluc = Global Warming Potential - land use and land use change; ODP = Ozone Depletion; AP = Acidification; EP-freshwater = Eutrophication – aquatic freshwater; EP-marine = Eutrophication – aquatic marine; EP-terrestrial = Eutrophication – terrestrial; POCP = Photochemical zone formation; ADPm = Abiotic Depletion Potential – minerals and metals; ADPf = Abiotic Depletion Potential – fossil fuels; WDP = water depletion potential								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 <sup>2</sup> or 195, while 1,12E-11 is the same as 1,12*10 <sup>-11</sup> or 0,0000000000112.								
Disclaimer	<sup>1</sup> The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.								

ADDITIONAL ENVIRONMENTAL IMPACTS PER 1 KITCHEN									
Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	[Disease incidence]	3,76E-05	9,07E-08	1,31E-08	3,04E-07	4,08E-08	2,14E-07	0,00E+00	-2,64E-05
IRP <sup>2</sup>	[kBq U235 eq.]	3,08E+01	1,31E-02	7,89E-03	3,16E+00	6,39E-03	3,15E-01	0,00E+00	-2,70E+01
ETP-fw <sup>1</sup>	[CTUe]	3,52E+03	3,32E+01	1,11E+00	1,01E+02	1,62E+01	1,58E+01	0,00E+00	-2,57E+03
HTP-c <sup>1</sup>	[CTUh]	4,32E-05	6,80E-10	7,01E-11	1,35E-08	3,32E-10	1,02E-09	0,00E+00	-3,86E-05
HTP-nc <sup>1</sup>	[CTUh]	6,95E-06	4,49E-08	2,54E-09	1,34E-07	2,16E-08	3,57E-08	0,00E+00	-5,75E-06
SQP <sup>1</sup>	-	1,40E+05	1,96E+01	8,90E-01	4,61E+02	9,53E+00	1,06E+01	0,00E+00	-1,24E+05
Caption	PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Soil Quality (dimensionless)								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 <sup>2</sup> or 195, while 1,12E-11 is the same as 1,12*10 <sup>-11</sup> or 0,0000000000112.								
Disclaimers	<sup>1</sup> The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.								
	<sup>2</sup> This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.								

RESOURCE USE PER 1 KITCHEN									
Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	[MJ]	4,10E+03	3,41E+00	9,33E+01	7,01E+02	1,66E+00	8,75E+03	0,00E+00	-7,40E+03
PERM	[MJ]	5,19E+03	0,00E+00	-5,14E+01	0,00E+00	0,00E+00	-5,14E+03	0,00E+00	0,00E+00
PERT	[MJ]	9,28E+03	3,41E+00	4,19E+01	7,01E+02	1,66E+00	3,62E+03	0,00E+00	-7,40E+03
PENRE	[MJ]	6,32E+03	4,70E+01	4,07E+01	2,64E+02	2,29E+01	6,05E+02	0,00E+00	-5,85E+03
PENRM	[MJ]	3,34E+02	0,00E+00	-3,81E+01	0,00E+00	0,00E+00	-2,96E+02	0,00E+00	0,00E+00
PENRT	[MJ]	6,65E+03	4,70E+01	2,59E+00	2,64E+02	2,29E+01	3,09E+02	0,00E+00	-5,85E+03
SM	[kg]	1,67E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
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
FW	[m <sup>3</sup> ]	1,33E-03	6,33E-05	0,00E+00	0,00E+00	9,13E-06	1,52E-05	0,00E+00	-1,10E-04
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 = Net use of fresh water								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 <sup>2</sup> or 195, while 1,12E-11 is the same as 1,12*10 <sup>-11</sup> or 0,000000000112.								

WASTE CATEGORIES AND OUTPUT FLOWS PER 1 KITCHEN									
Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	[kg]	9,18E-03	1,45E-10	2,96E-11	-2,50E-07	7,09E-11	2,91E-09	0,00E+00	-8,26E-03
NHWD	[kg]	1,31E+01	7,16E-03	1,29E-01	1,06E+00	3,49E-03	1,13E+00	0,00E+00	-1,12E+01
RWD	[kg]	2,61E-01	8,79E-05	7,44E-05	2,78E-02	4,28E-05	1,98E-03	0,00E+00	-2,24E-01
CRU	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,54E+02	0,00E+00	0,00E+00
MFR	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,69E+00	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
EEE	[MJ]	0,00E+00	0,00E+00	4,06E+01	0,00E+00	0,00E+00	1,61E+02	0,00E+00	0,00E+00
EET	[MJ]	0,00E+00	0,00E+00	9,43E+01	0,00E+00	0,00E+00	2,87E+02	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								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 <sup>2</sup> or 195, while 1,12E-11 is the same as 1,12*10 <sup>-11</sup> or 0,000000000112.								

BIOGENIC CARBON CONTENT PER 1 KITCHEN		
Parameter	Unit	At the factory gate
Biogenic carbon content in product	[kg C]	143,13
Biogenic carbon content in accompanying packaging	[kg C]	8,46
Note	1 kg biogenic carbon is equivalent to 44/12 kg of CO <sub>2</sub>	



## Additional information

### LCA interpretation

Despite the significantly larger mass of wood-based materials in the product (305 kg), the metal and plastic parts (37 kg in total) have a significant share in the results of the impact categories. In terms of fossil GWP, they contribute 46% (metal parts) and 18% (PA6 parts) to the result in A1-A3, while plywood follows in third place with 16%. The picture is very similar for the other impact indicators. Here too, the metal parts are mainly responsible for the impacts, followed by plywood and plastic parts.

### Technical information on scenarios

#### Transport to the building site (A4)

Scenario information	Value	Unit
Fuel type	Diesel	-
Vehicle type	Truck (26 t total cap., 17.3t payload, EURO 5)	-
Payload distance	12.635	kgkm
Capacity utilisation (including empty runs)	25	%

#### Installation of the product in the building (A5)

Scenario information	Value	Unit
Electricity consumption	0,17	kWh
Waste materials	20,611	kg
Fuel type(waste transport)	Diesel	-
Vehicle type (waste transport)	Truck (26 t total cap., 17.3t payload, EURO 5)	-
Distance (waste transport)	50	km
Capacity utilisation (including empty runs)	55	%

#### End of life (C1-C4)

Scenario information	Value	Unit
Collected separately	341,423	kg
Collected with mixed waste	0	kg
For reuse	253,868	kg
For recycling	2,685	kg
For energy recovery	84,870	kg
For final disposal	0	kg

#### Re-use, recovery and recycling potential (D)

Scenario information/Materiel	Value	Unit
Reused cardboard packaging substituting new cardboard	15,794	kg
Reused plywood panels substituting virgin plywood	220,669	kg
Reused metal parts substituting stamped metal sheet parts	23,996	kg
Reused screws/fasteners substituting virgin screws/fasteners	0,170	kg
Reused PA6 parts substituting virgin injection moulded PA6	8,583	kg
Reused PVC parts substituting virgin injection moulded PVC	0,450	kg
Recycled steel substituting primary steel	2,685	kg
Incinerated cardboard packaging (net calorific value credited)	23,730	MJ
Incinerated PE packaging (net calorific value credited)	16,360	MJ
Incinerated plywood (net calorific value credited)	436,000	MJ
Incinerated PVC (net calorific value credited)	0,732	MJ
Incinerated PA6 (net calorific value credited)	11,570	MJ

## Indoor air

*The EPD does not give information on release of dangerous substances to indoor air because the horizontal standards on the relevant measurements are not available. Read more in EN15804+A1 chapter 7.4.1.*

## Soil and water

*The EPD does not give information on release of dangerous substances to soil and water because the horizontal standards on the relevant measurements are not available. Read more in EN15804+A1 chapter 7.4.2.*

## References

<b>Publisher</b>	 epddanmark <a href="http://www.epddanmark.dk">www.epddanmark.dk</a> Template version 2023.1
<b>Programme operator</b>	Danish Technological Institute Buildings & Environment Gregersensvej DK-2630 Taastrup <a href="http://www.teknologisk.dk">www.teknologisk.dk</a>
<b>LCA-practitioner</b>	<i>Alexander Boeth (Ramboll Deutschland GmbH)</i>
<b>LCA software / background data</b>	<i>Sphera "LCA for Experts" (GaBi) v10.7.0.183 GaBi 2023.1</i>
<b>3<sup>rd</sup> party verifier</b>	<i>Guangli Du</i>

### General programme instructions

General Programme Instructions, version 2.0, spring 2020  
[www.epddanmark.dk](http://www.epddanmark.dk)

### EN 15804

DS/EN 15804 + A2:2019 - "Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products"

### NPCR Part A

NPCR PART A: Construction products and services, version 2.0, 24.03.2021, EPD Norge

### NPCR Part B

NPCR 026: Part B for furniture, version 2.0, 18.10.2018, EPD Norge

### EN 15942

DS/EN 15942:2011 – " Sustainability of construction works – Environmental product declarations – Communication format business-to-business"

### ISO 14025

DS/EN ISO 14025:2010 – " Environmental labels and declarations – Type III environmental declarations – Principles and procedures"

### ISO 14040

DS/EN ISO 14040:2008 – " Environmental management – Life cycle assessment – Principles and framework"

### ISO 14044

DS/EN ISO 14044:2008 – " Environmental management – Life cycle assessment – Requirements and guidelines"