epd-norway
Global Program Operator

ENVIRONMENTAL PRODUCT DECLARATION

in accordnce with ISO 14025, ISO 21930 and EN 15804

Owner of the declaration:	Fora Form AS
Program operator:	The Norwegian EPD Foundation
Publisher:	The Norwegian EPD Foundation
Declaration number:	NEPD-3849-2802-EN
Registration number:	NEPD-3849-2802-EN
ECO Platform reference number:	-
Issue date:	27.10.2022
Valid to:	27.10.2027

Planet chair

Fora Form AS

www.epd-norge.no

General information

Product:

Planet chair

Owner of the declaration:

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Program operator:

The Norwegian EPD Foundation
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Manufacturer:

Fora Form AS

Declaration number:

NEPD-3849-2802-EN

Place of production:

Fora Form AS
Mosflatevegen 6154 Ørsta
Norway

ECO Platform reference number:

Management system:

NS-EN ISO 14001: 2015 No. 800406. NS-EN ISO 9001: 2015 No. 901268. NS-EN ISO 45001: 2018 No 907167.

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A1:2013 serves as core PCR
NPCR 026:2018 Part B for furniture

Organisation no:

986 581 421

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.

Issue date:

27.10.2022

Valid to:

27.10.2027

Declared unit:

1 Pcs Planet chair

Year of study:

2022

Declared unit with option:

A1,A2,A3,A4,A5,B1,B2

Comparability:

EPDs from programmes other than the Norwegian EPD Foundation may not be comparable

Functional unit:

Functional unit whitout cardboard / 13,56 kg

Development and verification of EPD:

The declaration has been developed and verified using EPD tool lca.tools ver EPD2020.11, developed by LCA.no AS. The EPD tool is integrated into the company's environmental management system, and has been approved by EPD-Norway

Developer of EPD:

Kåre Sætre

Reviewer of company-specific input data and EPD:

Stig Robert Sporstøl

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. Individual third party verification of each EPD is not required when the EPD tool is i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPDNorway, and iii) the proccess is reviewed annualy. See Appendix G of EPD-Norway's General Programme Instructions for further information on EPD tools.

Verification of EPD tool:

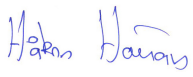
Independent third party verification of the EPD tool, background data and test-EPD in accordance with EPDNorway's procedures and guidelines for verification and approval of EPD tools.

Erik Svanes, Norsus AS

(no signature required)

Approved:

Sign



Håkon Hauan, CEO EPD-Norge

Key environmental indicators	Unit	Cradle to gate A1 - A3
Global warming	kg CO2 eqv	80,61
Total energy use	MJ	1221,87
Amount of recycled materials	%	20,93

Product

Market:

Worldwide

Product description:

The chair was designed by Sven Ivar Dysthe in 1965. The chair is an established Norwegian furniture classic, also recognized internationally. The enclosing ball shape provides a very good sitting experience. The plane chair fits well in most environments with its round precise design. This versatile chair performs well in quiet rooms, receptions, lounge, teeming areas and at home. A modern design icon that will last a lifetime and the round shapes gives and enclosing snug feeling.

Exchangeable cover for seat cushion.
Move mechanism improved comfort
Can be swiveled 360 degrees.
Available with contrast stitching
Chrome base, white or black epoxy coating
NCS / RAL colored base on request.
Plastic gliders.

Technical data:

Furniture tested and approved
NS-EN 16139:2013
NS-EN 1022:2005
NS-EN 1335-3:2009
NS-EN 1728:2012

Reference service life, product

15 years

Reference service life, building

Product specification

Dimensions :
Width: 75cm
Height: 75cm
Depth: 64cm
Seat height: 43cm

Materials	kg	%	Recycled share in material (kg)	Recycled share in material (%)
Metal - Aluminium	0,43	2,76	0,43	100,00
Metal - Steel	6,49	41,69	1,29	19,95
Textile - Wool	1,30	8,36	0,00	0,00
Plastic - Polyurethane (PUR)	4,64	29,83	0,00	0,00
Plastic - Polyoxymethylene (POM)	0,01	0,06	0,01	50,00
Wood - Solid beech/birch	0,47	3,02	0,00	0,00
Wood - Plywood	0,20	1,29	0,00	0,00
Lacquer, water based	0,01	0,06	0,00	0,00
Plastic - Nylon (PA)	0,01	0,06	0,00	0,00
Cardboard	2,00	12,86	1,53	76,30
Total:	15,56		3,26	

LCA: Calculation rules

Declared unit:

1 Pcs Planet chair

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.

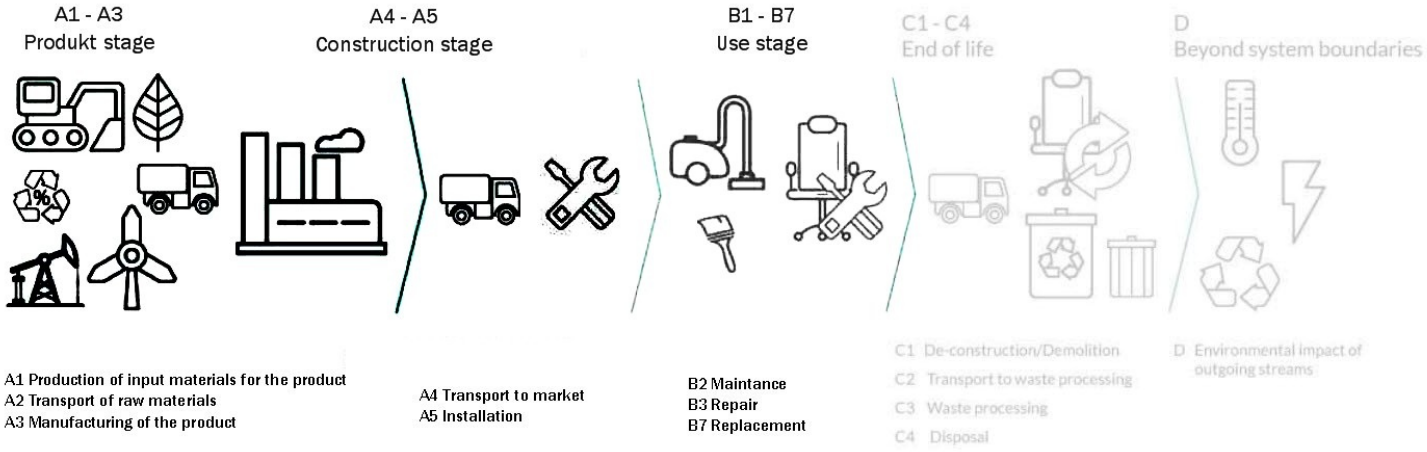
Allocation:

The allocation is made in accordance with the provisions of EN 15804. 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.

System boundary:



Additional technical information:

We want you to enjoy your furniture for many years to come. If you follow our advice in this Quality and Maintenance Manual you contribute to prolonged life of your furniture. We only use environmentally friendly materials and processes in our manufacturing unit in Ørsta Norway. Our goal is to manufacture furniture that can last for generations. All furniture made by Fora Form are made of FSC certified wood, manufactured according to ISO 14001, and has an EPD on all products. This ensures sustainability and a "cradle to cradle" philosophy. We actively work to reduce waste. All packing materials and waste are being recycled according to Norsk Gjenvinning.

Norwegian and Swedish Møbelfakta are accredited test facilities where furniture quality, strength, durability, flammability, safety, emissions and materials are tested and documented. A piece of furniture, which lives up to the three areas of requirements of Møbelfakta, has undergone extensive testing, is produced according to ethical guidelines and has been approved according to environmental requirements. Møbelfakta is a guarantee of high quality products. Almost all of Fora Forms collection is Møbelfakta approved.

Fora Form are ISO 9001 quality management, ISO 14001 environmental management and ISO 45001 occupational health and safety management certified. Sustainability is important for Fora Form.

We continuously work to sort and reduce our waste, and collaborate with Norsk Gjenvinning and Grønt Punkt (Green Dot Norway plc) regarding recycling of used packing materials. All wood is FSC certified.
Our manufacturing unit in Ørsta use electricity that is 100% originated from renewable sources.

Transportation to an average customer in Oslo is 540 km (A4: average European lorry > 32 tonnes)

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)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Unit	Value (l/t)
Truck	38,8 %	Truck, 16-32 tonnes, EURO 5	540	0,044606	l/tkm	24,09
Railway					l/tkm	
Boat					l/tkm	
Other Transportation					l/tkm	

Assembly (A5)

.	Unit	Value
Auxiliary	kg	
Water consumption	m^3	
Electricity consumption	kWh	
Other energy carriers	MJ	
Material loss	kg	
Output materials from waste treatment	kg	2,0000
Dust in the air	kg	
VOC emissions	kg	

Use (B1)

.	Unit	Value
Water (L)	L/DU	1,00

LCA: Results

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

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

Product stage			Construction installation stage		User stage							End of life stage				.	Beyond the system bondaries
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										.	

Environmental impact

Parameter	Unit	A1	A2	A3	A4	A5	B1	B2
GWP	kg CO_2 -eq	7,83E+01	2,35E+00	4,93E-03	1,19E+00	1,07E+00	3,64E-04	0
ODP	kg CFC11 -eq	2,98E-06	4,33E-07	5,14E-10	2,20E-07	1,25E-08	3,50E-11	0
POCP	kg C_2H_4-eq	2,42E-02	3,83E-04	6,15E-06	1,94E-04	5,80E-05	1,16E-07	0
AP	kg SO_2 -eq	4,61E-01	7,49E-03	2,93E-05	3,80E-03	5,40E-04	1,90E-06	0
EP	kg PO_4^{3-} -eq	8,93E-02	1,24E-03	8,87E-06	6,30E-04	3,26E-04	2,39E-07	0
ADPM	kg Sb -eq	4,46E-04	7,16E-06	2,29E-08	3,63E-06	1,63E-07	1,33E-09	0
ADPE	MJ	8,29E+02	3,54E+01	5,76E-02	1,79E+01	1,09E+00	4,00E-03	0

GWP Global warming potential; ODP Depletion potential of the stratospheric ozone layer; POCP Formation potential of tropospheric photochemical oxidants; AP Acidification potential of land and water; EP Eutrophication potential; ADPM Abiotic depletion potential for non fossil resources; ADPE Abiotic depletion potential for fossil resources

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

Resource use

Parameter	Unit	A1	A2	A3	A4	A5	B1	B2
RPEE	MJ	1,47E+02	5,16E-01	3,77E-01	2,62E-01	1,20E+01	7,60E-04	0
RPEM	MJ	5,27E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0
TPE	MJ	2,00E+02	5,16E-01	3,77E-01	2,62E-01	1,20E+01	7,60E-04	0
NRPE	MJ	1,04E+03	3,62E+01	6,92E-02	1,84E+01	9,08E+00	6,14E-03	0
NRPM	MJ	9,22E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0
TRPE	MJ	1,13E+03	3,62E+01	6,92E-02	1,84E+01	9,08E+00	6,14E-03	0
SM	kg	3,26E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0
RSF	MJ	0,00E+00	0,00E+00	2,66E-05	0,00E+00	0,00E+00	0,00E+00	0
NRSF	MJ	0,00E+00	0,00E+00	2,72E-02	0,00E+00	0,00E+00	0,00E+00	0
W	m^3	8,95E-01	6,78E-03	4,05E-05	3,44E-03	2,91E-03	1,17E-03	0

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

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

End of life - Waste

Parameter	Unit	A1	A2	A3	A4	A5	B1	B2
HW	kg	5,60E-03	2,12E-05	9,12E-08	1,07E-05	2,32E-06	1,58E-08	0
NHW	kg	4,87E+01	1,91E+00	2,83E-03	9,67E-01	7,99E-01	2,30E-04	0
RW	kg	INA*	INA*	INA*	INA*	INA*	INA*	0

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

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

End of life - Output flow

Parameter	Unit	A1	A2	A3	A4	A5	B1	B2
CR	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0
MR	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,89E-02	0,00E+00	0
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0
EEE	MJ	INA*	INA*	INA*	INA*	INA*	INA*	0
ETE	MJ	INA*	INA*	INA*	INA*	INA*	INA*	0

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 E-03 = 9,0*10-3 = 0,009
*INA Indicator Not Assessed

Additional Norwegian 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	Data source	Amount	Unit
Energy, district heating, Norwegian average (kWh)	Østfoldforskning	19,71	g CO2-ekv/kWh

Dangerous substances

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

Indoor environment

Our furniture doesn't contain any substanses that effect indoor clima

Additional environmental information

Key environmental indicators for variants for this EPD: Cradle to Gate analyse from A1 to A3

Variant number	Global warming (kg CO2)	Total energy use (MJ)	Share of recycled material in product(%)
Planet chair REFORM	100,85	1 498,61	0,58

Bibliography

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