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The Norwegian EPD Foundation

ENVIRONMENTAL PRODUCT DECLARATION



In accordance with ISO 14025

Owner of the declaration	VAD AS
Program holder and publisher	The Norwegian EPD Foundation
Declaration number	NEPD-1778-751-EN
Issue date	2019-05-21
Valid to	2024-05-21

Pivot Cave 3-seater without armrest

Product



VAD AS

Manufacturer



General information



Product

Pivot Cave 3-seater, modular sofa system.
Multiple choice of upholstery.

Owner of the declaration:

VAD AS
Contact person: Arnt Idar Dalen
Phone: +47 922 05 712
e-mail: arnt@vad.no

General Information

The Norwegian EPD Foundation
Post Box 5250 Majorstuen, 0303 Oslo
Phone: +47 922 05 712
e-mail: post@epd-norge.no

Manufacturer

VAD AS

Declaration number:

Place of production:

Gaurės g. 2C, Tauragė 72333, Litauen

This declaration is based on Product Category Rules:

NPCR 003:2015 Version 2.1 Seating
The Norwegian EPD Foundation

Management system:

VAD Internal Management System

Declared unit:

Pivot 3-seater without armrest

Org. No:

NO 982 812 046

Declared unit with option:

No options

Issue date:

Functional unit:

Production of one seating solution provided and maintained for a period of 15 years

Valid to:

This EPD has been worked out by:

The declaration has been developed using Furniture EPD Tool Version 1.4.3., Approval: NEPDT04
Company specific data collected and registered by:
Arnt Idar Dalen
Company specific data audited by:
Håkon Vad

Comparability:

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

Year of study:

2018

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	87
Total energy use	MJ	2475
Amount of recycled materials	%	12 %

Product

Product Description and Application

Pivot standard sections come in several shapes and desired upholstery. Modules with or without backs are available, and arm rests as you please. Design: Torstein Nilsen, Designer NIL & Sigurd Strøm, Designer

Technical Data

Total weight: 39,8 kg (packaging included)

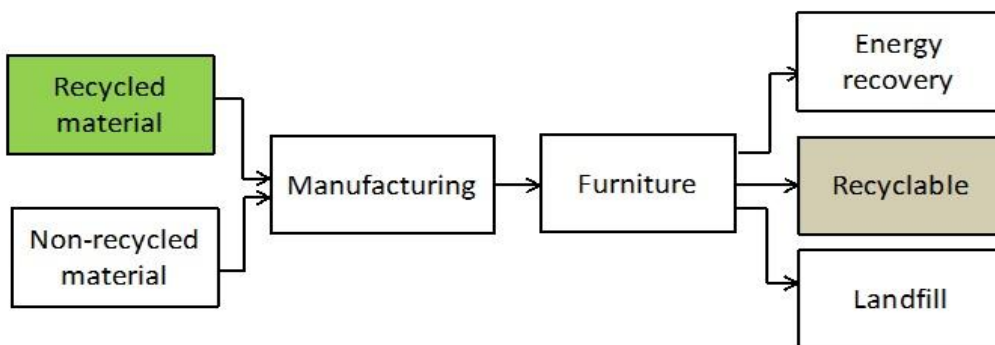
Market

Europe

Reference Service Life

15 years

Materials			Recycled material in manufactured product		Recyclable material at end of product life	
Unit	kg	%	%	kg	%	kg
Wood	22,70	57 %	0 %	0,00	0 %	0,00
Polyurethane	6,64	17 %	0 %	0,00	100 %	6,64
Steel	4,62	12 %	50 %	2,31	100 %	4,62
Packaging	3,40	9 %	76 %	2,58	100 %	3,40
Textiles	1,81	5 %	0 %	0,00	0 %	0,00
Polyethylene	0,59	1 %	0 %	0,00	100 %	0,59
Total	39,76		12 %		38 %	



Product manufactured from 12% recycled material

At end of life product contains 38% recyclable material

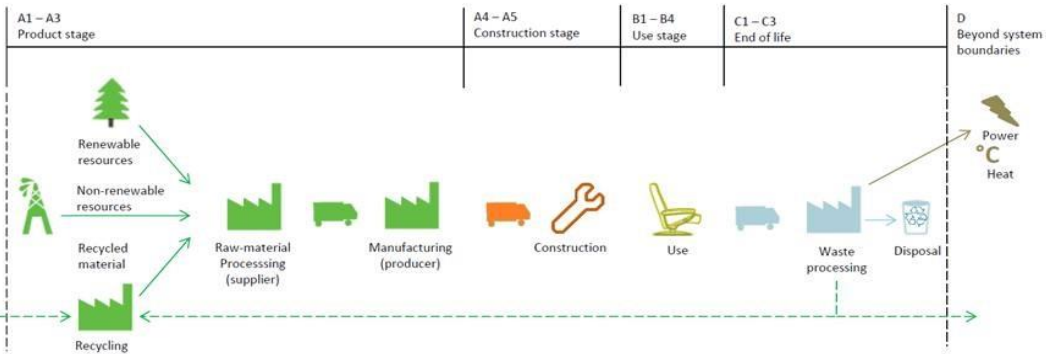
LCA: Calculation rules

Declared Unit

One Pivot 3-seater sofa without armrest and with powder coated legs

System Boundary

Life cycle stages included are described in figure and through the corresponding letter and number designations in the declaration



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.

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 scenarios 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	78,5	0,9	7,3	86,6	0,0	0,0	2,4	22,0	5,6	30,1	-13,3
ODP	2,9E-06	1,7E-07	5,3E-07	3,6E-06	0,0	0,0	INA	INA	INA	INA	0,0E+00
POCP	3,8E-02	1,4E-04	1,4E-03	3,9E-02	0,0	0,0	INA	INA	INA	INA	0,0E+00
AP	0,5	3,3E-03	2,8E-02	0,5	0,0	0,0	INA	INA	INA	INA	0,0E+00
EP	0,2	7,6E-04	1,9E-02	0,2	0,0	0,0	INA	INA	INA	INA	0,0E+00
ADPM*	1,8E-04	2,2E-06	1,1E-05	2,0E-04	0,0	0,0	INA	INA	INA	INA	0,0E+00
ADPE	1117,9	14,2	113,0	1245,0	0,0	0,0	INA	INA	INA	INA	-348,0

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 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*	1100,9	0,2	38,8	1139,9	0,0	0,0	INA	INA	INA	INA	0,0
RPEM*	740,4	4,8E-02	20,6	761,1	0,0	0,0	INA	INA	INA	INA	0,0
TPE*	1841,4	0,3	59,4	1901,0	0,0	0,0	INA	INA	INA	INA	0,0
NRPE	1189,3	14,5	131,1	1334,9	0,0	0,0	INA	INA	INA	INA	0,0
NRPM	119,6	0,0	13,1	132,7	0,0	0,0	INA	INA	INA	INA	0,0
TNRPE	1308,8	14,5	144,2	1467,5	0,0	0,0	INA	INA	INA	INA	0,0
SM	1,1	0,0	2,6	3,7	0,0	0,0	INA	INA	INA	INA	0,0
RSF	0,0	0,0	0,0	0,0	0,0	0,0	INA	INA	INA	INA	0,0
NRSF	0,0	0,0	0,0	0,0	0,0	0,0	INA	INA	INA	INA	0,0
W	0,0	0,0	0,0	0,0	0,0	0,0	INA	INA	INA	INA	0,0

RPEE Renewable primary energy resources used as energy carrier (MJ); RPEM Renewable 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	1,2E-03	7,5E-06	1,4E-04	1,3E-03	0,0	0,0	INA	INA	INA	INA	0,0
NHW	37,7	1,0	1,6	40,3	0,0	0,0	INA	INA	INA	INA	0,0
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	1,2E-03	0,0	0,0	1,2E-03	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 assumed to be European average

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] Product category rules (PCR) for preparing an environmental product declaration for:
Product Group Seating Solution NPCR 003: 2015; Product Group Plate Furniture NPCR 021: 2012

[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

 epd-norge.no The Norwegian EPD Foundation	Program Holder and Publisher The Norwegian EPD Foundation Post Box 5250 Majorstuen, 0303 Oslo Norge	Phone: +47 22 85 11 11 email: post@epd-norge.no web: www.epd-norge.no
 epd-norge.no The Norwegian EPD Foundation	Owner of the Declaration VAD AS Sandvikgata 14 6250 Stordal, Norway	Phone: +47 975 44 020 email: info@vad.no web: www.vad.no
 Østfoldforskning	Author of the Life Cycle Assessment Østfoldforskning AS Stadion 4 1671 Kråkerøy	Phone: +4769351100 email: post@ostfoldforskning.no web: www.ostfoldforskning.no

Pivot Cave variant model	Total weight (packaging included)	Global warming (kg CO2)	Total energy use (MJ)	Amount recycled materials (%)
Pivot Cave 1 seater	16,8	33	930	20
Pivot Cave 1,5 seater	19,8	39	1124	18
Pivot Cave 2 seater	28,2	54	1642	15
Pivot Cave 3 seater	39,8	87	2475	12
Pivot Cave Corner	29,9	74	2102	11
Pivot Cave Arc 60	33,4	79	2067	14