

Environmental Product Declaration

In accordance with 14025 and EN15804 +A2

Active R3 High



The Norwegian
EPD Foundation

Owner of the declaration:
Malmstolen

Product name:
Active R3 High

Declared unit:
1 piece of Active R3 High chair

Product category /PCR:
NPCR 026:2022 Part B for furniture version 2.0

Program holder and publisher:
The Norwegian EPD foundation

Declaration number:
NEPD-4036-3070-EN

Registration number:
NEPD-4036-3070-EN

Issue date: 14.02.2023

Valid to: 14.02.2028

General information

Product:

Active R3 High

Program Operator:

The Norwegian EPD Foundation
Post Box 5250 Majorstuen, 0303 Oslo, Norway
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Declaration number:

NEPD-4036-3070-EN

This declaration is based on Product Category Rules:

NPCR 026:2022 Part B for furniture version 2.0

Statements:

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

Declared unit:

1 piece of Active R3 High chair

Functional unit:

1 piece of Active R3 High chair

Verification:

Independent verification of the declaration and data, according to ISO14025:2010

internal external



Silvia Vilčeková

Independent verifier approved by EPD Norway

Owner of the declaration:

Malmstolen AB
Contact person: Dennis Starlid
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Manufacturer:

Malmstolen AB
Stora Ävägen 21 436 34 Askim
Phone: info@malmstolen.se
e-mail: +46 (031 21 90 00

Place of production:

Vallgatan 1, 571 23 Nässjö

Management system:

ISO 14001

Organisation no:

5561947846

Issue date:

14.02.2023

Valid to:

14.02.2028

Year of study:

2022

Comparability:

EPDs from other programmes than [Name of Program operator] may not be comparable.

The EPD has been worked out by:

Nadeen Hassan, EANDO AB



Approved



Manager of EPD Norway

Product

Product description:

Active R3 High is specially developed for the modern activity-based office. Since the back in self-forming ZenXit fits almost all back profiles, it works well in touch down areas or meeting rooms with several users. The Active R3 High chair comes with add-ons including arm rest and neck rest. The add-ons are not included in the main results. The chair also has another variant - Active R3 Medium.

Product specification:

Materials		KG	%
Product material			
Metal	Aluminium	0,54	3,8%
Metal	Steel	7,18	50,8%
Textile	85 %Wool/ 15%Polyamide	0,58	4,1%
Foam	Polyurethane	1,32	9,3%
Plastic	Polypropylene	0,18	1,2%
Plastic	Polyoxymethylene	0,18	1,3%
Plastic	Polyamide with glass fibre	1,70	12,0%
Plastic	Polyethylene	0,002	0,01%
Plastic	Nylon	0,34	2,4%
Plastic	Polycarbonate-acrylonitrile-butadiene-styrene	0,66	4,7%
Wood	Plywood	0,00	0,0%
Glue	Polyurethane	0,07	0,5%
Glass fibre	-	0,002	0,01%
Rubber	-	0,003	0,02%
Cardboard	-	1,40	9,9%
Total		14,15	100%
Packaging material			
Cardboard		2,92	17%
Plastic	Polyethylene	0,02	0,14%

Technical data:

Total chair weight: 17,09 kg (incl. Packaging)

Market:

Sweden

Reference service life, product:
15 years

Reference service life, building:
15 years

LCA: Calculation rules

Declared unit:

1 piece of Active R3 High chair.

Data quality:

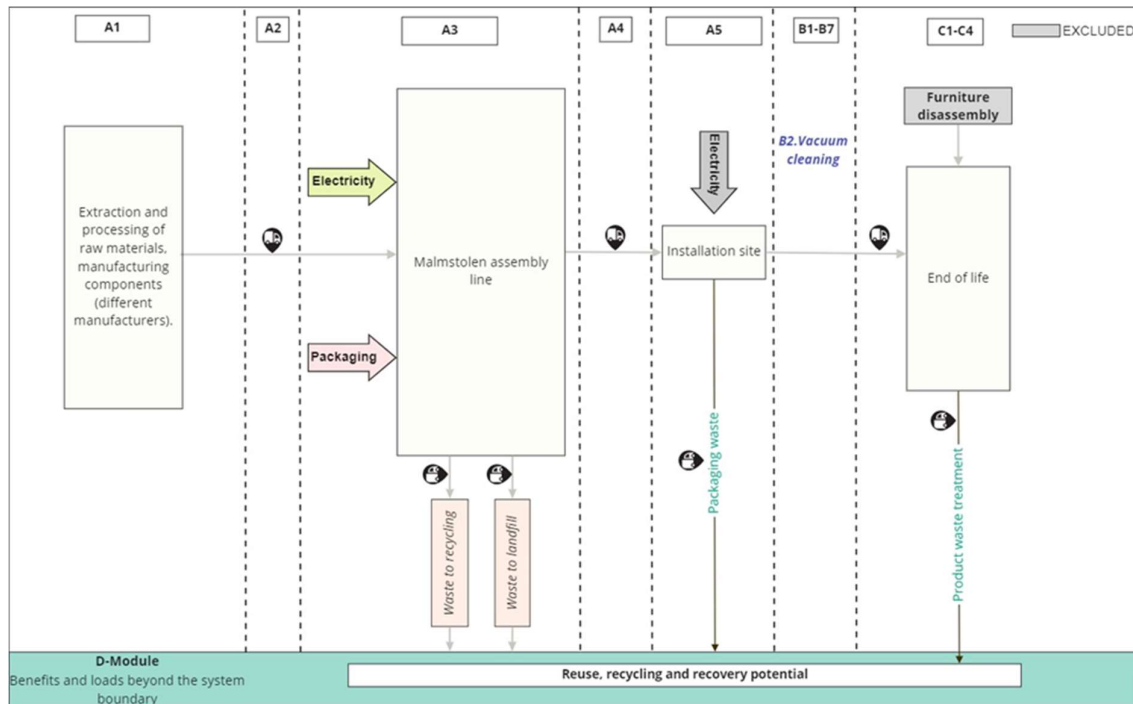
The chairs produced by Malmstolen are made of different components manufactured by different suppliers. It was not possible to get data from all the suppliers and therefore only A3, where final assembly occurs, is based on specific data. Database used is mainly Ecoinvent 3.8. The LCA software used is GABI 10.6. No datasets used are older than 10 years.

Allocation:

The allocation is made in accordance with the provisions of EN15804:A2.

System boundary:

All life cycle stages are included in the study; product stage (module A1-A3), construction process stage (module A4-A5), use stage (module B), end of life (EoL) stage (module C) and module D that includes benefits from the EoL treatment of materials directed to material or energy recovery. Please see Figure 2 below for more information.



Cut-off criteria:

All input and output flows in a unit process were considered i.e., taking into account the value of all flows in the unit process and the corresponding LCI where data was available. Data gaps were filled by conservative assumptions with average or generic data. Any assumptions in such case were documented. The use of cut-off criterion on mass inputs and primary energy at the unit process level (1%) and at the information module level (5%).

LCA: Scenarios and additional technical information

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

Transport from production place to assembly/user (A4)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance KM	Fuel/Energy consumption
Truck	80	Truck-trailer, Euro 0 - 6 mix, 34 - 40t / 27t payload capacity	350	0,014 l/tkm

A transportation distance of 350 km is assumed.

Assembly (A5)

The assembly of chairs occurs manually and therefore it is assumed that no emissions occur at this stage.

Maintenance (B2)

	Unit	Value
Maintenance cycle*		Once a month
Auxiliary	kg	-
Other resources	kg	-
Water consumption	m ³	-
Electricity consumption	kWh	2,4
Other energy carriers	MJ	-
Material loss	Kg	

It is assumed that a vacuum cleaner is used every month during the product's life to clean the chair based on the maintenance scenario mentioned in NPCR Part B furniture.

The average ~800-watt vacuum cleaner uses 0,8 kWh of electricity per one hour of use.

It is assumed that it takes 1 minute to clean the chair once.

End of Life (C1, C3, C4)

	Unit	Value
Hazardous waste disposed	Kg	-
Collected as mixed construction waste	Kg	15,73
Reuse	Kg	-
Recycling	Kg	-
Energy recovery	Kg	-
To landfill	Kg	15,73

Technically, the chair is over 90 % recyclable, if disassembled correctly. However, a conservative scenario was chosen, and the chair is assumed to be 100 % landfilled.

Transport to waste processing (C2)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance KM	Fuel/Energy consumption
Truck	80 %	Average truck trailer with a 27 t payload	100	0,014 l/tkm

Transport distance to waste processing is assumed to be 100 km.

Benefits and loads beyond the system boundaries (D)

This product has no considerable benefits or loads resulting from reusable products or recyclable materials leaving the product system.

LCA: Results

Potential environmental impact – 1 piece of Active R3 High chair

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

Product stage			Assembly stage		Use stage							End of life stage				Benefits & loads beyond system boundary
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	X	X	X	X	X	X	X	X	X	X	X	X

Core environmental impact indicators

Indicator	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-total	kg CO2 eq.	7,5E+01	1,5E+00	2,8E+00	8,0E+01	9,8E-02	4,7E+00	0,0E+00	1,8E-05	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	6,7E-02	0,0E+00	2,0E+01	0,0E+00
GWP-fossil	kg CO2 eq.	6,0E+01	1,5E+00	2,2E+00	6,4E+01	9,6E-02	4,7E-02	0,0E+00	3,4E-01	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	6,6E-02	0,0E+00	1,8E+00	0,0E+00
GWP-biogenic	kg CO2 eq.	1,2E+01	3,7E-02	5,2E-01	1,3E+01	2,2E-03	4,6E+00	0,0E+00	3,4E-01	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	1,7E-03	0,0E+00	1,8E+01	0,0E+00
GWP-LULUC	kg CO2 eq.	2,9E+00	1,4E-04	1,8E-02	2,9E+00	8,0E-06	7,1E-06	0,0E+00	5,9E-05	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	6,3E-06	0,0E+00	4,3E-04	0,0E+00
ODP	kg CFC11 eq.	5,4E-05	2,9E-13	2,3E-07	5,4E-05	2,7E-13	2,3E-13	0,0E+00	2,0E-14	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	7,0E-15	0,0E+00	1,0E-12	0,0E+00

AP	mol H ⁺ eq.	8,7E-01	2,8E-03	1,0E-02	8,8E-01	5,8E-04	3,9E-04	0,0E+00	4,2E-04	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	3,7E-04	0,0E+00	4,1E-03	0,0E+00
EP-freshwater	kg P eq.	1,5E-02	4,8E-07	1,2E-03	1,6E-02	4,2E-08	5,7E-08	0,0E+00	8,7E-08	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	2,2E-08	0,0E+00	3,2E-04	0,0E+00
EP-marine	kg N eq.	1,7E-01	1,2E-03	5,8E-03	1,7E-01	1,7E-04	1,3E-04	0,0E+00	1,5E-04	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	1,9E-04	0,0E+00	3,8E-03	0,0E+00
EP-terrestrial	mol N eq.	3,4E+00	1,3E-02	3,3E-02	3,4E+00	1,9E-03	1,7E-03	0,0E+00	1,5E-03	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	2,0E-03	0,0E+00	1,5E-02	0,0E+00
POCP	kg NMVOC eq.	1,7E-01	2,5E-03	8,2E-03	1,8E-01	4,8E-04	3,4E-04	0,0E+00	3,9E-04	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	3,5E-04	0,0E+00	9,1E-03	0,0E+00
ADP-M&M	kg Sb eq.	1,9E-04	8,0E-08	1,1E-05	2,0E-04	7,6E-09	5,9E-09	0,0E+00	3,8E-09	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	3,6E-09	0,0E+00	5,3E-08	0,0E+00
ADP-fossil	MJ	8,2E+02	2,0E+01	5,0E+01	8,9E+02	1,4E+00	5,6E-01	0,0E+00	2,3E+01	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	9,0E-01	0,0E+00	1,1E+01	0,0E+00
WDP	m ³	4,9E+01	2,1E-03	1,1E+00	5,0E+01	7,7E-04	1,1E-01	0,0E+00	2,8E-02	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	8,0E-05	0,0E+00	6,3E-02	0,0E+00

GWP-total: Global Warming Potential; **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; See “additional Norwegian requirements” for indicator given as PO4 eq. **EP-marine:** Eutrophication potential, fraction of nutrients reaching freshwater end compartment; **EP-terrestrial:** Eutrophication potential, Accumulated Exceedance; **POCP:** Formation potential of tropospheric ozone; **ADP-M&M:** Abiotic depletion potential for non-fossil resources (minerals and metals); **ADP-fossil:** Abiotic depletion potential for fossil resources; **WDP:** Water deprivation potential, deprivation weighted water consumption

Additional voluntary environmental impact

Indicator	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG	kg CO ₂ eq.	6,4E+01	1,5E+00	2,0E+00	6,7E+01	9,7E-02	4,7E+00	0,0E+00	3,3E-01	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	6,7E-02	0,0E+00	1,5E+01	0,0E+00

This indicator supports comparability with EPDs based on the previous version of EN 15804 (EN 15804:2012+A1:2013).

Additional environmental impact indicators

Indicator	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PM	Disease incidence	7,3E-06	1,7E-08	2,1E-07	7,5E-06	8,6E-09	3,0E-09	0,0E+00	4,6E-09	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	2,0E-09	0,0E+00	4,1E-08	0,0E+00
IRP	kBq U235 eq.	1,4E+00	4,4E-03	1,0E+00	2,4E+00	3,9E-03	1,6E-03	0,0E+00	9,2E-01	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	1,1E-04	0,0E+00	2,0E-02	0,0E+00
ETP-fw	CTUe	1,4E+03	3,8E+00	5,1E+01	1,4E+03	3,9E-01	1,9E-01	0,0E+00	1,2E+01	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	1,7E-01	0,0E+00	2,0E+01	0,0E+00
HTP-c	CTUh	9,6E-08	7,5E-11	1,2E-09	9,7E-08	7,5E-12	8,8E-12	0,0E+00	2,5E-11	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	3,4E-12	0,0E+00	5,5E-10	0,0E+00
HTP-nc	CTUh	7,7E-07	3,8E-09	2,8E-08	8,0E-07	3,6E-10	3,9E-10	0,0E+00	4,4E-09	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	2,2E-10	0,0E+00	6,0E-08	0,0E+00
SQP	Dimensionless	3,5E+03	3,7E-01	1,6E+02	3,6E+03	1,3E-01	1,2E-01	0,0E+00	3,6E-02	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	1,4E-02	0,0E+00	8,5E-01	0,0E+00

PM: Particulate matter emissions; **IRP:** Ionising radiation, human health; **ETP-fw:** Ecotoxicity (freshwater); **ETP-c:** Human toxicity, cancer effects; **HTP-nc:** Human toxicity, non-cancer effects; **SQP:** Land use related impacts / soil quality

Classification of disclaimers to the declaration of core and additional environmental impact indicators

ILCD classification	Indicator	Disclaimer
ILCD type / level 1	Global warming potential (GWP)	None
	Depletion potential of the stratospheric ozone layer (ODP)	None
	Potential incidence of disease due to PM emissions (PM)	None
	Acidification potential, Accumulated Exceedance (AP)	None
ILCD type / level 2	Eutrophication potential, Fraction of nutrients reaching marine end compartment (EP-marine)	None
	Eutrophication potential, Accumulated Exceedance (EP-terrestrial)	None
	Formation potential of tropospheric ozone (POCP)	None
	Potential Human exposure efficiency relative to U235 (IRP)	1
ILCD type / level 3	Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)	2
	Abiotic depletion potential for fossil resources (ADP-fossil)	2
	Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	2
	Potential Comparative Toxic Unit for ecosystems (ETP-fw)	2
	Potential Comparative Toxic Unit for humans (HTP-c)	2

Potential Comparative Toxic Unit for humans (HTP-nc)	2
Potential Soil quality index (SQP)	2
Disclaimer 1 – 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.	
Disclaimer 2 – 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	

Resource use

Parameter	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
RPEE	MJ	1,5E+02	6,0E-01	2,9E+01	1,8E+02	2,1E-01	1,2E-01	0,0E+00	2,6E-02	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	2,3E-02	0,0E+00	9,0E-01	0,0E+00
RPEM	MJ	2,2E+01	0,0E+00	5,3E+01	7,5E+01	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
TPE	MJ	1,7E+02	6,0E-01	8,2E+01	2,5E+02	2,1E-01	1,2E-01	0,0E+00	2,6E-02	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	2,3E-02	0,0E+00	9,0E-01	0,0E+00
NRPE	MJ	7,7E+02	2,0E+01	5,0E+01	8,4E+02	1,4E+00	5,6E-01	0,0E+00	2,3E+01	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	9,1E-01	0,0E+00	1,1E+01	0,0E+00
NRPM	MJ	5,1E+01	0,0E+00	8,0E-01	5,2E+01	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
TRPE	MJ	8,4E+02	2,0E+01	5,1E+01	9,1E+02	1,4E+00	5,6E-01	0,0E+00	2,3E+01	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	9,1E-01	0,0E+00	1,1E+01	0,0E+00
SM	kg	1,6E+00	0,0E+00	0,0E+00	1,6E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
RSF	MJ	3,8E-22	0,0E+00	0,0E+00	3,8E-22	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
NRSF	MJ	4,5E-21	0,0E+00	0,0E+00	4,5E-21	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
W	m ³	1,1E+00	1,7E-04	3,1E-02	1,2E+00	9,2E-05	2,7E-03	0,0E+00	5,9E-03	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	5,8E-06	0,0E+00	1,8E-03	0,0E+00

RPEE Renewable primary energy resources used as energy carrier; RPEM Renewable primary energy resources used as raw materials; TPE Total use of renewable primary energy resources; NRPE Non renewable primary energy resources used as energy carrier; NRPM Non renewable primary energy resources used as materials; TRPE 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; W Use of net fresh water

End of life - Waste

Parameter	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HW	KG	1,6E-04	6,5E-11	5,2E-04	6,8E-04	3,3E-11	3,9E-11	0,0E+00	4,8E-11	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	2,2E-12	0,0E+00	1,6E-09	0,0E+00
NHW	KG	3,7E-01	6,7E-04	4,7E-01	8,4E-01	3,0E-04	2,0E-02	0,0E+00	2,0E-03	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	2,4E-05	0,0E+00	1,1E+01	0,0E+00
RW	KG	8,1E-04	4,3E-05	6,6E-03	7,4E-03	3,8E-05	1,6E-05	0,0E+00	8,0E-03	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	1,1E-06	0,0E+00	1,3E-04	0,0E+00

HW Hazardous waste disposed; NHW Non hazardous waste disposed; RW Radioactive waste disposed

End of life – output flow

Parameter	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
CR	kg	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
MR	kg	3,6E-01	0,0E+00	2,9E-01	6,5E-01	0,0E+00	2,3E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
MER	kg	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
EEE	MJ	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
ETE	MJ	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00

CR Components for reuse; MR Materials for recycling; MER Materials for energy recovery; EEE Exported electric energy; ETE Exported thermal energy

Reading example: $9,0 \text{ E-}03 = 9,0 \cdot 10^{-3} = 0,009$

Information describing the biogenic carbon content at the factory gate

Biogenic carbon content	Unit	Value
Biogenic carbon content in product	kg C	0,62
Biogenic carbon content in the accompanying packaging	kg C	1,3

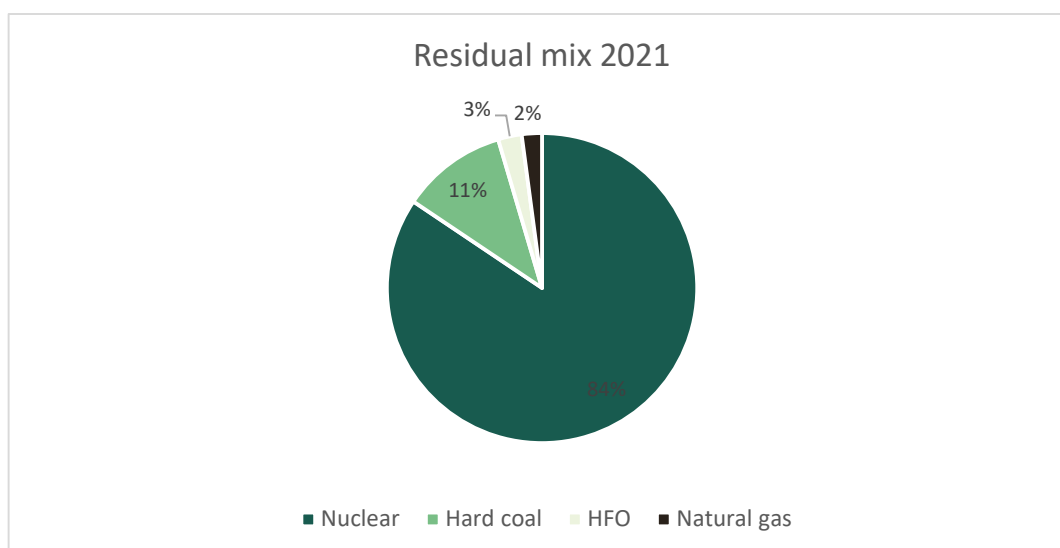
44/12 is the ratio between the molecular mass of CO₂ and C molecules.

Additional Norwegian requirements

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

The power-mix is based on Swedish residual mix 2021 (Source: European Residual Mixes 2021 - Association of Issuing Bodies).

Residual mix	Unit	Value
Location	-	Sweden
Electricity mix	-	Nuclear: 84,5% Hard coal: 11% HFO: 2,48% Natural gas: 2,09%
Reference year	-	2021
GWP excl. biogenic	kg CO2 -eq/kWh	0,14/kWh



Additional environmental impact indicators required in NPCR Part A for construction products

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.

Indicator	Unit	A1	A2	A3	A1-A3
GWP-IOBC	kg CO2 eq.	6,0E+01	1,5E+00	2,2E+00	6,4E+01

GWP-IOBC Global warming potential calculated according to the principle of instantaneous oxidation.

Hazardous substances

The declaration is based upon reference to threshold values and/or test results and/or material safety data sheets provided to EPD verifiers. Documentation available upon request to EPD owner.

- ✓ The product contains no substances given by the REACH Candidate list or the Norwegian priority list.

- The product contains substances given by the REACH Candidate list or the Norwegian priority list that are less than 0,1 % by weight.
- The product contain dangerous substances, more then 0,1% by weight, given by the REACH Candidate List or the Norwegian Priority list, see table.
- The product contains no substances given by the REACH Candidate list or the Norwegian priority list. The product is classified as hazardous waste (Avfallsforskiten, Annex III), see table.

Indoor environment

The product meets the requirements for low emissions.

Carbon footprint

Carbon footprint has not been worked out for the product.

Additional environmental data

Global warming potential for various add-on options for the series Active R3 High chair:

Neckrest

Indicator	Unit	A1	A2	A3	A1-A3
GWP-total	kg CO2 eq.	8,53E+00	2,56E-01	1,24E-01	8,91E+00
GWP-fossil	kg CO2 eq.	8,51E+00	2,49E-01	6,13E-02	8,82E+00
GWP-biogenic	kg CO2 eq.	1,64E-02	6,39E-03	6,26E-02	8,54E-02
GWP-LULUC	kg CO2 eq.	3,12E-03	2,38E-05	3,69E-06	3,15E-03

Arm rest (pair)

Indicator	Unit	A1	A2	A3	A1-A3
GWP-total	kg CO2 eq.	7,51E+00	2,92E-02	6,44E-02	7,60E+00
GWP-fossil	kg CO2 eq.	4,70E+00	2,85E-02	3,19E-02	4,76E+00
GWP-biogenic	kg CO2 eq.	2,23E+00	7,25E-04	3,26E-02	2,26E+00
GWP-LULUC	kg CO2 eq.	5,79E-01	2,70E-06	1,92E-06	5,79E-01




Variant:

Active R3 Medium chair

Indicator	Unit	A1	A2	A3	A1-A3
GWP-total	kg CO2 eq.	7,52E+01	1,49E+00	2,77E+00	7,95E+01
GWP-fossil	kg CO2 eq.	6,01E+01	1,45E+00	2,23E+00	6,38E+01
GWP-biogenic	kg CO2 eq.	1,22E+01	3,68E-02	5,20E-01	1,28E+01
GWP-LULUC	kg CO2 eq.	2,91E+00	1,37E-04	1,84E-02	2,93E+00

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	Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products
ISO 21930:2007	Sustainability in building construction - Environmental declaration of building products

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