

Owner: Phoenix Tag Materialer A/S
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3rd PARTY VERIFIED

EPD

VERIFIED ENVIRONMENTAL PRODUCT DECLARATION | ISO 14025 & EN 15804



Owner of declaration

Phønix Tag Materialer A/S
 Vester Allé 1
 6600 Vejen
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Issued:
22-04-2020

Valid to:
22-04-2025

Basis of calculation

This EPD is developed in accordance with the European standard EN 15804.

Comparability

EPDs of construction products may not be comparable if they do not comply with the requirements in EN 15804. EPD data may not be comparable if the datasets used are not developed in accordance with EN 15804 and if the background systems are not based on the same database.

Validity

This EPD has been verified in accordance with ISO 14025 and is valid for 5 years from the date of issue.

Use

The intended use of an EPD is to communicate scientifically based environmental information for construction products, for the purpose of assessing the environmental performance of buildings.

EPD type

- Cradle-to-gate
- Cradle-to-gate with options
- Cradle-to-grave

Programme operator

Danish Technological Institute
 www.dti.dk



Programme

EPD Danmark
 www.epddanmark.dk



Declared products

PTM BituFlex (top layer)
 PTM DuraFlex Kombi (bottom layer)

Production site


The production site is located in Vejen in Denmark.

Products use

The EPD covers two products, elastomeric bitumen membranes (a top- and a bottom layer), which are intended for roof waterproofing.

Declared unit

The declared unit is defined as 1 m² of reinforced bitumen membrane for roof waterproofing, ready to be delivered to customer.

CEN standard EN 15804 serves as the core PCR
Independent verification of the declaration and data, according to EN ISO 14025
<input type="checkbox"/> internal <input checked="" type="checkbox"/> external
Third party verifier:

Guangli Du, Statens Byggeforskningsinstitut, SBI



Henrik Fred Larsen
 EPD Danmark

Life cycle stages and modules (MND = module not declared)

Product			Construction process		Use							End of life				Beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport	Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Re-use, recovery and 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

Product information

Product description

The main product components are shown in the table below.

Material	Weight-% of declared product
Bitumen	52-58%
SBS-polymer	4-5%
Reinforcement (polyester/glass fibre)	3-5%
Minerals as fillers and finishing	33-40%
Polypropylene film	<1%

Representativity

This declaration, including data collection and the modeled foreground system including results, represents the production of 1 m² of reinforced bitumen membrane for roof waterproofing, ready to be delivered to customer, on the production site located in Vejen. The product 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. Background data are based on GaBi ts 9.2.0.58 incl. databases 2019 Edition, Ecoinvent 3.5 and an LCI profile from Eurobitume and are less than 10 years old.

Dangerous substances

The product does not contain substances listed in the "Candidate List of Substances of Very High Concern for authorization".

(<http://echa.europa.eu/candidate-list-table>)

Essential characteristics (CE)

The elastomeric bitumen membranes are covered by harmonized technical specification DS/EN13707:2004+A2:2009. Declaration of performance according to EU regulation 305/2011 is available for all declared product variations.

Further technical information can be obtained by contacting the manufacturer or on the manufacturer's website:

Top layer – PTM BituFlex

<https://www.phonixtagmaterialer.dk/produkter/ptm-bituflex>

Bottom layer – PTM DuraFlex Kombi

<https://www.phonixtagmaterialer.dk/produkter/ptm-duraflex-kombi>

Reference Service Life (RSL)

The reference service life is not declared, as this EPD is based on a cradle-to-gate assessment where the service life is not relevant.

LCA background

Declared unit

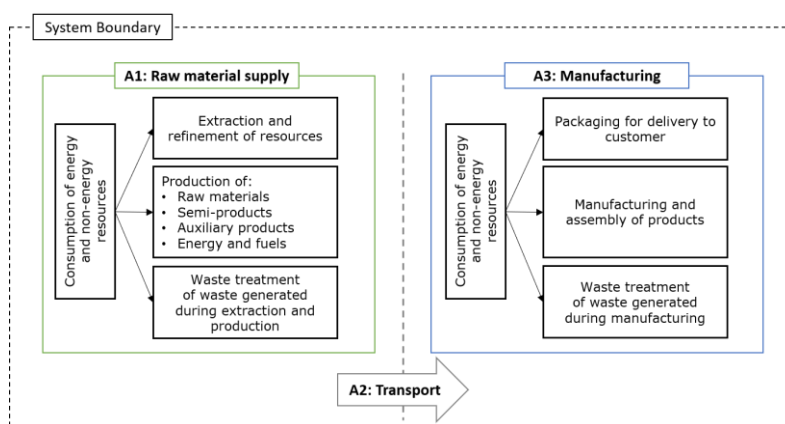
The LCI and LCIA results in this EPD relates to 1 m² of reinforced bitumen membrane for roof waterproofing, ready to be delivered to customer.

Name	Value	Unit
Declared unit	1	m ²
Conversion factor to 1 kg (PTM BituFlex)	0,20	-
Conversion factor to 1 kg (PTM DuraFlex Kombi)	0,30	-

PCR

This EPD is developed according to the core rules for the product category of construction products in EN 15804.

Flow diagram



System boundaries

This EPD is based on a cradle-to-gate LCA, in which 99,9 weight-% has been accounted for. The packaging materials of incoming raw materials have been excluded.

The cut-off criteria, meaning the general rules for the exclusion of inputs and outputs, follows the requirements in EN 15804, 6.3.5, where the total of neglected input flows per module shall be a maximum of 5 % of energy usage and mass and 1 % of energy usage and mass for unit processes.

Product stage (A1-A3) includes:

- A1 – Extraction and processing of raw materials
- A2 – Transport to the production site
- A3 – Manufacturing processes

The product stage comprises the acquisition of all raw materials, products and energy, transport to the production site, packaging and waste processing up to the "end-of-waste" state or final disposal. The LCA results are declared in aggregated form for the product stage, which means, that the sub-modules A1, A2 and A3 are declared as one module A1-A3.

The manufacturing at PTM is a continuous process. The hot raw material bitumen is mixed with SBS-polymers and added limestone before it is applied to a bitumen impregnated polyester or polyester/glass reinforcement. The coated reinforcement is covered with slate/sand on the upper side and PP film on the lower side before cooling and winded into rolls wrapped in PE film.



With regards to recycling or other recovery of waste, impacts are borne by the product until the waste enters the facility gate where the process takes place in accordance with the Polluter Pays Principle. Benefits and credits of recovery are outside the system boundaries.

Part of the polyester in the reinforcement originates from post-consumer PET bottles. The environmental impact of the processing/recycling of the PET bottles to granulate is included in the system boundaries, however the upstream production of the PET bottles is excluded in line with the Polluter Pays Principle.

LCA results

ENVIRONMENTAL IMPACTS PER M ²			
Parameter	Unit	PTM BituFlex A1-A3	PTM DuraFlex Kombi A1-A3
GWP	[kg CO ₂ -eq.]	2,41E+00	1,68E+00
ODP	[kg CFC11-eq.]	3,45E-08	4,36E-08
AP	[kg SO ₂ -eq.]	7,04E-03	5,68E-03
EP	[kg PO ₄ ³⁻ -eq.]	2,45E-03	2,21E-03
POCP	[kg ethene-eq.]	6,66E-04	4,83E-04
ADPE	[kg Sb-eq.]	5,40E-07	2,82E-06
ADPF	[MJ]	1,62E+02	1,18E+02
Caption	GWP = Global warming potential; ODP = Ozone depletion potential; AP = Acidification potential of soil and water; EP = Eutrophication potential; POCP = Photochemical ozone creation potential; ADPE = Abiotic depletion potential for non fossil resources; ADPF = Abiotic depletion potential for fossil resources		

RESOURCE USE PER M ²			
Parameter	Unit	PTM BituFlex A1-A3	PTM DuraFlex Kombi A1-A3
PERE	[MJ]	3,86E+00	2,97E+00
PERM	[MJ]	2,99E-01	2,99E-01
PERT	[MJ]	4,16E+00	3,27E+00
PENRE	[MJ]	5,43E+01	3,71E+01
PENRM	[MJ]	1,18E+02	8,89E+01
PENRT	[MJ]	1,72E+02	1,26E+02
SM	[kg]	8,70E-02	9,99E-02
RSF	[MJ]	0,00E+00	0,00E+00
NRSF	[MJ]	0,00E+00	0,00E+00
FW	[m ³]	2,22E-02	2,32E-02
Caption	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 material; RSF = Use of renewable secondary fuels; NRSF = Use of non renewable secondary fuels; FW = Use of net fresh water		

WASTE CATEGORIES AND OUTPUT FLOWS PER M ²			
Parameter	Unit	PTM BituFlex A1-A3	PTM DuraFlex Kombi A1-A3
HWD	[kg]	1,11E-07	5,59E-08
NHWD	[kg]	1,78E-02	2,83E-02
RWD	[kg]	8,29E-04	5,95E-04
CRU	[kg]	0,00E+00	0,00E+00
MFR	[kg]	3,57E-02	2,97E-02
MER	[kg]	0,00E+00	0,00E+00
EEE	[MJ]	0,00E+00	0,00E+00
EET	[MJ]	0,00E+00	0,00E+00
Caption	HWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for reuse; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy		

Indoor air

The EPD does not give information on release of dangerous substances to indoor air because the horizontal standards on measurement of release of regulated dangerous substances from construction products using harmonised test methods according to the provisions of the respective technical committees for European product standards are not available.

Soil and water

The EPD does not give information on release of dangerous substances to soil and water because the horizontal standards on measurement of release of regulated dangerous substances from construction products using harmonised test methods according to the provisions of the respective technical committees for European product standards are not available.

References

Publisher	 http://www.epddanmark.dk
Programme operator	Danish Technological Institute Buildings & Environment Gregersensvej DK-2630 Taastrup http://www.teknologisk.dk
LCA-practitioner	Sara Tollin and David Lindén Ramboll Sweden AB Vädursgatan 6 SE-412 50 Göteborg Email: sara.tollin@ramboll.se Email: david.linden@ramboll.se
LCA software /background data	GaBi ts 9.2.0.58 incl. databases 2019 Edition Ecoinvent 3.5, LCI profile from Eurobitume
3rd party verifier	Guangli Du, Statens Byggeforskningsinstitut, SBI

General programme instructions

Version 1.9
www.epddanmark.dk

EN 15804

DS/EN 15804:2012 + A1:2013 - "Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products"

EN 15942

DS/EN 15942:2011 – " Sustainability of construction works – Environmental product declarations – Communication format business-to-business"

ISO 14025

DS/EN ISO 14025:2010 – " Environmental labels and declarations – Type III environmental declarations – Principles and procedures"

ISO 14040

DS/EN ISO 14040:2008 – " Environmental management – Life cycle assessment – Principles and framework"

ISO 14044

DS/EN ISO 14044:2008 – " Environmental management – Life cycle assessment – Requirements and guidelines"