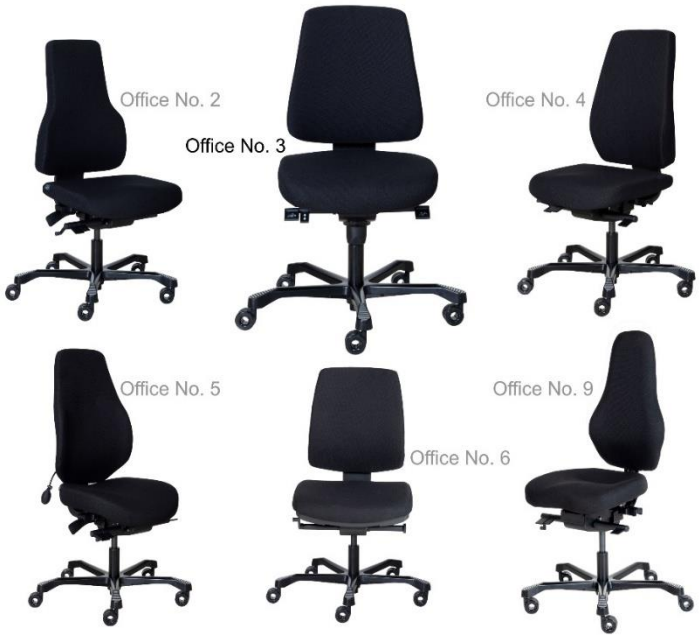
ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Office No. 3 Chair
VENTUS DANMARK

EPD of multiple products, based on a representative product



EPD HUB, HUB-4085
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Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.2 (24 Mar 2025) and JRC characterization factors EF 3.1.

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	VENTUS DANMARK
Address	Peder Hedes Vej 27, 6731 Tjæreborg, Denmark
Contact details	info@ventus-danmark.dk
Website	https://ventus-denmark.dk/

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804:2012+A2:2019/AC:2021 and ISO 14025
PCR	EPD Hub Core PCR Version 1.2, 24 Mar 2025
Sector	Manufactured product
Category of EPD	Third party verified EPD
Parent EPD number	-
Scope of the EPD	Cradle to gate with options A4-A5 and modules C1-C4, D
EPD author	Stine Julius, Reccura
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Magaly Gonzalez Vazquez as an authorized verifier for EPD Hub

This EPD is intended for business-to-business and/or business-to-consumer communication. The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

PRODUCT

Product name	Office No. 3 (Representative chair) Office No. 2 Office No. 4 Office No. 5 Office No. 6 Office No. 9
Additional labels	
Product reference	Office 3 UN 1406-B Office 2 UN 1302-31M Office 4 UN 1404-11M Office 5 UN 1501-7M Office 6 UN 1405-2 Office 9 UN 2002-2M
Place(s) of raw material origin	China
Place of production	Jiangmen City, China
Place(s) of installation and use	Denmark
Period for data	Calendar year 2024
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3 (%)	-0% / +19,27%
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	1,22

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 unit of Office chair (Office No. 3)
Declared unit mass	19,15 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	1,09E+02
GWP-total, A1-A3 ($kgCO_2e$)	1,01E+02
Secondary material, inputs (%)	1,47
Secondary material, outputs (%)	107
Total energy use, A1-A3 (kWh)	379
Net freshwater use, A1-A3 (m^3)	0,7

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Ventus Danmark is an office furniture supplier, also specializing in seating solutions, with a focus on both design, functionality, and ergonomics. We deliver solutions to companies that want to increase employee well-being. Because when we feel good at work, we are inspired to do our best during the day. Our designs work well in modern Scandinavian interiors and strike a fine balance between ergonomics and aesthetics.

PRODUCT DESCRIPTION

This Environmental Product Declaration (EPD) covers six different models of the Office chair.

The Office chair is primarily intended for use in office environments as a desk chair. All models of the Office chair share a common construction, featuring a metal base with wheels that allow for easy and convenient movement. Each model is also equipped with a padded seat and backrest. Depending on the specific model, the seat and/or backrest can be adjusted to suit the user's needs. A height-adjustable seat is a standard feature across all the six models covered in this EPD.

All Office chair models are composed of the same materials, except for wood, which is absent in one model but included in the other five models. The quantity of each material, however, varies between the models, which also results in variations in weight from one chair model to another. Despite these differences, the life cycle stages of the chairs are identical: all models undergo the same manufacturing processes, are produced at the same location in China, sold in Denmark, and assumed to be disposed of in accordance with Danish waste standards.

This EPD covers multiple products and is based on a representative model. The representative model is Office No. 3.

Representative Model: Office No. 3

- Backrest height: 45 cm
- Width: 66 cm
- Depth: 66 cm
- Seat height adjustment range: 50–63 cm
- Weight: 19,15kg
- Other adjustment functions:
    - Weight-adjustable synchronous tilt
    - Seat depth adjustment

This model forms the basis for the life cycle assessment and the data presented throughout the EPD.

Other Chair Models Covered
In addition to Office No. 3, the following five models of the Office chairs are also included in the scope of the EPD:

Office No. 2
- Backrest height: 59 cm
- Width: 66 cm
- Depth: 66 cm
- Seat height adjustment range: 47–59 cm
- Weight: 19,71kg
- Other adjustment functions:
    - Weight-adjustable synchronous tilt
    - Independent seat tilt
    - Seat depth adjustment

Office No. 4
- Backrest height: 57 cm
- Width: 66 cm
- Depth: 66 cm
- Seat height adjustment range: 48–61 cm
- Weight: 19,81kg
- Other adjustment functions:
    - Weight-adjustable synchronous tilt
    - Independent seat tilt
    - Seat depth adjustment

Office No. 5
- Backrest height: 64 cm
- Width: 50 cm
- Depth: 50 cm
- Seat height adjustment range: 49–64 cm
- Weight: 21,39kg
- Other adjustment functions:
    - Weight-adjustable synchronous tilt
    - Independent seat tilt
    - Air pump (to adjust backrest)
    - Seat depth adjustment

Office No. 6
- Backrest height: 50 cm
- Width: 47 cm
- Depth: 46 cm
- Seat height adjustment range: 49–61 cm
- Weight: 21,06kg
- Other adjustment functions:
    - Weight-adjustable synchronous tilt

Office No. 9
- Backrest height: 59 cm
- Width: 47 cm
- Depth: 44 cm
- Seat height adjustment range: 49–60 cm
- Weight: 17,80kg
- Other adjustment functions:
    - Weight-adjustable synchronous tilt
    - Independent seat tilt
    - Seat depth adjustment

Further information can be found at:
https://ventus-denmark.dk/

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	60,31	China
Minerals	0	-
Fossil materials	22,30	China
Bio-based materials	17,39	China

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	1,50
Biogenic carbon content in packaging, kg C	0,82

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 unit of Office chair (Office No. 3)
Mass per declared unit	19,15 kg
Functional unit	-
Reference service life	-

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm). This is a representative scenario, as neither of the other five models that are covered by this EPD contain any REACH SVHC substances in amounts greater than 0,1% (1000ppm).

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
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		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/ demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = MND. Modules not relevant = MNR

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

A market-based approach is used in modelling the electricity mix utilized in the factory.

A1 – Raw material extraction and processing

All raw materials used in the chair and its packaging are extracted and processed by suppliers based in China. These suppliers deliver materials and components to the manufacturer located in Jiangmen, Guangdong, China. Material transport distances are detailed in section A2.

Lubricants used to support the chair's swivel and lift function are excluded, as their weight per chair is below 1% of the total product weight.

Paint used for the chair base is also excluded, as the quantities are considered negligible.

The same materials are used in all six different models, the only exception is wood, which is found in five of the six models. The material quantities vary between the six models. This also affects the weight of the chairs, which is between 17,8 kg to 21,39 kg. The representative chair (Office No. 3) has a weight of 19,15 kg and contains all materials including wood.

The same types of packaging materials are used across the six models: cardboard and LDPE bag. All six models use the same amount of LDPE bag, but the amount of cardboard used differs across the six models.

For all six models, armrests and headrests are optional accessories and are therefore not included in the analysis.

A2 – Transport to the manufacturer
All raw materials are transported to the manufacturer by diesel lorry. The assumed transport distances are:

- Wood: 30 km
- Iron: 30 km
- PA: 110 km
- PP: 110 km
- POM: 30 km
- Aluminium: 110 km
- PE: 80 km
- PU: 30 km
- Polyester: 1.500 km
- Nitrile Rubber (NBR): 30 km
- PVC: 80 km
- Cardboard (packaging): 10 km
- LDPE (packaging): 80 km

Packaging of the raw materials during transport is excluded, as the amount is assumed to be negligible in the analysis.

A3 – Manufacturing
The manufacturer in China carries out production and final assembly of the chair's components. Electricity is used during these processes.
There is a production waste of 0,2 kg plastic per chair. The plastic is assumed to be PA.

Waste is assumed to be treated according to Chinese standards:

- 0,2 kg PA is 100% incinerated [1]

Waste transport is assumed to cover 110 km by diesel lorry.

Sales packaging is applied before shipping, but this packaging process and any waste associated with it are excluded.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

A4 – Transport
Transport from the manufacturer to the customer includes the following steps with these assumed distances:

1. 200 km by diesel lorry to the nearest port in China
2. 27.883 km by ship to Denmark
3. 93,42 km by diesel lorry to the supplier in Denmark
4. 150 km on average by diesel lorry to end customers in Denmark

A5 – Installation
Not applicable. The premanufacture components can be assembled using a handheld screwdriver. Related emissions are therefore zero. It is assumed that the packaging waste is handled together with the chair by the customer and is therefore included under C2-C4.

PRODUCT USE AND MAINTENANCE (B1-B7)

B1-B7 – Use stage

B1-B7 is not declared.

There is no need for or use of energy or materials during the product´s use stage.

Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

C1 – Deinstallation

Not applicable. Deinstallation can be done with a handheld screwdriver. Related emissions are therefore zero.

C2 – Waste Transport

It is assumed that the chair and its packaging are transported 10 km to a sorting facility, and then 50 km to a treatment facility—both by diesel lorry.

C3 – Waste processing

The chair and packaging are assumed to be handled by the customers in Denmark. The waste treatment is therefore assumed to follow Danish standards.

The waste is assumed to be sorted into the following fractions:

- Metal (iron & aluminum): 90% recycled [3]
- Wood: 50% recycled, 50% incinerated [4]
- Plastic (PA, NBR, PU): 100% incinerated [1]
- Plastic (PP, POM, PE, Polyester, PVC): 23% recycled, 77% incinerated [2]

Packaging:

- Cardboard: 70% recycled, 30% incinerated [5]
- LDPE: 23% recycled, 77% incinerated [2]

C4 – Waste disposal

10% of the metal content (iron and aluminum) is assumed to be landfilled [3].

D – Benefits and Loads Outside System Boundaries

End-of-life scenarios are assumed to include the environmental benefits and burdens of resource treatment:

- Iron & aluminum (metal): 90% recycled [3]
- Wood: 50% recycled, 50% incinerated [4]
- Plastic (PA, NBR, PU): 100% incinerated [1]
- Plastic (PP, POM, PE, Polyester, PVC): 23% recycled, 77% incinerated [2]
- Cardboard (packaging): 70% recycled, 30% incinerated [5]
- LDPE (packaging): 23% recycled, 77% incinerated [2]

MANUFACTURING PROCESS

MND:
B1-B7

A1	A2	A3	A4	A5	C1	C2	C3	C4	C5
Raw materials and semi-finished products for the chair and packaging. All materials are produced in China.	Transport from supplier to production site in China. Transport by lorry.	Production, assembly and packaging of chair in China.	Transport from manufac-turer in China to supplier in Denmark, then from supplier to customers in Denmark. Transport by ship and lorry.	Chair is assembled manually with a handheld screwdriver by the customers in Denmark.	Chair is disassem-bled manually with a handheld screwdriver by the customers in Denmark.	Transport of waste (from chair and packaging) from customer to local waste treatment facility in Denmark.	Treatment of chair and packaging waste via recycling or incinera-tion.	Disposal of residual waste in landfill.	Benefits and loads beyond the system boundary related to recovery of energy and materials.

Cradle | Gate | Use | Grave

LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

A1–A3 – Raw Material Supply, Transport, and Manufacturing

- Packaging materials used for raw materials prior to delivery to the manufacturer are excluded from the analysis.
- Lubrication used in the cylinder of the chair is excluded, as the quantity is approximately 6 grams, representing less than 1% of the product's total weight.
- Raw materials used for the product packaging are included in the analysis. However, the packaging process itself, including any potential packaging waste, is not included.
- The painting of the chair base has been excluded from the assessment due to the minimal quantities used.

A4–A5 – Transport and Installation

- No process cut-offs have been applied in these modules.

C1–C4 and D – End-of-Life and Beyond

- No process cut-offs have been applied in these modules.

VALIDATION OF DATA

Data collection for production, transport, and packaging was conducted using time and site-specific information, as defined in the general information section on page 1 and 2. Upstream process calculations rely on generic data as defined in the Bibliography section. Manufacturer-provided specific and generic data were used for the product's manufacturing stage. The analysis was performed in One Click LCA EPD Generator, with the 'Cut-Off, EN 15804+A2' allocation method, and characterization factors according to EN 15804:2012+A2:2019/AC:2021 and JRC EF 3.1.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	No allocation
Packaging material	No allocation
Ancillary materials	No allocation
Manufacturing energy and waste	No allocation

A1–A3 – Raw Material Supply, Transport, and Manufacturing

- It is assumed that all transport within China is by diesel lorry, 16–32 tonnes, EURO 5 standard.
- The painting of the chair base has been excluded from the assessment due to the minimal quantities used.
- All models include 6 grams of lubricant used for greasing the cylinder. This substance has not been included in the analysis, as it accounts for less than 1% of the total weight of each Office chair.
- All production waste is assumed to be handled in China in accordance with Chinese standards. The analysis includes processes for transporting the waste to a local waste facility and subsequent treatment steps.
- It is assumed that only virgin materials are used in the production of the Office chairs.

A4–A5 – Transport and Installation

- All transport in China is assumed to be by diesel lorry, 16–32 tonnes, EURO 5.
- The chair is shipped from China to Denmark by sea using a container ship. All transport within Denmark is also assumed to be by lorry, 16–32 tonnes, EURO 5.
- The average delivery distance from the supplier to customers is estimated based on the assumption that most customers are located in Southern Jutland and on the island of Funen, both of which are placed in Denmark.
- Module A5 is not applicable. Assembly consists of connecting pre-manufactured components with a handheld screwdriver, and this is assumed to be carried out by the customer. Packaging is therefore assumed to be handled together with the chair by the customers and are therefore considered part of the waste treatment under modules C2–C4.

B1–B7 – Use stage

- Module B1-B7 is not declared. There is no need for or use of energy or materials during the product´s use stage.

C1–C4 – End-of-Life

- Module C1 is not applicable, as the product can be deinstalled with a handheld screwdriver.
- The chair and its packaging are assumed to be handled by the customer in Denmark in accordance with Danish waste treatment standards.
- Under module C2, waste is assumed to be transported 10 km to a sorting facility and an additional 50 km to a treatment facility. All waste transport is assumed to be by diesel lorry, 16–32 tonnes, EURO 5.

D – Benefits and Loads Beyond the System Boundary

- Any potential benefits and loads included under module D are associated with waste streams handled in module C3.
- Substituted processes, including avoided material production and energy production, refer to year 2024.

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	Multiple products
Grouping method	Based on a representative product
Variation in GWP-fossil for A1-A3, %	-0% / +19,27%

Representative Model and Scope Definition
Office No. 3 has been selected as the representative product in this analysis. Alongside a few other Office models, it is among the best-selling models. Moreover, it provides a suitable representation of the material types and quantities used across the product range. The entire analysis is therefore based on Office No. 3, including both the types and quantities of raw materials and the packaging configuration.

This EPD covers a total of six Office chair models**.** All models are composed of the same material types, except for wood, which is included in only five of the six models. The representative model, Office No. 3, also includes wood. The quantities of materials vary, resulting in differences in total product weight, ranging from 17,8 kg to 21,39 kg. Office No. 3 weighs 19,15 kg.

Shared Assumptions and Variations Across Models
The manufacturing process (A3) is identical for all models, including the types and quantities of production waste and the waste treatment assumptions for China. All materials are assumed to originate from the same extraction locations, and all six models are manufactured at the same production facility in China.

Transport to the customer (A4) follows the same assumed distance and transport mode for all models. However, emissions under A4 will differ due to variations in the weight of the chair and packaging per model.

A5 (Installation), B1-B7 (Use Stage), and C1 (Deinstallation) are not applicable for any of the models and have been excluded from the analysis.

The same waste handling scenarios (C2–C4) are assumed across all models. All models and their packaging are assumed to be disposed of by customers in Denmark under national waste management practices. Assumed transport distances under C2 are the same for all models. Nevertheless, variations in material quantities will lead to differences in emissions for C2-C4.

Module D is indirectly affected by variations in C3, since it is based on the potential material and energy recoveries. However, the same calculation methodology is applied across all models, and potential differences in Module D are solely due to varying material quantities.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1/3.11 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11 environmental data sources follow the methodology ‘allocation, Cut-off, EN 15804+A2‘.

[1] Plastics for Change. Which Plastic Can Be Recycled? https://www.plasticsforchange.org/blog/which-plastic-can-be-recycled. Accessed 22-09-2025.
[2] Plastindustrien. Data om plastaffald og genanvendelse. https://plast.dk/vidensbanken/fakta-om-plast/genanvendelse/data-om-plastaffald-og-genanvendelse/. Accessed 22-09-2025.

[3] EuRIC AISBL – Recycling: Bridging Circular Economy & Climate Policy. Metal Recycling Factsheet. https://circulareconomy.europa.eu/platform/sites/default/files/euric_metal_recycling_factsheet.pdf. Accessed 22-09-2025.
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[5] Miljø og Ligestillingsministeriet. Genanvendelse af emballageaffald. https://miljotilstand.dk/produktion-forbrug-og-affald/genanvendelse-af-emballageaffald. Accessed 22-09-2025.

ENVIRONMENTAL IMPACT DATA

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total[1)]	kg CO_2e	1,00E+02	3,69E-01	5,61E-01	1,01E+02	8,07E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,52E-01	2,03E+01	7,21E-03	-4,29E+01
GWP – fossil	kg CO_2e	1,05E+02	3,68E-01	4,07E+00	1,09E+02	8,07E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,52E-01	8,46E+00	7,21E-03	-4,00E+01
GWP – biogenic	kg CO_2e	-4,89E+00	7,94E-05	-3,59E+00	-8,48E+00	1,35E-03	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,00E-05	1,18E+01	-2,29E-06	-2,34E+00
GWP – LULUC	kg CO_2e	2,04E-01	1,63E-04	8,11E-02	2,85E-01	4,09E-03	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,90E-05	3,09E-04	4,12E-06	-6,25E-01
Ozone depletion pot.	kg CFC_{-11}e	9,51E-06	5,15E-09	7,43E-08	9,59E-06	1,21E-07	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,01E-09	6,16E-09	2,09E-10	-2,21E-06
Acidification potential	mol H^+e	6,49E-01	1,23E-03	2,00E-02	6,70E-01	1,88E-01	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,88E-04	5,49E-03	5,11E-05	-2,80E-01
EP-freshwater[2)]	kg Pe	4,70E-02	2,86E-05	-4,45E-02	2,58E-03	3,28E-04	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,67E-05	-3,05E-01	5,93E-07	-1,26E-02
EP-marine	kg Ne	1,19E-01	3,98E-04	8,62E-03	1,28E-01	4,73E-02	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,66E-04	4,08E-03	1,95E-05	-3,79E-02
EP-terrestrial	mol Ne	1,29E+00	4,33E-03	5,41E-02	1,35E+00	5,25E-01	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,89E-03	3,03E-02	2,13E-04	-4,15E-01
POCP ("smog")[3)]	kg NMVOCe	4,09E-01	1,71E-03	1,66E-02	4,27E-01	1,45E-01	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,23E-03	7,26E-03	7,62E-05	-1,47E-01
ADP-minerals & metals[4)]	kg Sbe	9,85E-03	1,21E-06	1,22E-05	9,87E-03	1,22E-05	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,24E-07	5,31E-06	1,15E-08	-2,06E-04
ADP-fossil resources	MJ	1,23E+03	5,17E+00	4,90E+01	1,29E+03	1,02E+02	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,54E+00	-1,65E+01	1,77E-01	-4,05E+02
Water use[5)]	m^3e depr.	2,75E+01	2,40E-02	1,28E+00	2,88E+01	3,37E-01	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,74E-02	8,05E-01	5,11E-04	-2,33E+01

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	7,81E-06	2,92E-08	3,49E-07	8,19E-06	3,30E-07	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,98E-08	3,05E-08	1,16E-09	-3,96E-06
Ionizing radiation[6)]	kBq U235e	3,70E+00	4,18E-03	2,66E-01	3,97E+00	6,20E-02	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,51E-03	3,39E-02	1,11E-04	-3,02E+00
Ecotoxicity (freshwater)	CTUe	1,12E+03	8,17E-01	2,03E+01	1,14E+03	9,35E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,65E-01	2,82E+01	1,48E-02	-3,78E+01
Human toxicity, cancer	CTUh	9,13E-08	6,26E-11	1,84E-09	9,32E-08	1,63E-09	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,29E-11	8,33E-11	1,33E-12	-3,24E-08
Human tox. non-cancer	CTUh	1,50E-06	3,23E-09	5,00E-08	1,56E-06	3,49E-08	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,22E-09	2,36E-08	3,05E-11	2,30E-07
SQP[7)]	-	8,09E+02	3,09E+00	1,85E+02	9,97E+02	2,15E+01	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,11E+00	9,91E+00	3,48E-01	-1,48E+02

6) EN 15804+A2 disclaimer for Ionizing radiation, human health. 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; 7) SQP = Land use related impacts/soil quality.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy[8)]	MJ	1,59E+02	7,09E-02	2,70E+00	1,62E+02	9,90E-01	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,12E-02	-8,53E+01	1,71E-03	-2,32E+02
Renew. PER as material	MJ	4,09E+01	0,00E+00	3,16E+01	7,25E+01	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-7,25E+01	0,00E+00	3,42E+01
Total use of renew. PER	MJ	2,00E+02	7,09E-02	3,43E+01	2,34E+02	9,90E-01	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,12E-02	-1,58E+02	1,71E-03	-1,98E+02
Non-re. PER as energy	MJ	1,15E+03	5,17E+00	4,59E+01	1,20E+03	1,02E+02	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,54E+00	-1,08E+02	1,77E-01	-4,11E+02
Non-re. PER as material	MJ	9,45E+01	0,00E+00	-2,53E+00	9,20E+01	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-9,20E+01	0,00E+00	1,82E+01
Total use of non-re. PER	MJ	1,25E+03	5,17E+00	4,34E+01	1,29E+03	1,02E+02	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,54E+00	-2,00E+02	1,77E-01	-3,93E+02
Secondary materials	kg	2,81E-01	2,32E-03	1,87E+00	2,15E+00	4,81E-02	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,62E-03	7,06E-03	4,45E-05	8,73E+00
Renew. secondary fuels	MJ	3,40E-03	2,96E-05	2,72E-01	2,75E-01	2,29E-04	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,05E-05	3,42E-04	9,21E-07	2,02E-02
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	6,68E-01	6,85E-04	2,84E-02	6,97E-01	8,65E-03	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,76E-04	1,35E-02	1,84E-04	-7,44E-01

8) PER = Primary energy resources.

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	1,35E+01	9,01E-03	2,94E-01	1,39E+01	1,42E-01	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,08E-03	2,07E-01	1,95E-04	-1,34E+01
Non-hazardous waste	kg	1,94E+02	1,69E-01	6,79E+00	2,01E+02	2,18E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,07E-01	9,55E+00	4,47E-03	4,60E+01
Radioactive waste	kg	9,34E-04	1,02E-06	6,40E-05	9,99E-04	1,52E-05	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,12E-06	1,09E-05	2,71E-08	-6,84E-04

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,43E+01	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	2,00E-01	2,00E-01	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	6,29E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy – Electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy – Heat	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – GWP-GHG

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG[9)]	kg CO_2e	1,05E+02	3,69E-01	4,15E+00	1,10E+02	8,07E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,52E-01	8,46E+00	7,21E-03	-4,06E+01

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013). In addition, the characterisation factors for the flows - CH4 fossil, CH4 biogenic and Dinitrogen monoxide - were updated in line with the guidance of IES PCR 1.2.5 Annex 1. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterization factor for biogenic CO2 is set to zero.

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Market for electricity, medium voltage (Reference product: electricity, medium voltage). EastChinaGrid China; Ecoinvent 3.10.1
Electricity CO2e / kWh	0,86
District heating data source and quality	District heating for building is excluded from the analysis
District heating CO2e / kWh	N/A

Transport scenario documentation A4

Scenario parameter	Value
Fuel and vehicle type. Eg, electric truck, diesel powered truck	Diesel powered lorry & container ship
Average transport distance, km	28.326,42
Capacity utilization (including empty return) %	50
Bulk density of transported products	N/A
Volume capacity utilization factor	N/A

End of life scenario documentation

Scenario information	Value
Collection process – kg collected separately	N/A
Collection process – kg collected with mixed waste	N/A
Recovery process – kg for re-use	0
Recovery process – kg for recycling	14,27
Recovery process – kg for energy recovery	6,29
Disposal (total) – kg for final deposition	1,16
Scenario assumptions e.g. transportation	The chair and packaging are assumed to be handled by the customers in Denmark. Therefore, is the waste treatment assumed to follow Danish standards. It is assumed that the chair and its packaging are transported 10 km to a sorting facility, and then 50 km to a treatment facility—both by diesel lorry.

THIRD-PARTY VERIFICATION STATEMENT

EPD Hub declares that this EPD is verified in accordance with ISO 14025 by an independent, third-party verifier. The project report on the Life Cycle Assessment and the report(s) on features of environmental relevance are filed at EPD Hub. EPD Hub PCR and ECO Platform verification checklist are used.

EPD Hub is not able to identify any unjustified deviations from the PCR and EN 15802+A2 in the Environmental Product Declaration and its project report.

EPD Hub maintains its independence as a third-party body; it was not involved in the execution of the LCA or in the development of the declaration and has no conflicts of interest regarding this verification.

The company-specific data and upstream and downstream data have been examined as regards plausibility and consistency. The publisher is responsible for ensuring the factual integrity and legal compliance of this declaration.

The software used in creation of this LCA and EPD is verified by EPD Hub to conform to the procedural and methodological requirements outlined in ISO 14025:2010, ISO 14040/14044, EN 15804+A2, and EPD Hub Core Product Category Rules and General Program Instructions.

Verified tools

Tool verifier: Magaly Gonzalez Vazquez
Tool verification validity: 27 March 2025 - 26 March 2028

Magaly Gonzalez Vazquez as an authorized verifier for EPD Hub Limited
03.10.2025

VERIFIED ISO 14025