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The Norwegian EPD Foundation

ENVIRONMENTAL PRODUCT DECLARATION
in accordance with ISO 14025, ISO 21930 and EN 15804

Owner of the declaration:	Vestre AS
Program operator:	The Norwegian EPD Foundation
Publisher:	The Norwegian EPD Foundation
Declaration number:	NEPD-3034-1698-EN
Registration number:	NEPD-3034-1698-EN
ECO Platform reference number:	-
Issue date:	26.08.2021
Valid to:	26.08.2026

Folk seat, anchoring with base plate

Vestre AS

www.epd-norge.no

General information

Product:

Folk seat, anchoring with base plate

Owner of the declaration:

Vestre AS
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Program operator:

The Norwegian EPD Foundation
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Manufacturer:

Vestre AS

Declaration number:

NEPD-3034-1698-EN

Place of production:

Vestre AS
Drammensveien 44A 0271 Oslo
Norway

ECO Platform reference number:

Management system:

ISO 14001:2015, Cert nr. 1422367 and ISO 9001: 2015, Cert nr. 32147

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:

948 140 349

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: 26.08.2021

Valid to: 26.08.2026

Declared unit:

1 Pcs Folk seat, anchoring with base plate

Year of study:

2020

Declared unit with option:

A1,A2,A3,A4,A5,C1,C2,C3,C4,D

Comparability:

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

Functional unit:

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:

Michaela Båtnäs

Reviewer of company-specific input data and EPD:

Øyvind Bjørnstad

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	77,36
Total energy use	MJ	1521,31
Amount of recycled materials	%	42,75

Product

Market:

Global

Product description:

FOLK seat pays tribute to the Swedish 'Folkhemmet' and the classic park bench. It is available with or without a backrest. The unique ends are extruded aluminum profiles from the world's greenest aluminum plant at Karmøy.

Product specification

Technical data:

Reference service life, product

50 years

Reference service life, building

Materials	kg	%	Recycled share in material (kg)	Recycled share in material (%)
Metal - Steel	0,40	0,98	0,00	0,00
Wood - Solid pine	14,70	36,19	0,01	0,06
Powder coating	0,43	1,05	0,00	0,00
Aluminium	22,40	61,77	18,39	82,10

Packaging	kg		Recycled share in material (kg)	Recycled share in material (%)
Packaging - Cardboard	0,34		0,26	76,30
Packaging - Pallet	5,23		0,00	0,00
Packaging - Plastic	0,16		0,00	0,00

LCA: Calculation rules

Declared unit:

1 Pcs Folk seat, anchoring with base plate

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.

Where virgin materials are used, emissions and energy consumption connected with extraction and production are included.
Where recycled materials are used in the product, emissions and energy consumption related to the recycling process are included.
Emissions from incineration are allocated to the product system that uses the recovered energy.
Emissions from incineration of waste are allocated to the product system that uses the recovered energy.
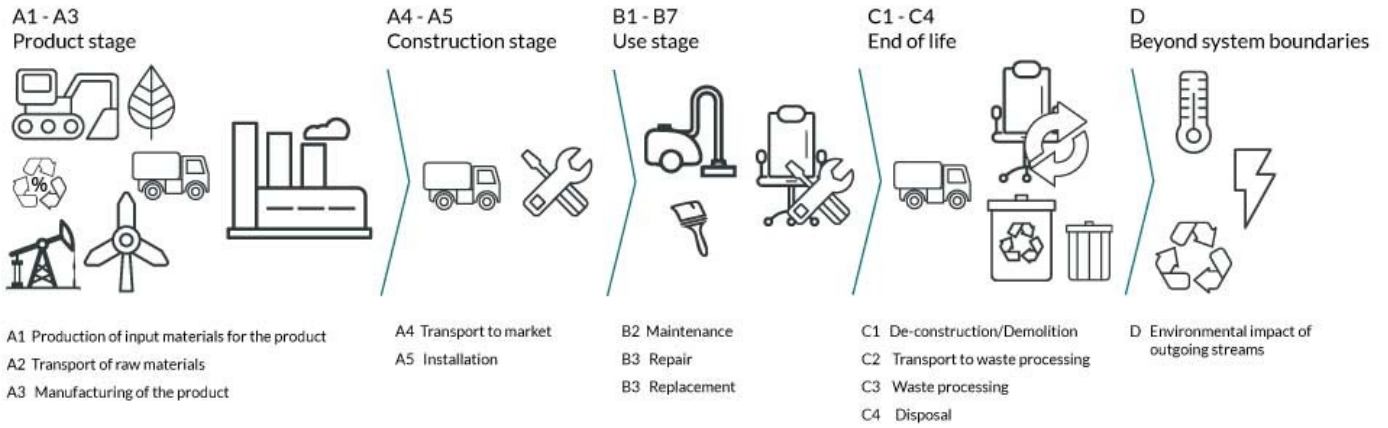
Data quality:

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.

Specific manufacturing data are used. Raw materials by and large using EPD data, except for minor items like nuts & screws which are based on databases.

Materials	Source	Data quality	Year
Metal - Steel	ecoinvent 3.4	Database	2017
Packaging - Cardboard	ecoinvent 3.4	Database	2017
Packaging - Plastic	ecoinvent 3.4	Database	2017
Packaging - Pallet	Modified ecoinvent 3.4	Database	2017
Aluminium	NEPD-1841-768 and ecoinvent 3.4	Database	2017
Powder coating	ecoinvent 3.5	Database	2018
Wood - Solid pine	Average (NEPD-474-330, NEPD-1808-766, NEPD-1818-767 and NEPD-2196-1003)	EPD	2020

System boundary:

Life cycle stages included are described in the figure and through the corresponding letter and number designations in the declaration (see figure below).

A1 - A3 Product stage	A4 - A5 Construction stage	B1 - B7 Use stage	C1 - C4 End of life	D Beyond system boundaries
A1 Production of input materials for the product	A4 Transport to market	B2 Maintenance	C1 De-construction/Demolition	D Environmental impact of outgoing streams
A2 Transport of raw materials	A5 Installation	B3 Repair	C2 Transport to waste processing	
A3 Manufacturing of the product		B3 Replacement	C3 Waste processing	
			C4 Disposal	

Additional technical information:

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

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

Transportation to an average customer in Paris, France is 1,850 km (A4: average Euro 6 lorry > 32 tonnes). The use stage is not represented currently, as it varies very much, although the furniture as a rule require very little maintenance. End of life is represented by a dismantling and recycling of metals, whilst wood currently is being sent to incineration. We aim to change this as well.

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	55,0 %	Truck, over 32 tonnes, EURO 6	1850	0,022606	l/tkm	41,82
Railway					l/tkm	
Boat					l/tkm	
Other Transportation					l/tkm	

Assembly (A5)

.	Unit	Value
Auxiliary	kg	
Water consumption	m³	
Electricity consumption	kWh	
Other energy carriers	MJ	
Material loss	kg	
Output materials from waste treatment	kg	0,4965
Dust in the air	kg	
VOC emissions	kg	

End of Life (C1, C3, C4)

.	Unit	Value
Hazardous waste disposed	kg	
Collected as mixed construction waste	kg	
Reuse	kg	
Recycling	kg	
Energy recovery	kg	14,7000
To landfill	kg	0,1731

Transport to waste processing (C2)

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 6	500	0,043626	l/tkm	21,81
Railway					l/tkm	
Boat					l/tkm	
Other Transportation					l/tkm	

..

Benefits and loads beyond the system boundaries (D)

.	Unit	Value
Substitution of Steel, low-alloyed (kg)	kg	3,79
Substitution of electricity, in Norway (MJ)	MJ	21,01
Substitution of thermal energy, district heating, in Norway (MJ)	MJ	163,29
Substitution of primary construction steel, with net scrap steel (kg)	kg	0,40

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	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	.	X

Environmental impact

Parameter	Unit	A1	A2	A3	A4	A5
GWP	kg CO_2 -eq	7,45E+01	1,63E+00	1,20E+00	6,68E+00	7,15E-01
ODP	kg CFC11 -eq	4,64E-06	3,08E-07	8,41E-07	1,37E-06	2,58E-08
POCP	kg C_2H_4-eq	5,25E-02	2,47E-04	2,81E-04	1,05E-03	5,20E-05
AP	kg SO_2 -eq	5,50E-01	3,84E-03	7,43E-03	1,73E-02	1,38E-03
EP	kg PO_4^{3-} -eq	8,51E-02	5,04E-04	1,70E-03	2,38E-03	3,65E-04
ADPM	kg Sb -eq	3,16E-04	5,08E-06	9,19E-06	1,59E-05	3,83E-07
ADPE	MJ	1,43E+03	2,47E+01	1,30E+01	1,10E+02	2,82E+00

Parameter	Unit	C1	C2	C3	C4	D
GWP	kg CO_2 -eq	0	3,48E+00	2,20E+01	-1,96E+00	-8,54E+00
ODP	kg CFC11 -eq	0	6,55E-07	7,12E-08	-1,62E-07	-6,26E-07
POCP	kg C_2H_4-eq	0	5,27E-04	1,07E-04	-1,00E-03	-6,32E-03
AP	kg SO_2 -eq	0	8,18E-03	2,81E-03	-1,16E-02	-3,88E-02
EP	kg PO_4^{3-} -eq	0	1,07E-03	8,28E-04	-8,56E-04	-1,24E-02
ADPM	kg Sb -eq	0	1,08E-05	9,77E-07	-4,22E-07	-1,48E-04
ADPE	MJ	0	5,25E+01	6,08E+00	-2,11E+01	-8,48E+01

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
RPEE	MJ	4,63E+02	3,64E-01	4,46E+01	1,99E+00	7,88E+01
RPEM	MJ	3,71E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TPE	MJ	8,34E+02	3,64E-01	4,46E+01	1,99E+00	7,88E+01
NRPE	MJ	8,81E+02	2,53E+01	1,07E+02	1,13E+02	9,70E+00
NRPM	MJ	1,91E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TRPE	MJ	9,00E+02	2,53E+01	1,07E+02	1,13E+02	9,70E+00
SM	kg	2,09E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	8,06E-02	0,00E+00	4,25E-02	0,00E+00	0,00E+00
NRSF	MJ	5,37E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00
W	m^3	5,30E-01	4,78E-03	2,59E-02	2,68E-02	2,54E-03

Parameter	Unit	C1	C2	C3	C4	D
RPEE	MJ	0	7,75E-01	1,16E-01	-9,17E+00	-8,43E+01
RPEM	MJ	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TPE	MJ	0	7,75E-01	1,16E-01	-9,17E+00	-8,43E+01
NRPE	MJ	0	5,38E+01	6,29E+00	-2,59E+01	-1,06E+02
NRPM	MJ	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TRPE	MJ	0	5,38E+01	6,29E+00	-2,59E+01	-1,06E+02
SM	kg	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0	0,00E+00	0,00E+00	0,00E+00	-4,14E-03
NRSF	MJ	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
W	m^3	0	1,02E-02	4,34E-03	-9,03E-03	-5,57E-02

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
HW	kg	5,34E-02	1,49E-05	3,99E-05	6,03E-05	4,48E-06
NHW	kg	3,82E+01	1,35E+00	7,98E-01	1,03E+01	2,42E-01
RW	kg	INA*	INA*	INA*	INA*	INA*

Parameter	Unit	C1	C2	C3	C4	D
HW	kg	0	3,17E-05	3,15E-05	2,06E-03	-6,46E-04
NHW	kg	0	2,88E+00	3,19E-01	-7,10E-01	-1,28E+01
RW	kg	0	INA*	INA*	INA*	INA*

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
CR	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MR	kg	2,96E-02	0,00E+00	4,20E+00	0,00E+00	0,00E+00
MER	kg	1,23E-01	0,00E+00	7,64E-04	0,00E+00	0,00E+00
EEE	MJ	INA*	INA*	INA*	INA*	INA*
ETE	MJ	INA*	INA*	INA*	INA*	INA*

Parameter	Unit	C1	C2	C3	C4	D
CR	kg	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MR	kg	0	0,00E+00	2,26E+01	0,00E+00	0,00E+00
MER	kg	0	0,00E+00	1,47E+01	0,00E+00	0,00E+00
EEE	MJ	0	INA*	INA*	INA*	INA*
ETE	MJ	0	INA*	INA*	INA*	INA*

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
El-mix, Sweden (kWh)	ecoinvent 3.4 Alloc Rec	42,67	g CO2-ekv/kWh

Dangerous substances

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

Indoor environment

Vestre recommends oak or ash if the product contains wood and is intended for indoor use.

Additional environmental information

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+A1:2013 Environmental product declaration - Core rules for the product category of construction products.
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