epd-norge
Global program operatør

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

Atticus Family



JOHANSON

The Norwegian EPD Foundation

Owner of the declaration:
Johanson Design AB

Product:
Atticus Family

Declared unit:
1 pcs

This declaration is based on Product Category Rules:
CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR 026:2022 Part B for Furniture

Program operator:
The Norwegian EPD Foundation

Declaration number:

Registration number:

Issue date:

Valid to:

EPD software:
LCAno EPD generator ID: 436127

General information

Product

Atticus Family

Owner of the declaration:

Johanson Design AB
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Program operator:

The Norwegian EPD Foundation
Post Box 5250 Majorstuen, 0303 Oslo, Norway
Phone: +47 977 22 020
web: www.epd-norge.no

Manufacturer:

Johanson Design AB

Declaration number:

Place of production:

Johanson Design AB
Anders Anderssons väg 7
285 35 Markaryd, Sweden

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR 026:2022 Part B for Furniture

Management system:

ISO 14001

Statement of liability:

The owner of the declaration shall be liable for the underlying information and evidence. EPD Norway shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

Organisation no:

SE556358520601

Declared unit:

1 pcs Atticus Family

Issue date:

Declared unit (cradle to gate) with option:

A1-A3,A4,A5,B2,B3,B4,C1,C2,C3,C4,D

Valid to:

Year of study:

2020

Functional unit:

Atticus is a timeless collection based on respect for form, craftsmanship, comfort, and elegance.

Comparability:

EPD of construction products may not be comparable if they not comply with EN 15804 and seen in a building context.

General information on verification of EPD from EPD tools:

Independent verification of data, other environmental information and the declaration according to ISO 14025:2010, § 8.1.3 and § 8.1.4. Verification of each EPD is made according to EPD-Norway's guidelines for verification and approval requiring that tools are i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPD-Norway, and iii) the process is reviewed annually by an independent third party verifier. See Appendix G of EPD-Norway's General Programme Instructions for further information on EPD tools

Development and verification of EPD:

The declaration is created using EPD tool lca.tools ver EPD2022.03, developed by LCA.no. The EPD tool is integrated in the company's management system, and has been approved by EPD Norway.

Developer of EPD: Lucas Carlsson

Reviewer of company-specific input data and EPD: Sandra Rube

Verification of EPD tool:

Independent third party verification of the EPD tool, background data and test-EPD in accordance with EPDNorway's procedures and guidelines for verification and approval of EPD tools.

Approved:

Third party verifier:

Elisabet Amat, GREENIZE projects

(no signature required)

Product

Product description:

Atticus takes its inspiration from Harper Lee's "To Kill A Mockingbird". The Atticus concept has its roots in the natural world, most specifically the North American mockingbird with its elegantly rounded wings that assume an almost shell-like form. The chairs are comfortable and inviting, with armrests that subtly embrace the user. The easy chair is available in low-back and high-back versions, allowing the user to produce the sensation of a relaxed loungestyle setting or to offer comfortable seating in the conference room.

The series is suitable for use in both small and larger settings, and the chairs blend in well in a wide variety of environments. With its numerous variations on a basic theme, Atticus is a flexible, all-round solution – not only for individual offices and conference rooms, but also for cafés and domestic living rooms. Atticus takes its name from the iconic hero of Harper Lee's classic American novel from 1960, To Kill A Mockingbird. Erin says: "It's not only one of my favourite books; its enduring story of justice for the underdog is especially relevant today. With this in mind, Isought to bridge my American heritage with Johanson's Swedish roots to create a new icon for the company. Atticus is a timeless collection based on respect for form, craftsmanship, comfort, and elegance."

Product specification

This declaration focuses on an in-depth study of Atticus armless 08-46.

The table on page 11 of this declaration provides the key environmental indicators for the other models within the product family

Materials	kg	%	Recycled share in material (kg)	Recycled share in material (%)
Wood - Medium Density Fibreboard (MDF)	0,08	1,25	0,00	0,00
Plastic - Nylon (PA)	0,00	0,06	0,00	0,00
Metal - Steel	2,83	45,38	0,57	20,00
Wood - Solid beech/birch	1,71	27,50	0,00	0,00
Plastic - Polyurethane (PUR)	1,11	17,82	0,00	0,00
Powder coating	0,08	1,25	0,00	0,00
Textile - Polyester (PE)	0,42	6,74	0,00	0,00
Total	6,23	100,00	0,57	

Packaging	kg	%	Recycled share in material (kg)	Recycled share in material (%)
Recycled cardboard	2,12	100,00	2,12	100,00
Total incl. packaging	8,35	100,00	2,69	

Technical data:

Volume 0.27 m^3 - (excluding packaging)

Volume 0.28 m^3 - (including packaging)

Total height 79 cm
Total width 53 cm
Total depth 64 cm

Seat height 46 cm
Seat width 53 cm
Seat depth 45 cm

Complied with technical standards:
EN 16139:2013 Furniture - Strength, durability and safety - Requirements for non-domestic seating
Möbelfakta certified
https://www.mobelfakta.se/Details.html?id=1933

Find more information about Atticus here:
https://johansondesign.com/products/atticus

Market:

World Wide

Reference service life, product

15 years (5 year warranty)

Reference service life, building

LCA: Calculation rules

Declared unit:

1 pcs Atticus Family

Cut-off criteria:

All major raw materials and all the essential energy is included. The production processes for raw materials and energy flows with very small amounts (less than 1%) are not included. These cut-off criteria do not apply for hazardous materials and substances.

Allocation:

The allocation is made in accordance with the provisions of EN 15804. Incoming energy and water and waste production in-house is allocated equally among all products through mass allocation. Effects of primary production of recycled materials is allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

Data quality:

Specific data for the product composition are provided by the manufacturer. They represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on registered EPDs according to EN 15804, Ostfold Research databases, ecoinvent and other LCA databases. The data quality of the raw materials in A1 is presented in the table below.
A3 data is gathered 2020

A4 data is gathered 2021-2022 - Trafa.se
The average distance for a Swedish heavy truck loaded with furniture in domestic traffic was around 143 km in 2022, and on average about 153 km during the period 2012-2022. Data from Trafa.se

A5 data.
The packaging is automatically disposed of at this stage.

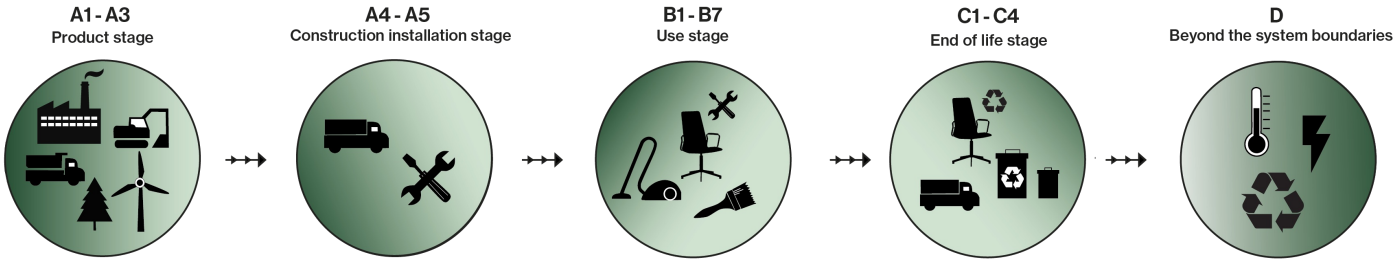
Maintenance data: B2
For vacuum cleaning. Assume 900 W effect, 30 seconds a week for 15 years
For Cleaning with wet cloth, Assume 0,0005 m3 (½ liter) once a week for 15 years

Materials	Source	Data quality	Year
Metal - Steel	ecoinvent 3.6	Database	2019
Plastic - Nylon (PA)	ecoinvent 3.6	Database	2019
Plastic - Polyurethane (PUR)	ecoinvent 3.6	Database	2019
Powder coating	Ecoinvent 3.6	Database	2019
Recycled cardboard	Modified ecoinvent 3.6	Database	2019
Textile - Polyester (PE)	ecoinvent 3.6	Database	2019
Wood - Medium Density Fibreboard (MDF)	ecoinvent 3.6	Database	2019
Wood - Solid beech/birch	modified ecoinvent 3.6	Database	2019

System boundaries (X=included, MND=module not declared, MNR=module not relevant)

Product stage			Construction installation stage		Use stage							End of life stage				Beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	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	X	X	X	MND	MND	MND	X	X	X	X	X

System boundary:



Additional technical information:

To achieve the best possible climate footprint, it's essential to take care of your furniture. The longer you maintain and care for your products, the better it is for the environment. Use our care instructions for optimal results.
You find it here:
https://johansondesign.com/downloads

Johanson Design is a company committed to sustainability and holds various certifications that underscore its dedication to environmental responsibility and quality.

Environmental Management System (ISO 14001):
Johanson has implemented an Environmental Management System (EMS) in accordance with ISO 14001 standards. This certification demonstrates the company's commitment to minimizing its environmental impact by systematically identifying, managing, and reducing its environmental footprint across all aspects of its operations.

FSC Certification:
Johanson sources its wood materials from responsibly managed forests certified by the Forest Stewardship Council (FSC). This certification ensures that the wood used in its products is harvested in an environmentally and socially responsible manner, promoting the conservation of forests and the well-being of forest-dependent communities.

Möbelfakta Certification:
Johanson products meet the standards set by Möbelfakta, a certification system for furniture. Möbelfakta evaluates products based on criteria such as quality, environment, and social responsibility, ensuring that certified products meet rigorous sustainability and performance standards.

LCA: Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD.

Transport from production place to user (A4)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, EURO 6 (km)	36,7 %	143	0,043	l/tkm	6,15

Assembly (A5)	Unit	Value			
Waste, packaging, cardboard, 100 % recycled, to average treatment (kg)	kg	2,12			

Maintenance (B2)	Unit	Value			
Electricity, Sweden (kWh)	kWh/DU	5,85			
Water, tap water (m3)	m3/DU	0,39			

Transport to waste processing (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, EURO 6 (km)	36,7 %	85	0,043	l/tkm	3,66

Waste processing (C3)	Unit	Value			
Waste treatment per kg Non-hazardous waste, incineration with fly ash extraction - C3 (kg)	kg	0,08			
Waste treatment per kg Plastics, Mixture, municipal incineration with fly ash extraction (kg)	kg	0,00			
Waste treatment per kg Polyurethane (PU), incineration (kg)	kg	1,11			
Waste treatment per kg Scrap steel, incineration with fly ash extraction (kg)	kg	2,83			
Waste treatment per kg Textile, incineration with fly ash extraction (kg)	kg	0,42			
Waste treatment per kg Wood, incineration with fly ash extraction (kg)	kg	1,79			
Waste, materials to recycling (kg)	kg	0,96			

Disposal (C4)	Unit	Value			
Landfilling of ashes and residues from incineration of Scrap steel (kg)	kg	1,87			
Landfilling of ashes from incineration of Non-hazardous waste, process per kg ashes and residues - C4 (kg)	kg	0,02			
Landfilling of ashes from incineration of Plastics, Mixture, municipal incineration with fly ash extraction, process per kg ashes and residues - C4 (kg)	kg	0,00			
Landfilling of ashes from incineration of Polyurethane (PU), process per kg ashes and residues - C4 (kg)	kg	0,04			
Landfilling of ashes from incineration of Textile, soiled, process per kg ashes and residues (kg)	kg	0,02			
Landfilling of ashes from incineration of Wood, process per kg ashes and residues (kg)	kg	0,02			

Benefits and loads beyond the system boundaries (D)	Unit	Value			
Substitution of electricity, in Norway (MJ)	MJ	3,24			
Substitution of primary steel with net scrap (kg)	kg	0,77			
Substitution of thermal energy, district heating, in Norway (MJ)	MJ	49,00			

LCA: Results

The LCA results are presented below for the declared unit defined on page 2 of the EPD document.

Environmental impact							
Indicator		**Unit**	A1-A3	A4	A5	B2	B3
	GWP-total	kg CO_2 -eq	2,23E+01	1,82E-01	3,63E+00	4,56E-01	0
	GWP-fossil	kg CO_2 -eq	2,80E+01	1,81E-01	3,43E-02	4,30E-01	0
	GWP-biogenic	kg CO_2 -eq	-5,75E+00	7,51E-05	3,60E+00	6,86E-03	0
	GWP-luluc	kg CO_2 -eq	3,60E-02	6,46E-05	1,13E-05	1,94E-02	0
	ODP	kg CFC11 -eq	2,17E-06	4,11E-08	7,24E-09	1,57E-07	0
	AP	mol H+ -eq	1,38E-01	5,22E-04	1,62E-04	2,71E-03	0
	EP-FreshWater	kg P -eq	1,62E-03	1,45E-06	2,82E-07	3,07E-05	0
	EP-Marine	kg N -eq	2,97E-02	1,03E-04	5,37E-05	4,52E-04	0
	EP-Terrestial	mol N -eq	2,91E-01	1,15E-03	5,81E-04	5,76E-03	0
	POCP	kg NMVOC -eq	9,84E-02	4,42E-04	1,67E-04	1,44E-03	0
	ADP-minerals&metals[1]	kg Sb-eq	7,84E-04	5,01E-06	8,35E-07	1,56E-05	0
	ADP-fossil[1]	MJ	4,25E+02	2,74E+00	4,80E-01	3,70E+01	0
	WDP[1]	m^3	2,04E+03	2,65E+00	6,08E-01	3,56E+03	0

Indicator		**Unit**	B4	C1	C2	C3	C4	D
	GWP-total	kg CO_2 -eq	0	0	1,08E-01	6,77E+00	2,46E-02	-1,14E+00
	GWP-fossil	kg CO_2 -eq	0	0	1,08E-01	3,22E+00	2,46E-02	-1,13E+00
	GWP-biogenic	kg CO_2 -eq	0	0	4,46E-05	3,55E+00	2,01E-05	-1,05E-03
	GWP-luluc	kg CO_2 -eq	0	0	3,84E-05	2,73E-05	6,85E-06	-1,02E-02
	ODP	kg CFC11 -eq	0	0	2,44E-08	1,92E-08	6,83E-09	-2,07E-02
	AP	mol H+ -eq	0	0	3,10E-04	3,02E-03	1,60E-04	-6,54E-03
	EP-FreshWater	kg P -eq	0	0	8,62E-07	1,82E-06	2,59E-07	-7,72E-05
	EP-Marine	kg N -eq	0	0	6,13E-05	1,65E-03	5,65E-05	-1,63E-03
	EP-Terrestial	mol N -eq	0	0	6,86E-04	1,59E-02	6,27E-04	-1,71E-02
	POCP	kg NMVOC -eq	0	0	2,63E-04	3,81E-03	1,80E-04	-6,51E-03
	ADP-minerals&metals[1]	kg Sb-eq	0	0	2,98E-06	7,57E-07	3,80E-07	-1,74E-05
	ADP-fossil[1]	MJ	0	0	1,63E+00	1,55E+00	5,10E-01	-1,12E+01
	WDP[1]	m^3	0	0	1,58E+00	3,88E+00	1,30E+00	-6,81E+00

GWP-total = Global Warming Potential total; GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment: EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

1. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator

Remarks to environmental impacts

Additional environmental impact indicators

Indicator		Unit	A1-A3	A4	A5	B2	B3
	PM	Disease incidence	1,86E-06	1,11E-08	2,40E-09	2,04E-08	0
	IRP[2]	kgBq U235 -eq	1,42E+00	1,20E-02	2,05E-03	1,21E+00	0
	ETP-fw[1]	CTUe	1,21E+03	2,03E+00	6,40E-01	2,08E+01	0
	HTP-c[1]	CTUh	8,08E-08	0,00E+00	1,90E-11	8,96E-10	0
	HTP-nc[1]	CTUh	8,66E-07	2,22E-09	8,03E-10	2,09E-08	0
	SQP[1]	dimensionless	2,59E+02	1,92E+00	3,22E-01	1,60E+01	0

Indicator		Unit	B4	C1	C2	C3	C4	D
	PM	Disease incidence	0	0	6,60E-09	1,64E-08	2,85E-09	-2,12E-07
	IRP[2]	kgBq U235 -eq	0	0	7,13E-03	2,67E-03	2,07E-03	-2,29E-02
	ETP-fw[1]	CTUe	0	0	1,21E+00	9,58E+00	3,45E-01	-6,92E+01
	HTP-c[1]	CTUh	0	0	0,00E+00	4,10E-10	1,40E-11	-4,47E-09
	HTP-nc[1]	CTUh	0	0	1,32E-09	1,28E-08	3,86E-10	6,71E-08
	SQP[1]	dimensionless	0	0	1,14E+00	1,95E-01	1,13E+00	-2,77E+01

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)

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

1. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator
2. 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							
Indicator		**Unit**	A1-A3	A4	A5	B2	B3
	PERE	MJ	1,04E+02	3,93E-02	7,90E-03	1,70E+01	0
	PERM	MJ	3,69E+01	0,00E+00	-1,24E+01	0,00E+00	0
	PERT	MJ	1,41E+02	3,93E-02	-1,24E+01	1,70E+01	0
	PENRE	MJ	3,94E+02	2,74E+00	4,80E-01	3,71E+01	0
	PENRM	MJ	4,43E+01	0,00E+00	0,00E+00	0,00E+00	0
	PENRT	MJ	4,38E+02	2,74E+00	4,80E-01	3,71E+01	0
	SM	kg	2,69E+00	0,00E+00	0,00E+00	0,00E+00	0
	RSF	MJ	7,18E-01	1,41E-03	2,62E-04	8,95E-02	0
	NRSF	MJ	9,55E-01	5,02E-03	1,08E-03	2,29E-01	0
	FW	m^3	5,15E-01	2,93E-04	2,26E-04	4,30E-01	0

Indicator		**Unit**	B4	C1	C2	C3	C4	D
	PERE	MJ	0	0	2,33E-02	4,82E-02	1,09E-02	-2,57E+01
	PERM	MJ	0	0	0,00E+00	-2,45E+01	0,00E+00	0,00E+00
	PERT	MJ	0	0	2,33E-02	-2,44E+01	1,09E-02	-2,57E+01
	PENRE	MJ	0	0	1,63E+00	1,57E+00	5,10E-01	-1,12E+01
	PENRM	MJ	0	0	0,00E+00	-4,43E+01	0,00E+00	0,00E+00
	PENRT	MJ	0	0	1,63E+00	-4,27E+01	5,10E-01	-1,12E+01
	SM	kg	0	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	RSF	MJ	0	0	8,35E-04	1,13E-03	2,84E-04	2,61E-02
	NRSF	MJ	0	0	2,99E-03	0,00E+00	2,14E-02	-6,00E-01
	FW	m^3	0	0	1,74E-04	5,04E-03	4,60E-04	-3,20E-02

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 materials; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

End of life - Waste

Indicator		Unit	A1-A3	A4	A5	B2	B3
	HWD	kg	2,09E-01	1,42E-04	0,00E+00	2,25E-03	0
	NHWD	kg	6,49E+00	1,33E-01	2,12E+00	1,42E-01	0
	RWD	kg	1,33E-03	1,87E-05	0,00E+00	5,37E-04	0

Indicator		Unit	B4	C1	C2	C3	C4	D
	HWD	kg	0	0	8,41E-05	0,00E+00	1,92E+00	-4,58E-03
	NHWD	kg	0	0	7,93E-02	7,80E-02	5,12E-02	-4,41E-01
	RWD	kg	0	0	1,11E-05	0,00E+00	3,14E-06	-1,89E-05

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

End of life - Output flow

Indicator		Unit	A1-A3	A4	A5	B2	B3
	CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0
	MFR	kg	4,22E-02	0,00E+00	1,97E+00	0,00E+00	0
	MER	kg	6,99E-02	0,00E+00	2,89E-06	0,00E+00	0
	EEE	MJ	4,54E-02	0,00E+00	1,21E-01	0,00E+00	0
	EET	MJ	6,86E-01	0,00E+00	1,83E+00	0,00E+00	0

Indicator		Unit	B4	C1	C2	C3	C4	D
	CRU	kg	0	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	MFR	kg	0	0	0,00E+00	9,59E-01	0,00E+00	0,00E+00
	MER	kg	0	0	0,00E+00	6,23E+00	0,00E+00	0,00E+00
	EEE	MJ	0	0	0,00E+00	3,18E+00	0,00E+00	0,00E+00
	EET	MJ	0	0	0,00E+00	4,81E+01	0,00E+00	0,00E+00

CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy electrical; EET = Exported energy thermal

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

Biogenic Carbon Content

Indicator	Unit	At the factory gate
Biogenic carbon content in product	kg C	8,01E-01
Biogenic carbon content in accompanying packaging	kg C	9,81E-01

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO2

Additional requirements

Greenhouse gas emissions from the use of electricity in the manufacturing phase

National production mix from import, low voltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing process (A3).

Electricity mix	Source	Amount	Unit
Electricity, Sweden (kWh)	ecoinvent 3.6	54,94	g CO2-eq/kWh

Dangerous substances

The product contains no substances given by the REACH Candidate list.

Indoor environment

Additional Environmental Information

Key Environmental Indicators

Key environmental indicators	Unit	A1-A3	A4	A1-C4	A1-D
GWPtotal	kg CO_2 -eq	22,32	0,18	33,49	32,35
Total energy consumption	MJ	499,79	2,79	561,26	523,85
Amount of recycled materials	%	31,56			

Additional environmental impact indicators required in NPCR Part A for construction products						
Indicator	Unit	A1-A3	A4	A5	B2	B3
GWPIOBC	kg CO_2 -eq	2,88E+01	1,82E-01	3,43E-02	4,56E-01	0

Indicator	Unit	B4	C1	C2	C3	C4	D
GWPIOBC	kg CO_2 -eq	0	0	1,08E-01	3,82E+00	2,62E-02	-1,55E+00

GWP-IOBC: Global warming potential calculated according to the principle of instantaneous oxidation. In order to increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.

Variants and Options

Key environmental indicators (A1-A3) for variants of this EPD				
Variants	Weight (kg)	GWPtotal (kg CO_2 -eq)	Total energy consumption (MJ)	Amount of recycled materials (%)
Atticus armless 03-46	9,35	33,99	579,85	55,48
Atticus armless 03-46 - Wheels	9,55	34,83	587,29	52,68
Atticus armless - Wooden legs - 08-46	8,28	21,81	490,48	32,46
Atticus armless 08-46	8,73	33,12	592,60	39,81
Atticus armless 09-46	11,55	45,23	786,08	38,42
Atticus BS armless 08-64	11,38	40,78	747,96	42,98
Atticus BS armless 08-77	11,80	42,61	777,70	42,64
Atticus BS armless 09-64	13,81	51,38	919,23	41,44
Atticus BS armless 09-77	14,22	53,18	948,25	41,22
Atticus with arms 03-46	9,69	35,87	607,08	53,74
Atticus with arms 03-46 - Wheels	9,88	36,56	612,08	51,14
Atticus with arms - Wooden legs - 08-46	8,61	23,59	516,07	31,47
Atticus with arms 08-46	9,06	35,09	621,62	38,61
Atticus with arms 09-46	11,88	47,01	811,66	37,54
Atticus BS with arms 08-64	11,66	42,39	770,54	42,15
Atticus BS with arms 08-77	12,13	44,58	806,72	41,67
Atticus BS with arms 09-64	14,14	53,36	948,25	40,62
Atticus BS with arms 09-77	14,53	55,15	977,27	40,43
Atticus Lounge Low 03	18,66	71,11	1165,29	41,67
Atticus Lounge Low 08 - Wood	18,70	53,38	1022,88	28,93
Atticus Lounge Low 09	22,18	94,40	1591,00	34,02
Atticus Lounge High 03	19,47	75,16	1222,45	40,38
Atticus Lounge High 08 - Wood	19,50	57,44	1080,13	28,16
Atticus Lounge High 09	22,98	99,01	1658,64	33,19

Bibliography

ISO 14025:2010 Environmental labels and declarations - Type III environmental declarations - Principles and procedures.
ISO 14044:2006 Environmental management - Life cycle assessment - Requirements and guidelines.
EN 15804:2012+A2:2019 Environmental product declaration - Core rules for the product category of construction products.
ISO 21930:2017 Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products.
ecoinvent v3, Allocation, cut-off by classification, Swiss Centre of Life Cycle Inventories.
Iversen et al., (2021) eEPD v2021.09 Background information for EPD generator tool system verification, LCA.no Report number: 07.21
Ruud et al., (2023) EPD generator for NPCR026 Part B for Furniture - Background information for EPD generator application and LCA data, LCA.no report number 01.23
NPCR Part A: Construction products and services. Ver. 2.0. March 2021, EPD-Norge.
NPCR 026 Part B for Furniture. Ver. 2.0 March 2022, EPD-Norge.

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