

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

Interior door B30/Rw38dB



nordicdoor

The Norwegian EPD Foundation

Owner of the declaration:

Nordic Door AS

Product:

Interior door B30/Rw38dB

Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR .
NPCR 014:2019 Part B for Windows and Doors.

Program operator:

The Norwegian EPD Foundation

Declaration number:

NEPD-5627-4922-EN

Registration number:

NEPD-5627-4922-EN

Issue date: 15.01.2024

Valid to: 15.01.2029

EPD Software:

LCA.no EPD generator ID: 1875

General information

Product

Interior door B30/Rw38dB

Program operator:

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Declaration number:

NEPD-5627-4922-EN

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR 014:2019 Part B for Windows and doors

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.

Declared unit:

1 pcs Interior door B30/Rw38dB

Declared unit with option:

A1-A3,A4,B2,C1,C2,C3,C4,D

Functional unit:

Doorset for use in interior walls of houses, public and commercial buildings.

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. Verification of each EPD is made according to EPD-Norway's guidelines for verification and approval requiring that tools are i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPD-Norway, and iii) the process is reviewed annually by an independent third party verifier. 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 EPD Norway's procedures and guidelines for verification and approval of EPD tools.

Third party verifier:

Gaylord K. Booto, NILU

Owner of the declaration:

Nordic Door AS
Contact person: Tor Erick Sandvik
Phone: +47 920 40 866
e-mail: post@nordicdoor.no

Manufacturer:

Nordic Door AS

Place of production:

Nordic Door AS Travveien 3, 4580 Lyngdal, Norway

Management system:

ISO 9001, ISO 14001

Organisation no:

966 820 152

Issue date: 15.01.2024

Valid to: 15.01.2029

Year of study: 2022

Comparability:

EPD of construction products may not be comparable if they not comply with EN 15804 and seen in a building context.

Development and verification of EPD:

The declaration is created using EPD tool lca.tools ver EPD2022.03, developed by LCA.no. The EPD tool is integrated in the company's management system, and has been approved by EPD Norway.

Developer of EPD: Ana Maria Bouzada, Treteknisk Institute

Reviewer of company-specific input data and EPD: Tor Erick Sandvik, Nordic Door

Approved:

Håkon Hauan, CEO EPD-Norge

Product

Product description:

Door set for use in interior walls of houses, public and commercial buildings.

Product specification

The calculations are based on 1 painted interior door set measuring 1,23 x 2,18 m, with 42x92 mm frame and 52 mm door leaf, one lock and 4 hinges.

Materials	kg	%
Particle board	55,5	61,78
HDF board	13,05	14,53
Pine	8,00	8,91
Spruce	7,50	8,35
Metals	2,15	2,39
Oak	1,50	1,67
Top coat	0,80	0,89
Gasket	0,37	0,41
Glue	0,36	0,40
Primer	0,24	0,27
Plastic	0,17	0,19
Melamine	0,14	0,16
Varnish	0,05	0,06
Total weight of the product	89,98	100.0
Wood packaging	5,24	
Plastic packaging	0,97	
Total weight with packaging	96,04	

Technical data:

The dimension of the declared unit is 1,23x2,18 m and a mass of 89,7 kg, excluding packaging materials of 6,2 kg. The door has fire class B30 in accordance with EN 1634-1 and a noise reduction of 38dB according to EN ISO 10140. For climate door, the calculated U value is 1,5W/m²K.

Market:

Main market areas are Norway and other Nordic countries.

Reference service life, product 60 years.

Reference service life, building or construction works 60 years.

LCA: Calculation rules

Declared unit:

1 pcs Interior door B30/Rw38dB

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.

General cut-off criteria are given in standard EN 15804. In compliance with these criteria, all major raw materials and all the essential energy are included. The infrastructure of the manufacturing site, with very small amounts (<1%) are not included. This cut-off rule does 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. The PCR specific background data follow the allocation rules in the Ecoinvent v3.7.1 Cut-off database version. The allocation of water, energy and waste flows within the production facilities for windows and doors follows unit-based allocation adjusted with a point system to different product groups or products. This score system is regulated by a factor which increases with the resource intensity of each product. The unit-based allocation is adjusted by the weight of the product, excluding the weight of glass. 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. The PCR specific background data follow the allocation rules in the Ecoinvent v3.7.1 Cutoff database version.

Data quality:

Specific data for the product composition are provided by the manufacturer. The data represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on EPDs according to EN 15804 and different LCA databases. The data quality of the raw materials in A1 is presented in the table below.

Includes modules from Product Stage (A1-A3), Construction and Installation (A4-A5), Use Stage (B2), End of Life Stage (C2-C4), and Reuse, Recovery, Recycling potential (D). Modules B1, B3- B7 are not relevant for this analysis, according to NPCR014 Windows and doors.

The data quality requirements are according to NPCR 014 Windows and doors. Specific data collected from manufacturer is applied for the most important raw materials in A1-A2. Specific data from the 2022 production at the manufacturing site is applied in A3. The production data is from one production site, Lyngdal in Norway, so no average data has been used for different locations.

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

Product stage				Construction and installation		Use stage							End of life stage				Reuse-Recovery-Recycling potential
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	
MND	MND	MND	X	MND	MND	X	MND	MND	MND	MND	MND	X	X	X	X	X	

System boundary:

Includes modules from Product Stage (A1-A3), Construction and Installation (A4-A5), Use Stage (B2), End of Life Stage (C2-C4), and Reuse, Recovery, Recycling potential (D). Modules B1, B3- B7 are not relevant for this analysis, according to NPCR014 Windows and doors.



LCA: Scenarios and additional technical information

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

Scenario A4 transport

Scenarios for transport from the production gate to the construction site (A4) is included for beyond the cradle to gate system boundary as described in NPCR014. The following information describes the transport scenario in A4.

The transportation from production to construction site is based on a scenario where the product is transported on a large lorry, with average

Type	Capacity utilization (incl. return) %	Type of vehicle	Distance (km)	Fuel/ Energy consumption	Value (l/km)
Truck	26	Lorry 16-32 tons, EURO 5	500	0,044l/tkm	0,38

Installation(A5)

According to the report from EPD-Norge 'Harmonising the documentation of scenarios beyond cradle to gate, EN 15804' there is no loss on site during construction activities. The door in this EPD are painted and surface treated in the production and not at the building site. Therefore, there is only 2 items left in this module. 1) Waste treatment of packaging which is considered in the EPD calculations. 2) Energy use during installation. This can be varied depending on the floor, type of building and several other unknown parameters, and therefore ignored in the calculation.

A5 Installation inputs	Unit	Value
Water consumption	M3	0
Electricity consumption	MJ	0
Material loss	Kg	0
Output packaging to waste treatment	kg	6,26

Maintenance (B2)

The maintenance scenario included cleaning. Cleaning is performed three times per year. It is calculated with 1,5 dl of detergent and 3 liters of water each year. It is assumed that 5 gr of lubricating oil is used every year for fittings and moving parts. No repair is assumed during the product lifetime.

B2 Maintenance inputs	Unit	Value
Water consumption	M3	0,18
Detergent	kg	9
Lubricating oil	Kg	0,30
Transport	tkm	3,1

Deconstruction (C1)

As there are no data for de-construction, it is assumed no activities in C1 in this study.

Transport to waste processing (C2)

The transport of door as waste is calculated based on a scenario with 50 km distance.

Type	Capacity utilization (incl. return) %	Type of vehicle	Distance (km)	Fuel/ Energy consumption	Value (l/km)
Truck	44	Unspecified	50	0,03 l/tkm	0,28 l/km

End of Life (C3,C4)

Doors are assumed to be sorted as mixed construction waste and treated with incineration with energy recovery.

C3 and C4 End of Life inputs	Unit	Value
Hazardous waste disposal	Kg	0
Collected as mixed construction waste	Kg	89,7
Reuse	Kg	0
Recycling	Kg	1,02
Energy recovery	Kg	88,68
To landfill	Kg	0

Benefits and loads beyond system boundaries (D)

The benefits beyond life cycle has been modelled based on the output flows from module C3. This includes energy from incineration and scrap metal recovered from the ashes. The exported energy is substituting Norwegian district heating mix and electricity mix.

D Benefits and loads beyond system boundaries inputs	Unit	Value
Substitution of electricity	MJ	184
Substitution of thermal energy	MJ	1280

LCA: Results

The LCA results are presented below for the declared unit defined on page 2 of the EPD document.

Environmental impact										
Indicator	Unit	A1-A3	A4	B2	C1	C2	C3	C4	D	
 GWP-total	kg CO ₂ -eq	-8,73E+01	4,79E+00	7,85E+00	0,00E+00	5,69E-01	1,75E+02	7,28E-02	-1,10E+01	
 GWP-fossil	kg CO ₂ -eq	7,23E+01	4,78E+00	7,69E+00	0,00E+00	5,69E-01	1,76E+01	7,28E-02	-1,07E+01	
 GWP-biogenic	kg CO ₂ -eq	-1,61E+02	1,18E-03	2,82E-02	0,00E+00	2,25E-04	1,57E+02	4,25E-05	-3,19E-01	
 GWP-luluc	kg CO ₂ -eq	1,32E+00	1,66E-03	1,30E-01	0,00E+00	1,89E-04	5,43E-04	1,40E-05	-2,59E-02	
 ODP	kg CFC11 -eq	2,47E-06	9,68E-08	3,62E-07	0,00E+00	1,30E-07	1,14E-07	1,23E-08	-1,09E-06	
 AP	mol H ⁺ -eq	4,39E-01	1,10E-02	3,58E-02	0,00E+00	2,30E-03	2,80E-02	3,30E-04	-7,58E-02	
 EP-FreshWater	kg P -eq	6,58E-03	3,75E-05	4,08E-04	0,00E+00	4,34E-06	2,77E-05	8,67E-07	-3,81E-04	
 EP-Marine	kg N -eq	9,26E-02	2,82E-03	7,16E-03	0,00E+00	6,93E-04	1,46E-02	1,12E-04	-2,83E-02	
 EP-Terrestrial	mol N -eq	1,09E+00	3,11E-02	7,97E-02	0,00E+00	7,65E-03	1,48E-01	1,25E-03	-3,20E-01	
 POCP	kg NMVOC -eq	3,70E-01	1,90E-02	4,23E-02	0,00E+00	2,40E-03	3,55E-02	3,55E-04	-8,75E-02	
 ADP-minerals&metals ¹	kg Sb -eq	6,85E-04	1,30E-05	1,15E-04	0,00E+00	1,90E-06	4,71E-06	1,49E-07	-1,06E-04	
 ADP-fossil ¹	MJ	4,10E+02	5,73E+00	1,94E+02	0,00E+00	8,71E+00	1,83E+02	9,73E-01	-1,41E+02	
 WDP ¹	m ³	4,47E+01	3,37E-01	1,29E+01	0,00E+00	2,74E-02	1,44E+00	5,20E-03	-2,60E+00	







GWP-total = Global Warming Potential total; GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption

"Reading example: 9,0 E-03 = 9,0*10⁻³ = 0,009"

*INA Indicator Not Assessed

1. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator

Remarks to environmental impacts

Additional environmental impact indicators										
Indicator		Unit	A1-A3	A4	B2	C1	C2	C3	C4	D
	PM	Disease incidence	6,60E-06	3,42E-07	3,31E-07	0,00E+00	4,36E-08	2,61E-07	5,13E-09	-5,13E-06
	IRP ²	kgBq U235 -eq	1,93E+00	3,07E-02	2,75E-01	0,00E+00	3,83E-02	2,97E-02	4,25E-03	-7,48E-01
	ETP-fw ¹	CTUe	1,33E+03	2,12E+01	1,59E+02	0,00E+00	6,75E+00	6,41E+01	1,31E+00	-6,44E+02
	HTP-c ¹	CTUh	9,54E-07	2,97E-08	1,00E-08	0,00E+00	2,35E-10	6,70E-09	7,10E-11	-2,13E-08
	HTP-nc ¹	CTUh	1,26E-06	5,43E-08	7,84E-08	0,00E+00	6,97E-09	2,31E-07	2,22E-09	-4,17E-07
	SQP ¹	dimensionless	7,27E+03	7,01E+01	3,87E+01	0,00E+00	7,66E+00	2,94E+01	1,74E+00	-2,11E+03










PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Potential Soil Quality Index (dimensionless)

"Reading example: 9,0 E-03 = 9,0*10⁻³ = 0,009"

*INA Indicator Not Assessed

- The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator
- This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.
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Resource use




Indicator		Unit	A1-A3	A4	B2	C1	C2	C3	C4	D
	PERE	MJ	1,42E+03	1,09E+00	9,08E+00	0,00E+00	1,17E-01	-1,63E+01	3,75E-02	-7,90E+02
	PERM	MJ	9,23E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-8,36E+02	0,00E+00	0,00E+00
	PERT	MJ	2,32E+03	1,09E+00	9,08E+00	0,00E+00	1,17E-01	-8,28E+02	3,75E-02	-7,90E+02
	PENRE	MJ	4,12E+02	5,74E+00	1,94E+02	0,00E+00	8,71E+00	1,83E+02	9,73E-01	-1,41E+02
	PENRM	MJ	1,11E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-9,66E+01	0,00E+00	0,00E+00
	PENRT	MJ	5,23E+02	5,74E+00	1,94E+02	0,00E+00	8,71E+00	8,59E+01	9,73E-01	-1,41E+02
	SM	kg	5,06E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	RSF	MJ	1,82E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,63E+00	0,00E+00	-5,28E+02
	NRSF	MJ	1,16E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,22E+00	0,00E+00	-3,36E+02
	FW	m ³	2,27E+00	1,04E-02	3,21E-01	0,00E+00	1,01E-03	5,86E-02	9,02E-04	-2,78E+00

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non renewable primary energy resources used as raw materials; PENRT = 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; FW = Net use of fresh water

"Reading example: 9,0 E-03 = 9,0*10⁻³ = 0,009"

*INA Indicator Not Assessed

End of life - Waste






Indicator		Unit	A1-A3	A4	B2	C1	C2	C3	C4	D
	HWD	kg	4,20E+00	7,07E-02	3,50E-02	0,00E+00	4,54E-04	1,41E-02	2,70E+00	-6,69E-02
	NHWD	kg	2,87E+01	5,96E+00	1,03E+00	0,00E+00	5,59E-01	1,37E+00	5,96E-01	- 4,53E+00
	RWD	kg	1,63E-03	2,10E-05	2,63E-04	0,00E+00	5,95E-05	3,25E-05	5,97E-06	-5,30E-04

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed

"Reading example: 9,0 E-03 = $9,0 \cdot 10^{-3} = 0,009$ "

*INA Indicator Not Assessed

End of life - Output flow

Indicator		Unit	A1-A3	A4	B2	C1	C2	C3	C4	D
	CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	MFR	kg	6,51E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,02E+00	0,00E+00	- 1,02E+00
	MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	EEE	MJ	6,61E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,66E+01	0,00E+00	- 1,84E+02
	EET	MJ	4,59E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,15E+02	0,00E+00	- 1,28E+03

CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy electrical; EET = Exported energy thermal

"Reading example: 9,0 E-03 = $9,0 \cdot 10^{-3} = 0,009$ "

*INA Indicator Not Assessed

Biogenic Carbon Content

Indicator	Unit	At the factory gate
Biogenic carbon content in product	kg C	3,58E+01
Biogenic carbon content in accompanying packaging	kg C	8,09E+00

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO₂

Additional 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).

National electricity grid	A3 (kWh)	Unit	Value
Electricity, Norway	35,6	kg CO2 eq/kWh	0.0264

Dangerous substances

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

Indoor environment

Emission tests have been performed on the door after 28 days according to SS-EN ISO 16000-9:2006. The results from the tested product was 130µg/m²h TVOC, < 2 µg/m²h formaldehyde and no carcinogenic substance.

Additional Environmental Information






Additional environmental impact indicators required in NPCR Part A for construction products

Indicator	Unit	A1-A3	A4	A5	B2	C2	C3	C4	D
GWPIOBC	kg CO2 eq	74,05	4,79	0,056	7,84	0,57	17,58	0,072	-10,99

GWP-IOBC: Global warming potential calculated according to the principle of instantaneous oxidation. In order to increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.

Bibliography

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 EN 15804:2012+A2:2019 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.
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 Part B for Windows and doors, Background information for EPD generator application and LCA data, LCA.no report number: 17.22 NPCR
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