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The Norwegian EPD Foundation

ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025

Owner of the declaration	Fora Form AS
Program holder and publisher	The Norwegian EPD Foundation
Declaration number	NEPD-1270-412-EN
Issue date	09.03.2017
Valid to	09.03.2022

UP three seat sofa with backrest

Product

FORA FORM

Fora Form AS

Manufacturer

General information

Product
One UP three seat sofa upholstered with backrest

Owner of the declaration:
Fora Form AS
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General Information
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Manufacturer
Fora Form AS

Declaration number:
NEPD-1270-412-EN

Place of production:
Mosflatevegen 6154 Ørsta Norway

This declaration is based on Product Category Rules:
PCR for seating solution,NPCR 003 extended version 2013, in accordance with recommedations by the norwegian EPD Foundation.

Management system:
NS-EN ISO 14001:2004 Certificat No.800406
NS-EN ISO 9001:2008 Certificat No.901268

Declared unit:
One UP three seat sofa upholstered with backrest

Org. No:
Org No 986 581 421

Declared unit with option:
No options

Issue date:
09.03.2017

Functional unit:
Production of one seating solution provided and maintained for a period of 15. years

Valid to:
09.03.2022

This EPD has been worked out by:
The declaration has been developed using Furniture EPD Tool Version 1.1.2
Company specific data collected and registered by:
Kåre Sætre
Company specific data audited by:
Anders Utgård

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

Year of study:
2016

Verification:
Independent verification of data, other environmental information and EPD has been carried out in accordance with ISO14024, 8.1.3. and 8.1.4.

Approved

externally

Mie Vold, Senior Research Scientist
(Independent verifier approved by EPD Norway)

Håkon Hauan
Managing Director of EPD-Norway

Key environmental indicators	Unit	Cradle to Gate A1-A3
Global warming	kg CO_2	134
Total energy use	MJ	1516
Amount of recycled materials	%	1 %

Product

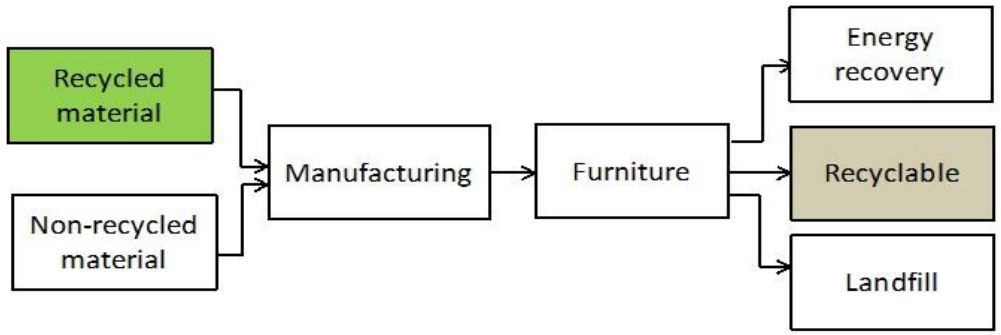
Product Description and Application
The Up sofa system was designed by Knudsen, Berg and Hindenes.The idea was to design a modular sofa system with a pure simple shape. The solid construction is ideal for sitting on the backrest, and invites to informal sitting positions. The sofa system can be placed in the center of the room. The versatile module system can be easily adapted to different interiors with a wide range of upholstery options, and different bases.

Technical Data
Total Weight: 46,7 kg.

Market
Europe and USA

Reference Service Life
15 years

Materials	kg	%
Wood	22,9	49,1
Polypropylene	0,3	0,6
Steel	2,4	5,1
POM	0,3	0,6
Polyurethane	16,6	35,6
Polyethylene	0,5	1,0
Textiles	3,7	7,9
Total	46,7	



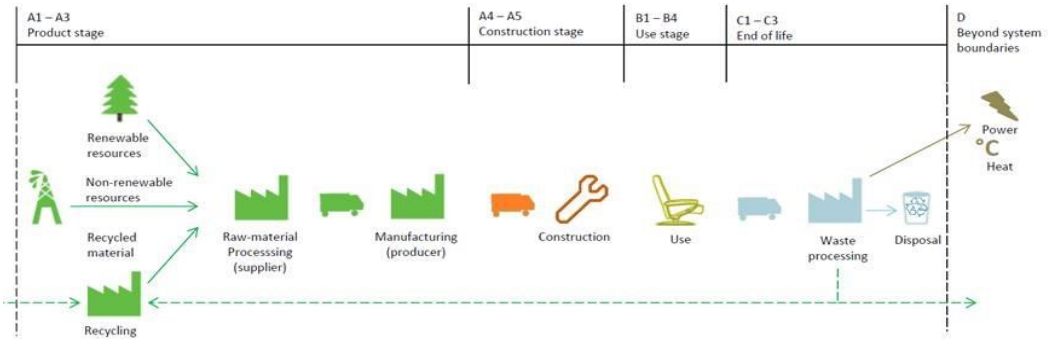
Materials	Recycled	Recycled amount	Recycled materials	Recyclable	Recyclable amount	Recyclable materials
Unit	%	kg	%	%	kg	%
Wood	0 %	0,0		0 %	0,0	
Polypropylene	50 %	0,2		100 %	0,3	
Steel	0 %	0,0		100 %	2,4	
POM	50 %	0,2		100 %	0,3	
Polyurethane	0 %	0,0		100 %	16,6	
Polyethylene	0 %	0,0		100 %	0,5	
Textiles	0 %	0,0		0 %	0,0	
Total		0	1 %		20,1	43 %

Product manufactured from 0% recycled material
At end of life product contains 42% recyclable material

LCA: Calculation rules

Declared unit:

System boundary:
Life cycle stages included are described in figure and through the corresponding letter and number designations in the



Data quality:
Specific manufacturing data from 2014 are used. Data from Ecoinvent 3.0.1. and Østfoldforskning databases are used as the basis for raw materials and energy carrier production. See [6].

Cut-off criteria:
All major raw materials and all the essential energy is included. The production processes for raw materials and energy flows that are included with very small amounts (<1%) are not included. This cut-off rule does not apply for hazardous materials and substances

Allocation:
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.

LCA: Scenarios and additional technical information

Transportation to an average customer in Copenhagen is 1000 km (A4: average European lorry > 32 tonnes)

The use stage (B1) is represented by a scenario and includes vacuum cleaning of textile once a month. The PCR does not provide detailed guidelines for what should be included in the use stage. In the end of life stage, the transport distance for waste to waste processing is 72 km (C1). The reuse, recovery and recycling stage is beyond the system boundaries (D). It is assumed that the solution is dismantled and the materials recycled or combusted according to general Norwegian treatment of industrial waste (see the table below). This calculation includes only CO2 emissions (GWP) in the C-modules. The transport distance to reuse, recovery or recycling varies for each material, but the average distance is 373 km. The vehicles used and associated data are described in detail in [5].

	Material recovery	Energy recovery	Disposal
Aluminium	70,1 %	0,0 %	30 %
Steel	70,1 %	0,0 %	30 %
Plastic	64,3 %	30,8 %	5 %
Cardboard	94,5 %	5,5 %	0 %

LCA: Results

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

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

Product stage			Construction stage		Use stage				End of life			Beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	Construction	Maintenance	Repair	Replacement	Operational energy use	Transport	Waste Processing	Disposal	Reuse-recovery-recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	C1	C2	C3	D
x	x	x	x	MNR	x	MNR	MNR	MNR	x	x	x	x

Environmental impact (INA = Indicator Not Assessed)

Parameter	A1	A2	A3	A1-A3	A4	B1	C1	C2	C3	C1-C3	D
GWP	133,0	0,1	0,6	133,7	0,0	0,0	3,1	46,0	5,7	54,7	-21,3
ODP	3,0E-06	6,3E-09	6,2E-08	3,0E-06	0,0	0,0	INA	INA	INA	INA	-1,7E-09
POCP	0,1	1,2E-05	1,4E-04	0,1	0,0	0,0	INA	INA	INA	INA	-2,8E-02
AP	0,2	8,7E-05	1,1E-03	0,2	0,0	0,0	INA	INA	INA	INA	-7,5E-03
EP	0,6	3,6E-04	2,2E-03	0,6	0,0	0,0	INA	INA	INA	INA	-6,9E-02
ADPM*	2,1E-04	2,8E-07	7,4E-07	2,1E-04	0,0	0,0	INA	INA	INA	INA	-8,0E-07
ADPE	2235,1	1,3	8,2	2244,5	0,0	0,0	INA	INA	INA	INA	-702,7

GWP Global warming potential (kg CO2-eqv.); ODP Depletion potential of the stratospheric ozone layer (kg CFC11-eqv.); POCP Formation potential of tropospheric photochemical oxidants (kg C2H4-eqv.); AP Acidification potential of land and water (kg SO2-eqv.); EP Eutrophication potential (kg PO4-3-eqv.); ADPM Abiotic depletion potential for non fossil resources (kg Sb -eqv.); ADPE Abiotic depletion potential for fossil resources (MJ);

* Some processes use Ecoinvent 3.0.1. and thus data on renewable resources is omitted. The true ADPM, RPEE, RPEM and TPE may be higher than indicated. This issue will be addressed in a new version of Ecoinvent 3, data from which was not available when this declaration was prepared.

Resource use (INA = Indicator Not Assessed)

Parameter	A1	A2	A3	A1-A3	A4	B1	C1	C2	C3	C1-C3	D
RPEE*	17,6	0,0	0,6	18,2	0,0	0,0	INA	INA	INA	INA	-3,1
RPEM*	371,5	6,7E-03	0,5	372,0	0,0	0,0	INA	INA	INA	INA	-2,0
TPE*	389,1	6,7E-03	1,1	390,2	0,0	0,0	INA	INA	INA	INA	-5,0
NRPE	1487,2	1,3	8,9	1497,4	0,0	0,0	INA	INA	INA	INA	-691,2
NRPM	864,4	0,0	0,0	864,4	0,0	0,0	INA	INA	INA	INA	0,0
TNRPE	2351,6	1,3	8,9	2361,8	0,0	0,0	INA	INA	INA	INA	-691,2
SM	0,3	0,0	0,0	0,3	0,0	0,0	INA	INA	INA	INA	-1,8
RSF	0,0	0,0	0,0	0,0	0,0	0,0	INA	INA	INA	INA	0,0
NRSF	-0,3	0,0	0,8	0,5	0,0	0,0	INA	INA	INA	INA	0,0
W	97,8	3,6E-06	0,1	97,8	0,0	0,0	INA	INA	INA	INA	-14,9

RPEE Renewable primary energy resources used as energy carrier (MJ); RPEM Renwable primary energy resources used as raw materials (MJ); TPE Total use of renewable primary energy resources (MJ); NRPE Non renewable primary energy resources used as energy carrier (MJ); NRPM Non renewable primary energy resources used as materials (MJ); TNRPE Total use of non renewable primary energy resources (MJ); SM Use of secondary materials (kg); RSF Use of renewable secondary fuels (MJ); NRSF Use of non renewable secondary fuels (MJ); W Use of net fresh water (m3);

End of life - Waste and Output flow (INA = Indicator Not Assessed)

Parameter	A1	A2	A3	A1-A3	A4	B1	C1	C2	C3	C1-C3	D
HW	2,9E-03	1,6E-06	2,9E-05	3,0E-03	0,0	0,0	INA	INA	INA	INA	0,0
NHW	24,5	0,1	0,2	24,8	0,0	0,0	INA	INA	INA	INA	-0,3
RW	0,0	0,0	0,0	0,0	0,0	0,0	INA	INA	INA	INA	0,0
CR	0,0	0,0	0,0	0,0	0,0	0,0	INA	INA	INA	INA	0,0
MR	0,0	0,0	0,0	0,0	0,0	0,0	INA	INA	INA	INA	0,0
MER	0,0	0,0	0,0	0,0	0,0	0,0	INA	INA	INA	INA	0,0
EEE	0,0	0,0	0,0	0,0	0,0	0,0	INA	INA	INA	INA	0,0
ETE	0,0	0,0	0,0	0,0	0,0	0,0	INA	INA	INA	INA	0,0

HW Hazardous waste disposed (kg); NHW Non hazardous waste disposed (kg); RW Radioactive waste disposed (kg); CR Components for reuse (kg); MR Materials for recycling (kg); MER Materials for energy recovery (kg); EEE Exported electric energy (MJ); ETE Exported thermal energy (MJ);

Specific Norwegian requirements

Electricity

The electricity consumed is Norwegian electric power

Dangerous Substances
None of the following substances have been added to the product :
Substances on the REACH Candidate list of substances of very high concern (of '16.06.2014) and substances that lead to the product being classified as hazardous waste. The chemical content of the product complies with regulatory levels as given in the Norwegian Product Regulations

Indoor environment
Our furniture doesn't contain any substrates that affect indoor climate.

Climate declaration

Not relevant

Bibliography

[1] NS-EN ISO 14025:2006, Environmental labels and declarations-Type III environmental declarations-Principles and procedures.

[2] NS-EN ISO 14044:2006, Environmental management - Life cycle assessment - Requirements and guidelines

[3] EN 15804:2012 + A1:2013 Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products

[4] PCR for seating solution: PRODUCT-CATEGORY RULES(PCR) for preparing an environmental product declaration (EPD) for Product Group “Seating solution”, PCR 2008:NPCR 003, extended version

[5] Raadal, H. L., Modahl, I. S., Lyng, K. A. (2009). Klimaregnskap for avfallshåndtering, Fase I og II. OR 18.09. ISBN : 978-82-7520-611-2, 82-7520-611-1

[6] Brekke, A., Møller, H., Baxter, J., Askham, C. (2014). Verktøy - miljødeklarasjon for møbel Dokumentasjon som grunnlag for verifisering, Ostfold Research

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