epd-norway
Global Program Operator

Environmental product declaration

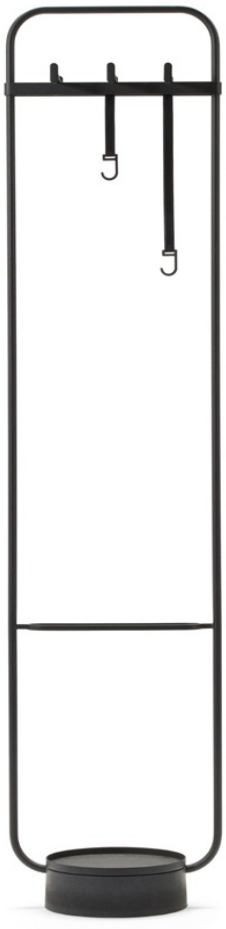
in accordance with ISO 14025, ISO 21930 and EN 15804

Owner of the declaration:	Flokk AS
Program operator:	The Norwegian EPD Foundation
Publisher:	The Norwegian EPD Foundation
Declaration number:	NEPD-4138-3378-EN
Registration number:	NEPD-4138-3378-EN
ECO Platform reference number:	-
Issue date:	30.12.2022
Valid to:	30.12.2027

OFFECCT Hanger

Flokk AS

www.epd-norge.no



OFFECCT

General information

Product:

OFFECCT Hanger

Owner of the declaration:

Flokk AS
Contact person: Atle Thiis-Messel
Phone: 0047 98 25 68 30
e-mail: atle.messel@flokk.com

Program operator:

The Norwegian EPD Foundation
Pb. 5250 Majorstuen, 0303 Oslo
Phone: +47 23 08 80 00
e-mail: post@epd-norge.no

Manufacturer:

Flokk AS
Drammensveien 145, 0277 Oslo
Norway

Declaration number:

NEPD-4138-3378-EN

Place of production:

Flokk - Turek
ul. Górnicza 8 62-700 Turek
Poland

ECO Platform reference number:

Management system:

ISO 14001, ISO 9001, ISO 50001(Norway, Sweden)

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:

No 928 902 749

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: 30.12.2022

Valid to: 30.12.2027

Declared unit:

1 Pcs OFFECCT Hanger

Year of study:

2022

Declared unit with option:

A1,A2,A3,A4

Comparability:

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

Functional unit:

OFFECCT Hanger

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:

Damian Bakowski

Reviewer of company-specific input data and EPD:

Arleta Derdziak

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:

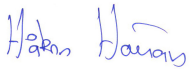
Independent third party verification of the EPD tool, background data and test-EPD in accordance with EPDNorway's procedures and guidelines for verification and approval of EPD tools.

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	39,56
Total energy use	MJ	553,66
Amount of recycled materials	%	20,87

Product

Market:

Worldwide

Product description:

The concept for Neri&Hu's Hanger is to create a new kind of furniture for people who like to hang their garments and accessories out in the open in a room, in plain sight, rather than concealed in a closet or wardrobe. It is a sign of respect for the garments, but also motivated by hygienic reasons — to air the garments out after a day's wear in, for example, a hotel room.

Technical data:

Height - 1800 mm
Width - 400 mm
Depth - 265 mm

Reference service life, product

5 yeaars

Reference service life, building

Product specification

Available for the United States market. Frame and hooks in black texture lacquer, foot in black concrete, black leather straps

Materials	kg	%	Recycled share in material (kg)	Recycled share in material (%)
Concrete	6,53	40,16	0,00	0,00
Metal - Aluminium	0,17	1,04	0,08	50,00
Metal - Steel	6,25	38,37	1,24	19,78
Leather	0,03	0,18	0,00	0,00
Plastic - Polypropylene (PP)	0,03	0,18	0,01	50,00
Packaging - Plastic	0,44	2,70	0,00	0,00
Metal coating - Powder coating on aluminium	0,01	0,16	0,00	0,00
Metal coating - Powder coating on steel	0,10	0,65	0,00	0,00
Cardboard	2,67	16,39	2,04	76,30
Packaging - Paper	0,01	0,06	0,00	0,00
Textile - Felt	0,05	0,31	0,03	72,22
Total:	16,29		3,40	

LCA: Calculation rules

Declared unit:

1 Pcs OFFECCT Hanger

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:

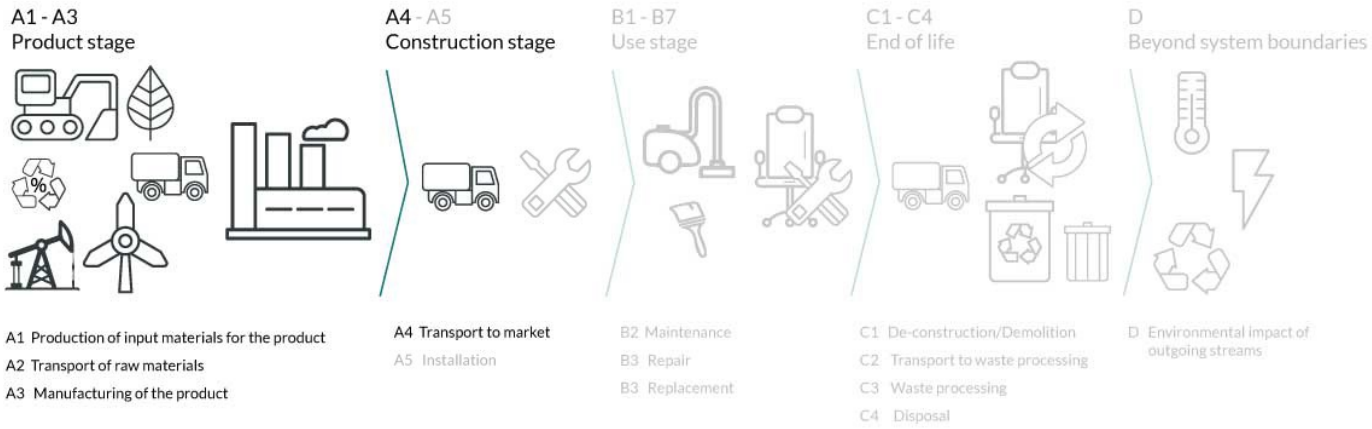
The allocation is made in accordance with the provisions of EN 15804. Effects of primary production of recycled materials is allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

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
Leather	Østfoldforskning	Database	2013
Plastic - Polypropylene (PP)	ecoinvent 3.4	Database	2015
Metal - Steel	ecoinvent 3.3	Database	2016
Cardboard	ecoinvent 3.4	Database	2017
Concrete	ecoinvent 3.4	Database	2017
Metal - Aluminium	ecoinvent 3.4	Database	2017
Metal - Steel	ecoinvent 3.4	Database	2017
Metal coating - Powder coating on aluminium	ecoinvent 3.4	Database	2017
Metal coating - Powder coating on steel	ecoinvent 3.4	Database	2017
Packaging - Paper	ecoinvent 3.4	Database	2017
Packaging - Plastic	ecoinvent 3.4	Database	2017
Process	ecoinvent 3.6	Database	2019
Textile - Felt	ecoinvent 3.6	Database	2019

System boundary:



Additional technical information:

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	1000	0,044606	l/tkm	44,61
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

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	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	.	MND

Environmental impact

Parameter	Unit	A1	A2	A3	A4
GWP	kg CO_2 -eq	3,22E+01	1,21E+00	6,12E+00	2,65E+00
ODP	kg CFC11 -eq	2,19E-06	2,26E-07	1,58E-07	4,89E-07
POCP	kg C_2H_4-eq	1,54E-02	1,99E-04	1,39E-03	4,32E-04
AP	kg SO_2 -eq	2,16E-01	4,76E-03	3,68E-02	8,45E-03
EP	kg PO_4^{3-} -eq	3,32E-02	8,49E-04	4,47E-03	1,40E-03
ADPM	kg Sb -eq	2,40E-04	2,42E-06	3,39E-07	8,08E-06
ADPE	MJ	3,34E+02	1,84E+01	6,23E+01	3,99E+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
RPEE	MJ	6,89E+01	3,42E-01	7,31E+00	5,82E-01
RPEM	MJ	1,55E+01	0,00E+00	0,00E+00	0,00E+00
TPE	MJ	8,44E+01	3,42E-01	7,31E+00	5,82E-01
NRPE	MJ	3,92E+02	1,90E+01	6,58E+01	4,09E+01
NRPM	MJ	1,55E+01	0,00E+00	0,00E+00	0,00E+00
TRPE	MJ	4,08E+02	1,90E+01	6,58E+01	4,09E+01
SM	kg	3,40E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	2,53E-03	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	2,69E-03	0,00E+00	0,00E+00	0,00E+00
W	m^3	3,96E-01	4,46E-03	3,28E-02	7,65E-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	3,88E-03	1,07E-05	3,14E-02	2,39E-05
NHW	kg	3,55E+01	1,52E+00	2,28E+00	2,15E+00
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	2,60E-05	0,00E+00	7,67E-01	0,00E+00
MER	kg	9,09E-04	0,00E+00	4,70E-03	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
Energy, electricity, Poland: 1 kWh	ecoinvent 3.6	1099,70	g CO2-ekv/kWh

Dangerous substances

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

Indoor environment

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(%)
OFFECCT Hanger	35,39	456,81	10,27

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

Option number	Global warming (kg CO2)	Total energy use (MJ)	Share of recycled material in product(%)
OFFECCT Hanger - Packaging	4,17	96,85	60,23

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.
ISO 21930:2017 Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products.
ecoinvent v3, Allocation, cut-off by classification, Swiss Centre of Life Cycle Inventories.
Iversen et al., (2018) eEPD v3.0 - Background information for EPD generator system. LCA.no report number 04.18
Vold et al., (2019) EPD generator for Norsk Industri, Background information for industry application and LCA data, LCA.no report number 06.19.
NPCR Part A: Construction products and services. Ver. 1.0. April 2017, EPD-Norge.
NPCR 026 Part B for Furniture. Ver. 2.0 October 2018, EPD-Norge.

epd-norway Global Program Operator	**Program operator and publisher** The Norwegian EPD Foundation Post Box 5250 Majorstuen, 0303 Oslo,Norway	Phone: e-mail: web:	+47 23 08 80 00 post@epd-norge.no www.epd-norge.no
Flokk	**Owner of the declaration** Flokk AS Drammensveien 145, 0277 Oslo	Phone: e-mail: web:	0047 98 25 68 30 atle.messel@flokk.com https://www.flokk.com
LCA.no	**Author of the Life Cycle Assessment** LCA.no AS Dokka 6B 1671 Kråkerøy	Phone: e-mail: web:	+47 916 50 916 post@lca.no www.lca.no
LCA.no	**Developer of EPD generator** LCA.no AS Dokka 1C 1671 Kråkerøy	Phone: e-mail: web:	+47 916 50 916 post@lca.no www.lca.no