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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:	Fora Form AS
Program operator:	The Norwegian EPD Foundation
Publisher:	The Norwegian EPD Foundation
Declaration number:	NEPD-2203-1001-EN
Registration number:	NEPD-2203-1001-EN
ECO Platform reference number:	-
Issue date:	26.05.2020
Valid to:	26.05.2025

Knekk stool

Fora Form AS

www.epd-norge.no

General information

Product:

Knekk stool

Owner of the declaration:

Fora Form AS
Contact person: Camilla Løseth
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Program operator:

The Norwegian EPD Foundation
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Manufacturer:

Fora Form AS

Declaration number:

NEPD-2203-1001-EN

Place of production:

Mosflatevegen
6154 Ørsta
N

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
PCR fot furniture NPCR 021 , Norwegian EPD Foundation

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: 26.05.2020

Valid to: 26.05.2025

Declared unit:

1 Pcs Knekk stool

Year of study:

2020

Declared unit with option:

A1,A2,A3,A4

Comparability:

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

Functional unit:

Author of the Life Cycle Assessment:

The declaration is developed using eEPD v3.0 from LCA.no
Approval:
Company specific data are:

Collected/registered by: Kåre Sætre

Internal verification by: Camilla Løseth

Verification:

Independent verification of data, other environmental information and the declaration according to ISO14025:2010, § 8.1.3 and § 8.1.4

Third party verifier:

Sign

Seniorforsker Erik Svanes

(Independent verifier approved by EPD Norway)

Approved:

Sign

Håkon Hauan
Managing Director of EPD-Norway

Key environmental indicators	Unit	Cradle to gate A1 - A3
Global warming	kg CO2 eqv	3,34
Total energy use	MJ	134,25
Amount of recycled materials	%	16,60

Product

Market:

Worldwide

Product description:

Interaction and function meet Nordic minimalism. The horizontal part of the seat provides for reflection and relaxation. The askew part of the seat gives direction for active interaction and support new and innovative processes.
“Knekk” is a student work by Jon Fauske designed to capture Fora Form values in a young and surprising fashion.
The modern designed solid wood stool is stackable with brass details.
Natural oak. Stackable. Brass cover on footrest.

Technical data:

Dimensions: W: 46 cm H: 66 cm D: 53 cm SH: 66 cm
Weight : 5 kg (packaging exluded)

Reference service life, product

Reference service life, building

Product specification

Materials	kg	%	Recycled share in material (kg)	Recycled share in material (%)
Metal - Brass	0,20	4,27	0,00	0,00
Plastic - Polyoxymethylene (POM)	0,01	0,13	0,00	50,00
Wood - Solid oak	4,40	93,90	0,00	0,00
Paint, water-based	0,40	1,71	0,00	0,00

Packaging	kg		Recycled share in material (kg)	Recycled share in material (%)
Packaging - Cardboard	1,50		1,14	76,30

LCA: Calculation rules

Declared unit:

1 Pcs Knekk stool

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:

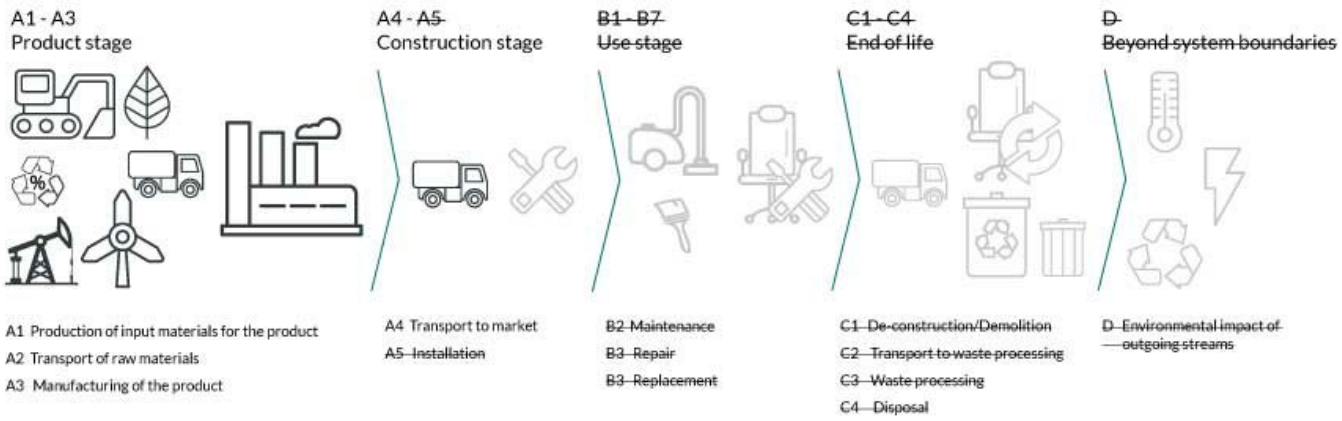
The allocation is made in accordance with the provisions of EN 15804. Effects of primary production of recycled materials is allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

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.

Materials	Source	Data quality	Year
Plastic - Polyoxymethylene (POM)	ecoinvent 3.4	Database	2015
Metal - Brass	ecoinvent 3.4	Database	2017
Metal - Steel	ecoinvent 3.4	Database	2017
Packaging - Cardboard	ecoinvent 3.4	Database	2017
Paint, water-based	ecoinvent 3.4	Database	2017
Plastics	ecoinvent 3.4	Database	2017
Wood - Solid oak	ecoinvent 3.4	Database	2017

System boundary:



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.

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 5	500	0,022823	l/tkm	11,41
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 fr ste treatment	kg	
Dust in the air	kg	
VOC emissions	kg	

Use (B1)

.	Unit	Value

Maintenance (B2)/Repair (B3)

.	Unit	Value
Maintenance cycle*		
Auxiliary		
Other resources		
Water consumption	m^3	
Electricity consumption	kWh	
Other energy carriers	MJ	
Material loss	kg	
VOC emissions	kg	

Replacement (B4)/Refurbishment (B5)

.	Unit	Value
Replacement cycle*		
Electricity consumption	kWh	
Replacement of worn parts		

* Described above if relevant

Operational energy (B6) and water consumption (B7)

.	Unit	Value
Water consumption	m^3	
Electricity consumption	kWh	
Other energy carriers	MJ	
Power output of equipment	kW	

End of Life (C1, C

.	Unit	Value
Hazardous waste disposed	kg	
Collected as mixed construction wa	kg	
Reuse	kg	
Recycling		
Energy recovery		
To landfill	kg	

Scenarios after A1-A4 are not included

Transport to waste processing (C2)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Unit	Value (l/t)
Truck					l/tkm	
Railway					l/tkm	
Boat					l/tkm	
Other Transportation					l/tkm	

LCA: Results

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	MND	MND	MND	MND	MND	MND	MNR	MND	MND	MND	MND	MND	.	MND

Environmental impact

Parameter	Unit	A1	A2	A3	A4
GWP	kg CO_2 -eq	3,34E+00	5,94E-01	7,76E-03	2,83E-01
ODP	kg CFC11 -eq	2,86E-07	1,16E-07	7,34E-10	5,53E-08
POCP	kg C_2H_4-eq	3,02E-03	9,61E-05	1,74E-06	4,58E-05
AP	kg SO_2 -eq	6,61E-02	1,93E-03	3,62E-05	9,22E-04
EP	kg PO_4^{3-} -eq	1,76E-02	3,24E-04	8,73E-06	1,55E-04
ADPM	kg Sb -eq	6,74E-04	1,34E-06	1,27E-07	6,40E-07
ADPE	MJ	3,84E+01	9,33E+00	7,87E-02	4,45E+00

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
RPEE	MJ	9,09E+01	1,69E-01	1,02E+00	8,04E-02
RPEM	MJ	5,83E+01	0,00E+00	0,00E+00	0,00E+00
TPE	MJ	1,49E+02	1,69E-01	1,02E+00	8,04E-02
NRPE	MJ	4,33E+01	9,62E+00	1,35E-01	4,59E+00
NRPM	MJ	1,11E-01	0,00E+00	0,00E+00	0,00E+00
TRPE	MJ	4,34E+01	9,62E+00	1,35E-01	4,59E+00
SM	kg	1,15E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	1,77E-04	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00
W	m^3	6,72E-02	2,27E-03	5,65E-05	1,08E-03

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
HW	kg	2,47E-04	5,11E-06	1,74E-07	2,44E-06
NHW	kg	5,98E+00	8,73E-01	1,03E-02	4,16E-01
RW	kg	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
CR	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MR	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	INA*	INA*	INA*	INA*
ETE	MJ	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, Norway (kWh)	ecoinvent 3.4	31,04	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 climate.

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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