Environmental Product Declaration

In accordance with ISO 14025 and EN 15804 for:

Underlays for discontinuous roofing

from

Nordic Waterproofing AB

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Programme information

Programme:	The International EPD® System EPD International AB Box 210 60 SE-100 31 Stockholm Sweden www.environdec.com info@environdec.com

Product category rules (PCR): PCR 2012:01 Construction products and construction services, version 2.31
PCR review was conducted by: The Technical Committee of the International EPD® System. Chair: Massimo Marino. Contact via info@environdec.com
Independent third-party verification of the declaration and data, according to ISO 14025:2006: ☐ EPD process certification ☒ EPD verification
Third party verifier: Håkan Stripple, IVL Svenska Miljöinstitutet **Approved by:** The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ No

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Company information

Nordic Waterproofing AB is one of Nordic's leading producers and suppliers of waterproofing products for buildings and is a part of the group, Nordic Waterproofing Group. Nordic Waterproofing AB sells its products under several brands, which both have a long heritage and are well-recognized in their respective markets. Most of the products are based on the material Bitumen and protect buildings and other constructions against wind and water. The products have a variety of application areas such as flat and pitched roofing, and underlayers and barriers to buildings.

Nordic Waterproofing maintain ISO 9001 and 14001 certificates.

For additional information about Nordic Waterproofing, please visit the company web site at https://www.nordicwaterproofing.com/

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Product information

Product name: Underlays for discontinuous roofing

The EPD covers two product groups that are reported separately:

- UD2: covers Mataki Haloten 380, Mataki Haloten D-1 and Kerabit 700 UB
- UD1: covers Mataki Haloten STEEL, Mataki Haloten Plan and Trebolit UD 1 STEEL

Product description: Underlays are installed underneath roof coverings such as roof tiles, steel roofs, shingles etc. The product creates a durable water protection layer and provides mechanical protection during the construction phase of the roof.

Underlays for discontinuous roofing are technically defined in EN 13859-1:2014 Flexible sheets for waterproofing.

UN CPC code: 5453 Roofing and waterproofing services

Manufacturing site is in Höganäs, Sweden. The primary market is the Nordic countries.

LCA information

The underlying Life Cycle Assessment (LCA) is a cradle-to-gate assessment that has been conducted in accordance with ISO 14040 and ISO 14044. The study is also performed according to PCR 2012:01 Construction products and construction services, version 2.31; EN15804:2012+A1:2013, and General Programme Instructions for the international EPD® System, version 2.5.

Declared unit: 1 m^2 of underlays for discontinuous roofing ready to be delivered to the customer.

Reference service life: Not applicable for an A1-A3 assessment.

Time representativeness: The specific data, covering the production process and packaging of the products, as well as supplier location and information on inbound transport, has been collected for the year 2018. Supplier specific data have also been used for the reinforcements when supplier specific EPDs have been available. For bitumen, the Eurobitume Life Cycle Inventory of 2019 was used.

Background data are less than 10 years old and the majority of the data sets have a reference year between 2016-2018.

Database and LCA software used: Modelling and environmental impact calculations are performed with the LCA software GaBi (version 9.2), using life cycle inventory data from Thinkstep, supplier specific EPDs, and Ecoprofiles.

System boundaries:
The LCA is a cradle-to-gate assessment covering the modules A1-A3.

X = Included MND = Module Not Declared

Production stage			Construction process stage		Use stage							End-of-life stage				Benefits and loads beyond the system boundaries
Raw material supply	Transport	Manufacturing	Transport	Construction	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	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

Figure 1 below is a simplified process tree with system boundaries where all instances of the figure are included in the assessment. Excluded are thus; infrastructure, construction, production equipment, and tools that are not directly consumed in the production process, travelling by personnel and research and development – all in accordance with the PCR.

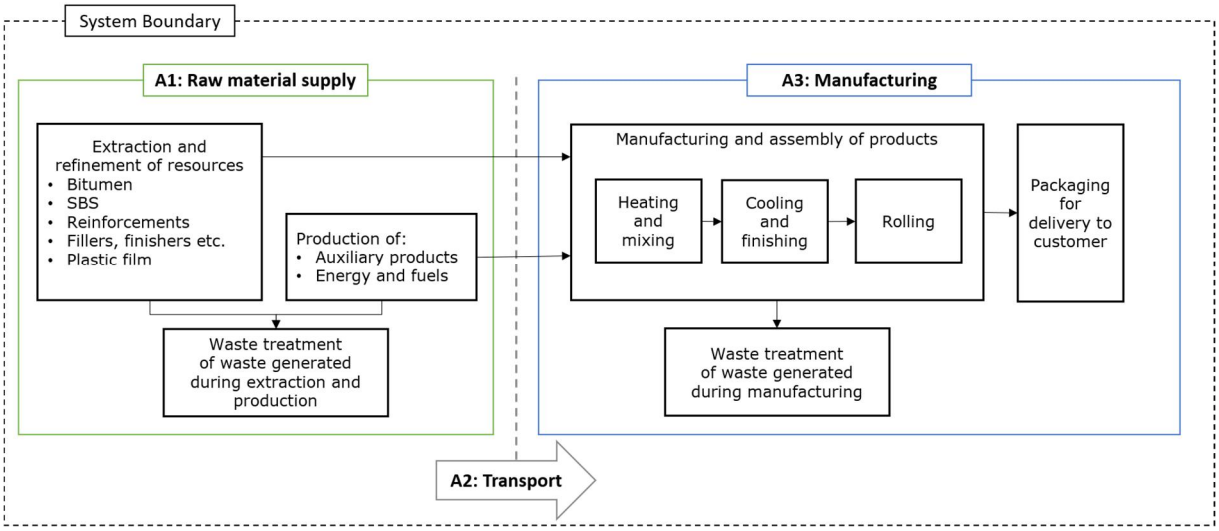

Figure 1. Simplified process tree.

The lifecycle is divided into the following modules:

Module A1

The upstream processes in A1 comprises impacts from extraction and processing of raw bitumen (crude oil), SBS-polymer, non-woven reinforcements, fillers etc. The module also includes the production of purchased electricity and district heating used at the NWP production site.

Module A2

The upstream process in module A2 comprises impacts from transportation of raw materials to the NWP production site.

Module A3

The core process, module A3, includes the manufacturing of the final product, production of packaging materials, use of fuels on site, as well as end-of-life treatment of waste generated during manufacturing.

The manufacturing at NWP is a continuous process. The raw materials, bitumen and polymers, are heated and mixed separately and reinforced with polyester/glass reinforcements. After cooling, the product can be finished by adding polypropylene fleece, polypropylene film and/or polyester fleece.

<u>Cut-off and allocation principles:</u>
Several products are produced at NWP's site in Höganäs. The site data – annual consumption of utilities (energy and non-energy resources), generation of waste and emissions – is allocated to each product group based on production volume (i.e. mass allocation).

In case of recycling or other recovery of generated waste, impacts are borne by the product until it enters the facility gate where the process takes place in accordance with the Polluter Pays Principle. The same method is applied for incoming raw materials of recycled origin, where the product carries the processes required to produce the raw materials from the recycled material, but not the upstream production of the virgin material.

All major raw materials and all the essential energy is included. The requirement that a minimum of 95 % of the total inflows (mass and energy) shall be included is fulfilled.

Content declaration

Product group – UD2*

Materials/chemical substances	% Interval
Bitumen, Distilled	50-75 %
SBS-polymer	2.5-10 %
Filler (limestone)	2.5-10 %
Reinforcement (Polyester/glass fibre)	10-25 %
Reinforcement (Polypropylene)	2.5-10 %
Plastic film (Polypropylene)	<1 %
	100 %

** The ranges describe the spread between the products Mataki Haloten 380, Mataki Haloten D-1 and Kerabit 700 UB.*

Product group – UD1*

Materials/chemical substances	% Interval
Bitumen, Distilled	50-75 %
SBS-polymer	2.5-8 %
Filler (limestone)	20-50 %
Reinforcement (Polyester/glass fibre)	2.5-10 %
Reinforcement (Polyester)	1-2.5 %
Reinforcement (Polypropylene)	1-2.5 %
Plastic film (Polypropylene)	<1 %
	100 %

** The ranges describe the spread between the products Mataki Haloten STEEL, Mataki Haloten Plan and Trebolit UD 1 STEEL.*

The products does not contain any of the substances listed on the “Candidate List of Substances of Very High Concern (SVHC) for authorisation” (http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp).

Packaging

The products are placed on a pallet, which is then covered with shrink wrap.

Recycled material

The non-woven reinforcement (polyester/glass fibre) has partly recycled polyester fibre, originating from post-consumer PET bottles. A supplier and product specific EPD have been used as data set for this reinforcement.

Environmental performance

Potential environmental impacts

PARAMETER	UNIT	UD2 A1-A3	UD1 A1-A3
Global warming potential (GWP 100 years), excl. biogenic carbon	kg CO_2 eq.	6.78E-01	1.35E+00
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC 11 eq.	4.22E-09	1.01E-08
Acidification potential (AP)	kg SO_2 eq.	2.06E-03	4.12E-03
Eutrophication potential (EP)	kg PO_4^{3-} eq.	6.66E-04	1.31E-03
Formation potential of tropospheric ozone (POCP)	kg C_2H_4 eq.	1.31E-04	3.05E-04
Abiotic depletion potential – Elements	kg Sb eq.	1.13E-07	2.34E-07
Abiotic depletion potential – Fossil resources	MJ, net calorific value	3.55E+01	7.57E+01

Use of resources

PARAMETER		UNIT	UD2 A1-A3	UD1 A1-A3
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2.73E+00	5.15E+00
	Used as raw materials	MJ, net calorific value	0.00E+00	0.00E+00
	TOTAL	MJ, net calorific value	2.73E+00	5.15E+00
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	1.40E+01	2.84E+01
	Used as raw materials	MJ, net calorific value	2.48E+01	5.35E+01
	TOTAL	MJ, net calorific value	3.88E+01	8.19E+01
Secondary material		kg	8.89E-02	1.13E-01
Renewable secondary fuels		MJ, net calorific value	0.00E+00	0.00E+00
Non-renewable secondary fuels		MJ, net calorific value	0,00E+00	0.00E+00
Net use of fresh water[1]		m^3	2.89E-03	5.58E-03

[1] This indicator is in line with EN15804. Does not consider water consumption in relation to water scarcity.

Waste generation and output flows

Waste generation*

PARAMETER	UNIT	UD2 A1-A3	UD1 A1-A3
Hazardous waste disposed	kg	5.50E-04	7.00E-04
Non-hazardous waste disposed	kg	2.17E-02	3.55E-02
Radioactive waste disposed	kg	2.47E-04	5.56E-04

**Includes waste streams where the treatment process is not included within the system boundaries.*

Output flows

PARAMETER	UNIT	UD2 A1-A3	UD1 A1-A3
Components for reuse	kg	0	0
Material for recycling	kg	6.50E-03	1.64E-02
Materials for energy recovery	kg	0	0
Exported energy, electricity	MJ	0	0
Exported energy, thermal	MJ	0	0

UD2 is an average of the products Mataki Haloten 380, Mataki Haloten D-1 and Kerabit 700 UB.

UD1 is an average of the products Mataki Haloten STEEL, Mataki Haloten Plan and Trebolit UD1 STEEL.

The individual products have been modelled and the difference in the mandatory impact indicators is lower than ±10 %. In accordance with the Product Category Rules, PCR 2012:01 Construction products and construction services, version 2.31, their environmental performance can thus be grouped and represented by a flat average.

References

PCR 2012:01 Construction products and construction services, version 2.31

EN15804:2012+A1:2013 *Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products*

General Programme Instructions of the International EPD® System. Version 2.5.

ISO 14025 on Type III Environmental declarations.

ISO 14040 and ISO 14044 on Life Cycle Assessments (LCA).

Tollin, S., and Lindén, D. 2020. LCA report for Nordic Waterproofing AB, Bitumen-based roofing membranes, Ramboll, Report No. 1-2020

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