

**nordic**
www.nordicdoor.noClimate door without frame
52x825x2040 mm**NEPD nr.: 156E**

Approved according to ISO 14025: 2006, 8.1.4

Approved: 03.10.2012

Valid until: 03.10.2017

Verification leader:

*Svein Fossdal***Verification** Internal External **X**

Independent verification of data has been carried out by Catherine Grini, Entro, in accordance with EN ISO 14025: 2010, 8.1.3

*Catherine Grini***The declaration has been prepared by**Torhildur Kristjansdottir,
Sintef Building and Infrastructure*Torhildur Kristjansdottir***Manufacturer**

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About EPD

EPD from other program operators than The Norwegian EPD Foundation may not be comparable.

PCR

NPCR for windows and doors 014, april 2007 and EN 15804:2012.

Environmental indicators	Cradle to gate	
Global warming	71	CO ₂ -eqv./DU
Energy consumption	2840	MJ/DU
Amount of renew. energy	49	%
Indoor air	M1	
Chemicals	The product contains no substances given on the REACH Candidate list or the Norwegian Priority list.	

Scope and expected marked areaDeclared unit (DU): One painted climate inner door (52x825x2040) millimeter.
with fire class B30 and noise reduction 35 dB.

Expected service life: 30 years

Scope: Cradle to gate. See figure 2.

Year of study: 2011-2012

Year of data: 2010-2012

Expected market area: Norway and the other Nordic Countries

Product description

Compact classified climate inner door - with a 52 millimeter thick door blade.

The door has fire class B30 and a noise reduction of 35 dB.

The door can be delivered with different surface treatments. The door analysed is painted.

The door has two aluminum sheets that makes it more stable. The door can endure a temperature difference of 20 degrees at 45% difference in moisture. The door is not designed for exterior use.

The dimensions are 52x825x2040 millimeter and it weights 57,1 kg.

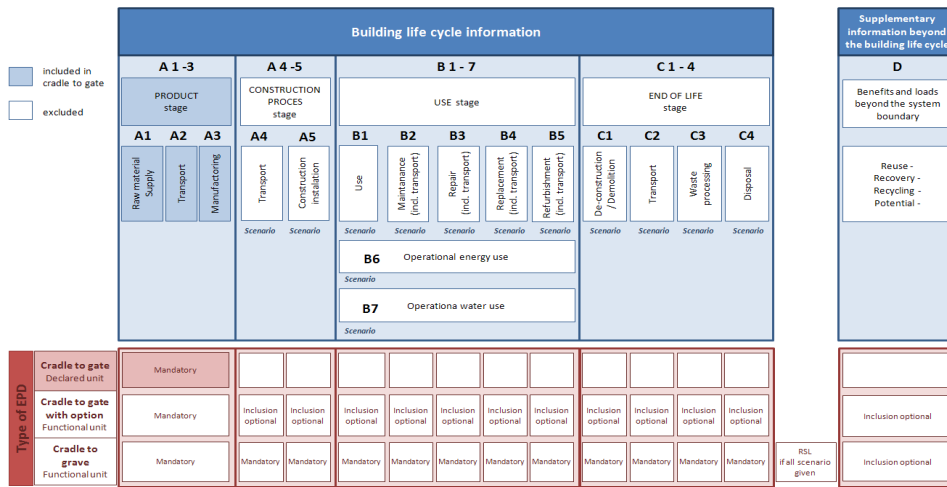
The calculated U-value is 1,5 W/m²K.

Methodology

System boundaries

This is a cradle to gate EPD, with system boundaries covering raw materials, transport and manufacturing. See A1-A3 in figure 2 below. Information modules according to NS-EN 15804:2012.

Figure 2



Scenarios and Technical information

Method: The calculations on emissions are based on the method ReCiPe midpoint v1.6. The primary energy calculations are done using the method of Cumulative Energy Demand (CED). Background data is gathered from the database Ecoinvent. v2.2 hosted by the Ecoinvent Centre.

Electricity mix: The electricity mix used in the calculations is the Ecoinvent production mix of Nordel from 2007: Electricity, low voltage, production NORDEL, at grid/NORDEL (0,0529 kg CO₂ eqv./MJ)

Transport: Passenger cars used for internal transportation are assumed to be classified as fleet average, while larger vehicles are assumed to be classified as EURO 4.

Emissions and environmental impacts

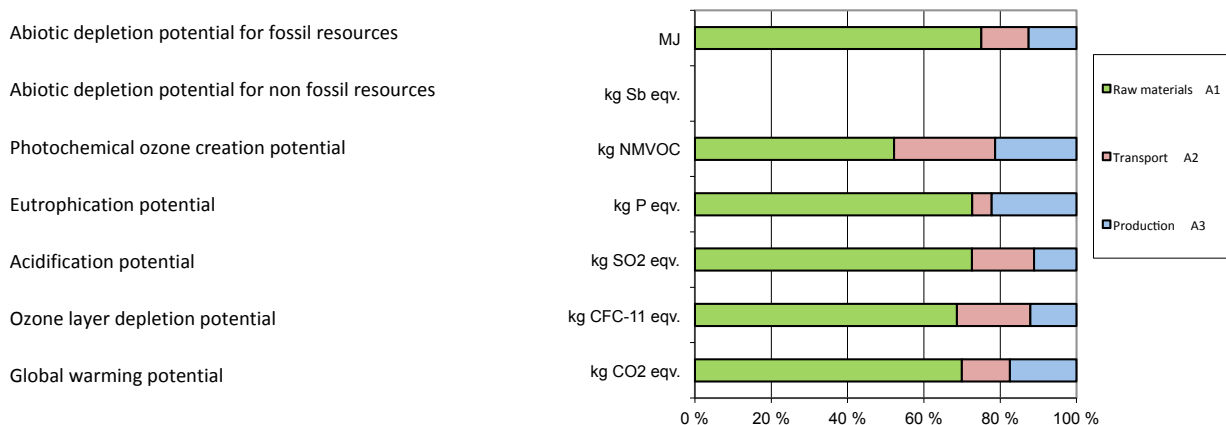
Environmental impacts

Table 1

Indicator	Unit	Raw materials A1	Transport A2	Production A3	Total
Global warming potential	kg CO ₂ eqv.	49,4	8,9	12,3	70,6
Ozone layer depletion potential	kg CFC-11 eqv.	5,2E-06	1,5E-06	9,2E-07	7,62E-06
Acidification potential for soil and water	kg SO ₂ eqv.	0,21	0,05	0,03	0,29
Eutrophication potential	kg P eqv.	0,012	0,001	0,004	0,017
Photochemical ozone creation potential	kg NMVOC	0,16	0,08	0,07	0,31
Abiotic depletion potential for non fossil resources	kg Sb eqv.	-	-	-	
Abiotic depletion potential for fossil resources	MJ	863,06	143,16	144,09	1150,31

Distribution of environmental impact for each life cycle phase (%)

Figure 3



Energy and resources

Primary energy

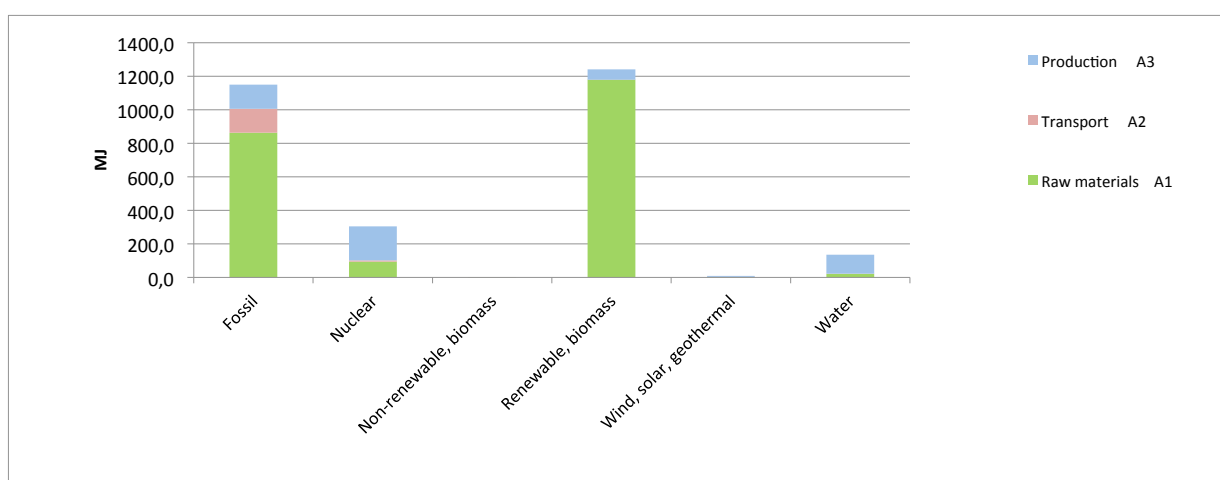
Energy consumption specified for different energy carrier and life cycle stages

Table 2

	Unit	Raw materials A1	Transport A2	Production A3	Total
Non-renewable primary energy					
Fossil	MJ	863,1	143,2	144,1	1150,3
Nuclear	MJ	93,9	8,2	201,7	303,8
Non-renewable, biomass	MJ	1,1E-03	4,2E-04	7,9E-05	1,6E-03
Renewable primary energy					
Renewable, biomass	MJ	1179,4	0,2	61,6	1241,2
Wind, solar, geothermal	MJ	3,5	0,1	5,1	8,6
Water	MJ	20,2	1,5	114,0	135,7
Total	MJ	2160,0	153,2	526,4	2839,6

Energy consumption specified for the different energy carrier and life cycle stages

Figure 4



Energy used as raw materials

Table 3

Parameter	Unit	Raw materials A1	Transport A2	Production A3	Total
Use of renewable primary energy excluding renewable primary energy resources used as raw materials*	MJ	N/A	1,8	180,6	182,4
Use of renewable primary energy resources used as raw materials	MJ	N/A			0,0
Total use of renewable primary energy resources	MJ	1203,1	1,8	180,6	1385,5
Use of non renewable primary energy excluding non renewable primary energy resources used as raw materials	MJ	N/A	151,4	345,8	497,2
Use of non renewable primary energy resources used as raw materials	MJ	N/A			
Total use of non-renewable primary energy	MJ	956,9	151,4	345,8	1454,1

*Renewable primary energy embodied as gross calorific value in wood are not taken into account.

Resources

Secondary materials, fuels and fresh water

Table 4

Parameter	Unit	Raw materials A1	Transport A2	Production A3	Total
Use of secondary material*	kg	-	-	-	-
Use of renewable secondary fuels**	MJ	-	-	174,0	174,0
Use of non renewable secondary fuels***	MJ	-	-	0,0	0,0
Use of fresh water	liter	-	-	33,7	33,7

* Use of manufactured material that has been used in one way or another before

** Use of primary renewable energy which is transformed into secondary fuels, i.e. heat production comes from by-products.

*** Use of primary non-renewable energy which is transformed into secondary fuels

Chemicals and indoor air

The product contains no substances given on the REACH Candidate list or the Norwegian Priority list.

A representative door from Nordic Door has been tested at SP in Sweden for indoor air emissions- and the emissions are below the M1 requirement.

Output flows and waste

Waste

Outputflows through the life cycle

Table 5

Parameter	Unit	Raw materials	Transport	Production	Total
		A1	A2	A3	
Hazardous waste disposed	kg	0,72	-	0,40	1,1
Non hazardous waste disposed	kg	23,8	-	1,70	25,5
Radioactive waste disposed	µg	828,4	-	2,26E-03	828,4

End of life

The door can be dismantled- and metals like the hinges and lock can be separated and sent to recycling. The aluminium plates need to be separated from the rest of the timber based door - for recycling. The rest of the door can be reused, sent to energy recovery or to landfill.

Bibliography

Product category rules for windows and doors, NPCR 014, 2007.

NS-ISO 14025: 2006, Environmental labels and declarations Type III environmental declarations Principle and procedures.

NS-EN 15804: 2012, Sustainability of construction works Environmental product declarations Core rules for the product category of construction products.

The ReCiPe method are made by RIVM, CML, PRé Consultants, Radboud Universiteit Nijmegen, CE Delft. Webpage: www.lcia-recipe.net

Jungbluth, N., Cumulative Energy Demand, in Implementation of Life Cycle Impact Assessment Methods, Data v2.2 (2010), Ecoinvent Centre is a competence Centre of ETH Zürich, EPF Lausanne, PSI, Empa, ART. Webpage: www.ecoinvent.org



Inner door - without frame
52x825x2040 mm



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PCR

NPCR for windows and doors 014, april 2007, and EN 15804: 2012

Environmental indicators	Cradle to gate	
Global warming	60	CO ₂ -eq./DU
Energy consumption	2604	MJ/DU
Amount of renew. energy	52	%
Indoor air	M1	
Chemicals	The product contains no substances given on the REACH Candidate list or the Norwegian Priority list.	

Scope and expected marked area

Declared unit (DU): One compact painted inner door (52x825x2040mm) with fire class B30 and noise reduction 35 dB.

Expected service life: 30 years

Scope: Cradle to gate. See figure 2.

Year of study: 2011-2012

Year of data: 2010-2012

Expected market area: Norway and the other Nordic countries

Product description

Compact classified inner door - with a 52 millimeter thick door blade.

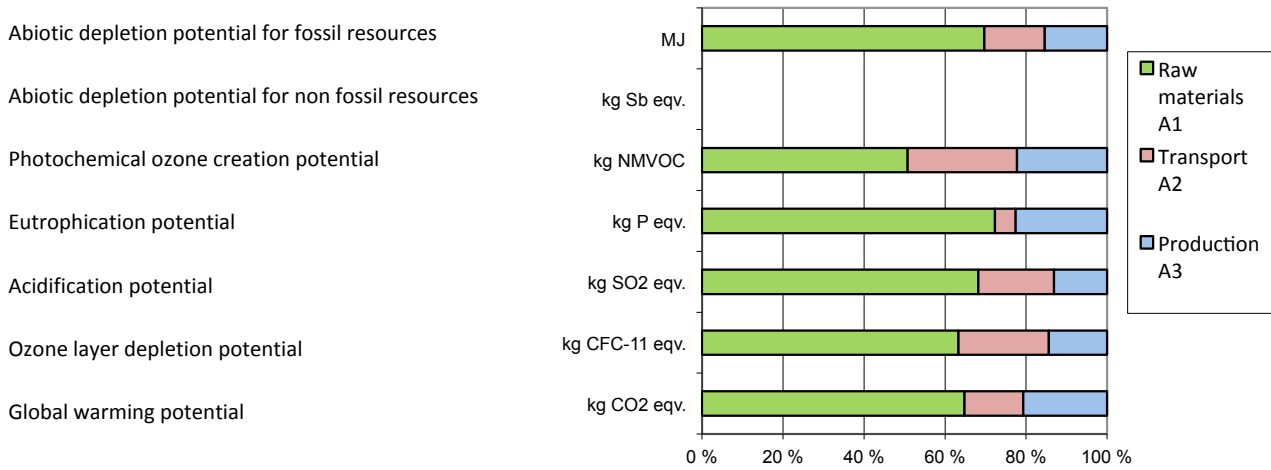
The door has a fire class B 30 and noise reduction of 35 dB and is painted.

The door exists in different modules and with different surface treatments.

The dimensions of the door is 52x825x2040 millimetre and the weight is 52,3 kg.

Distribution of environmental impact for each life cycle phase (%)

Figure 3



Energy and resources

Primary energy

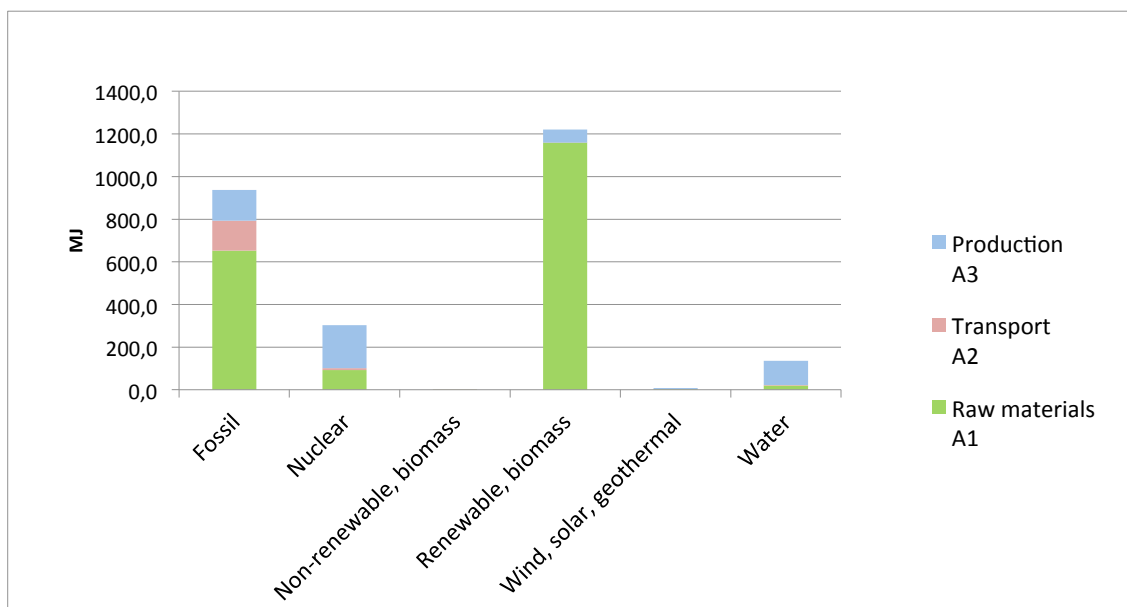
Energy consumption specified for different energy carrier and life cycle stages

Table 2

	Unit	Raw materials A1	Transport A2	Production A3	Total
Non-renewable primary energy					
Fossil	MJ	652,7	140,1	144,1	936,9
Nuclear	MJ	92,6	8,1	201,7	302,3
Non-renewable, biomass	MJ	1,1E-03	4,1E-04	7,9E-05	0,0
Renewable primary energy					
Renewable, biomass	MJ	1158,9	0,2	61,6	1220,7
Wind, solar, geothermal	MJ	3,4	0,1	5,1	8,6
Water	MJ	20,0	1,5	114,0	135,5
Total	MJ	1928	150	526	2604

Energy consumption specified for the different energy carrier and life cycle stages

Figure 4



Energy used as raw materials

Table 3

Parameter	Unit	Raw materials A1	Transport A2	Production A3	Total
Use of renewable primary energy excluding renewable primary energy resources used as raw materials*	MJ	N/A	1,8	180,6	182,4
Use of renewable primary energy resources used as raw materials	MJ	N/A			
Total use of renewable primary energy	MJ	1182,4	1,8	180,6	1364,8
Use of non renewable primary energy excluding non renewable primary energy resources used as raw materials	MJ	N/A	148,2	345,8	493,9
Use of non renewable primary energy resources used as raw materials	MJ	N/A			
Total use of non-renewable primary energy	MJ	745,3	148,2	345,8	1239,3

*Renewable primary energy embodied as gross calorific value in wood are not taken into account.

Resources

Secondary materials, fuels and fresh water

Table 4

Parameter	Unit	Raw materials A1	Transport A2	Production A3	Total
Use of secondary material*	kg	-	-	-	-
Use of renewable secondary fuels**	MJ	-	-	174,0	174,0
Use of non renewable secondary fuels***	MJ	-	-		
Use of fresh water	liter	-	-	33,7	33,7

* Use of manufactured material that has been used in one way or another before

** Use of primary renewable energy which is transformed into secondary fuels, i.e. heat production comes from by-products.

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Use of chemicals and indoor air

The product contains no substances given on the REACH Candidate list or the Norwegian Priority list. A representative door from Nordic Door has been tested at SP in Sweden for indoor air emissions- and the emissions are below the emission class M1 requirements.

Output flows and waste

Waste

Outputflows through the life cycle

Table 5

Parameter	Unit	Raw materials A1	Transport A2	Production A3	Total
Hazardous waste disposed	kg	0,09	-	0,40	0,49
Non hazardous waste disposed	kg	23,10	-	1,70	24,80
Radioactive waste disposed	µg	828,43	-	0,00	828,43

End of life

The door can be dismantled- and metals like hinges and lock can be separated and sent to recycling.

The rest of the door can be reused or sent to energy recovery.

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