

## Product information for the building certification scheme LEED v4® (Leadership in Energy and Environmental Design)

The intention of this document is to support project teams pursuing LEED v4 certification by providing an overview of how your products contribute to LEED v4 credits. Basis of this information is LEED v4 credit library (08/2014)<sup>1</sup>

# EPDM waterproofing membrane system EVALASTIC® V, VG, VGSK

## General Information

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## Product information

### Product description

EVALASTIC® are bitumen compatible waterproofing membrane system made of EPDM. The product consists of a high polymer alloy of ethylene-propylene-diene terpolymer (EPDM) and polypropylene (PP) including additives. The waterproofing membranes are manufactured with a polyester fleece or a glass/polyester fleece backing in a calendaring process. Seam welding is carried out with hot air.

#### **EVALASTIC® V:**

EVALASTIC® V membranes are equipped with a polyester fleece backing

#### **EVALASTIC® VG:**

EVALASTIC® VG membranes are equipped with a glass/polyester fleece backing

#### **EVALASTIC® VGSK:**

EVALASTIC® VGSK membranes are equipped with a glass/polyester fleece backing and a self-adhesive coating incl. protective foil.

<sup>1</sup> <http://www.usgbc.org/credits> (8/2014)

## Application

EVALASTIC® membranes can be applied in one layer for waterproofing of non-used and used flat and low slope roofs. Depending on specification, the membranes are applied as follows:

### EVALASTIC® V and EVALASTIC® VG

- loose laid under ballast
- mechanically fastened
- adhesive bonding with system adhesive

### EVALASTIC® VGSK

- with its integrated fire retarding layer bonded directly to unbacked EPS insulation boards without any wash primer. They can also be bonded with alwitra wash primer

## Technical data

### EVALASTIC®V, VG, VGSK

Description	Value	Unit
Max. tensile force acc. to EN 12311-2 (A)	500	N/50mm
Elongation at max. tensile force acc. to EN 12311-2 (A)	60	%
Peel resistance of the seam joint acc. to EN 12316-2	150	N/50mm
Shear resistance of the seam joint acc. to EN12317-2	200	N/50mm
Tear propagation resistance acc. to EN 12310-1	300	N
Resistance to static load acc. to EN 12730 (B)	20	kg
Water tightness acc. to EN 1928	400	kPa
Artificial ageing acc. to EN 1297	class 0	-
Folding in the cold acc. to EN 495-5	-40	°C
Bitumen compatibility acc. to EN 1548	passed	-
Resistance to root penetration (for green roofs) acc. to EN 13948 or FLL (roofing membranes)	passed	-

## Product declarations

Environmental product declarations (EPDs):

EPD is available - see section Materials and Resources (MR).

## Sustainable Sites (SS)

Summary

### Heat island reduction

*Intent of this credit:*

To minimize effects on microclimates and human and wildlife habitats by reducing heat islands.

Product information for EVALASTIC®V within this credit:

Item	Value	Unit
Solar reflectance index (SRI) value (roofing materials)	Initial (non-aged): Grey 38	-
Solar reflectance (SR) value (shading device for nonroof applications, or paving material) - according to DIN EN 410	Initial (non-aged): Grey 0,39	-

## Materials and Resources (MR)

### Summary

Materials and Resources credits encourage using sustainable building materials and reducing waste. Indoor environmental quality credits promote better indoor air quality and access to daylight and views.

### Building product disclosure and optimization - environmental product declarations

#### Intent of this credit

To encourage the use of products and materials for which life-cycle information is available and that have environmentally, economically, and socially preferable life-cycle impacts. To reward project teams for selecting products from manufacturers who have verified improved environmental life-cycle impacts.

Product information for EVALASTIC® within this credit:

Item	Value
Critically reviewed LCA acc. to ISO 14044?	yes
Author of the LCA	thinkstep AG, Leinfelden-Echterdingen, Germany
Reviewer	Institute Construction and Environment (IBU - Institut Bauen und Umwelt e.V.), Berlin, Germany
Download link of the document/study	<a href="https://alwitra.de/wp-content/uploads/2020/03/EPD_EVALASTIC_en_2020.pdf">https://alwitra.de/wp-content/uploads/2020/03/EPD_EVALASTIC_en_2020.pdf</a>
Industry-wide (generic) EPD (Type III, including external verification)?	no
Product specific EPD (Type III, including external verification)?	yes
EPD program operator	Institute Construction and Environment (IBU - Institut Bauen und Umwelt e.V.), Berlin, Germany; <a href="http://www.construction-environment.com">www.construction-environment.com</a>
EPD program operator country	Germany
EPD number	EPD-ALW-20190186-IBAC-DE

The declared unit is 1 m<sup>2</sup> of average produced, installed and disposed of/recycled EVALASTIC® roofing and waterproofing membrane system with a thickness of 1.5 mm. The averaging was based on annual production data (total inputs and outputs per year). The values calculated in this way were scaled to a representative thickness and correspond to approx. 90% market share of the delivered products. The approximate calculation of other thicknesses can be done by the following formula:

$$I_{d,new} = (I_{decl} * d_{new}) / 1,2, \text{ where}$$

$I_{d,new}$ : indicator result in relation to a new thickness

$I_{decl}$ : indicator result of the respective life cycle phase

$d_{new}$ : thickness to be calculated in mm

The life cycle assessment deviations within the produced product varieties can be classified as low (< 5 %).



## Results of the LCA – ENVIRONMENTAL IMPACT according to EN 15804+A1:

Declared unit: 1 m <sup>2</sup> of average produced and installed EVALASTIC®											
Declared life cycle stages (standard DIN EN 15978)	PRODUCT STAGE			CONSTRUCTION PROCESS STAGE				END OF LIFE STAGE		BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARYS	
	A1-A3	A4	A5	C2/1	C2/2	C3/1	C3/2	D/1	D/2		
GWP [kg CO <sub>2</sub> -eq.]	8,61E+00	3,31E-02	6,25E-01	4,53E-03	6,68E-02	5,26E+00	8,25E-01	-3,18E+00	-5,67E+00		
ODP [kg CFC11-eq.]	6,09E-13	1,13E-17	3,08E-14	1,54E-18	2,28E-17	3,63E-15	3,18E-14	-6,62E-14	-6,93E-14		
AP [kg SO <sub>2</sub> -eq.]	2,09E-02	6,85E-05	1,08E-03	9,38E-06	1,38E-04	1,36E-03	1,31E-03	-3,35E-03	-1,34E-02		
EP [kg PO <sub>4</sub> <sup>3-</sup> - eq.]	2,14E-03	1,70E-05	1,15E-04	2,33E-06	3,44E-05	1,32E-04	2,25E-04	-5,67E-04	-1,37E-03		
POCP [kg ethene-eq.]	1,76E-03	-2,35E-05	8,89E-05	-3,22E-06	-4,75E-05	5,55E-05	3,00E-05	-2,89E-04	-1,13E-03		
ADPE [kg Sb eq.]	2,37E-04	3,12E-09	1,19E-05	4,27E-10	6,30E-09	7,78E-07	3,23E-07	-7,47E-07	-1,52E-04		
ADPF [MJ]	1,74E+02	4,41E-01	8,77E+00	6,04E-02	8,90E-01	2,20E+00	8,28E+00	-4,14E+01	-1,12E+02		

Caption: GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification Potential for Soil and Water; EP = Eutrophication Potential; POCP = Photochemical Ozone Creation Potential; ADPE = Abiotic depletion potential for non-fossil resources (ADP - substances); ADPF = Abiotic depletion potential for fossil fuels (ADP - fossil energy sources)

## Results of the LCA – RESOURCE USE according to EN 15804+A1:

Declared unit: 1 m <sup>2</sup> of average produced and installed EVALASTIC®											
Declared life cycle stages (standard DIN EN 15978)	PRODUCT STAGE			CONSTRUCTION PROCESS STAGE				END OF LIFE STAGE		BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARYS	
	A1-A3	A4	A5	C2/1	C2/2	C3/1	C3/1	D/1	D/2		
<b>PE total [MJ]</b>	2,13E+02	4,69E-01	1,08E+01	6,43E-02	9,47E-01	3,08E+00	1,59E+01	-5,72E+01	-1,36E+02		
PERE [MJ]	2,56E+01	2,69E-02	2,69E+00	3,69E-03	5,44E-02	6,14E-01	5,29E+00	-1,09E+01	-1,63E+01		
PERM [MJ]	1,29E+00	0,00E+00	-1,29E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00		
<b>PERT [MJ]</b>	2,69E+01	2,69E-02	1,40E+00	3,69E-03	5,44E-02	6,14E-01	5,29E+00	-1,09E+01	-1,63E+01		
PENRE [MJ]	1,10E+02	4,42E-01	9,73E+00	6,06E-02	8,93E-01	7,82E+01	1,06E+01	-4,63E+01	-1,20E+02		
PENRM [MJ]	7,61E+01	0,00E+00	-3,03E-01	0,00E+00	0,00E+00	-7,58E+01	0,00E+00	0,00E+00	0,00E+00		
<b>PENRT [MJ]</b>	1,86E+02	4,42E-01	9,43E+00	6,06E-02	8,93E-01	2,47E+00	1,06E+01	-4,63E+01	-1,20E+02		
SM [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	0,00E+00		
RSF [MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00		
NRSF [MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00		
FW [m <sup>3</sup> ]	4,20E-02	3,09E-05	2,60E-03	4,23E-06	6,23E-05	1,29E-02	2,88E-03	-5,92E-03	-2,70E-02		

Caption: PE total = Total use of primary energy resources (=PERT+PENRT) 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

## Results of the LCA – OUTPUT FLOWS AND WASTE CATEGORIES according to EN 15804+A1:

Declared unit: 1 m <sup>2</sup> of average produced and installed EVALASTIC®									
Declared life cycle stages (standard DIN EN 15978)	PRODUCT STAGE	CONSTRUCTION PROCESS STAGE			END OF LIFE STAGE			BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARYS	
	A1-A3	A4	A5	C2/1	C2/2	C3/1	C3/2	D/1	D/2
GWP [kg CO <sub>2</sub> -eq.]	5,39E-07	2,52E-08	2,83E-08	3,45E-09	5,09E-08	1,36E-08	5,84E-08	-2,60E-08	-3,36E-07
ODP [kg CFC11-eq.]	7,56E-01	2,97E-05	3,98E-02	4,07E-06	6,00E-05	5,50E-01	1,01E-02	-2,43E-02	-4,86E-01
AP [kg SO <sub>2</sub> -eq.]	5,02E-03	5,26E-07	2,60E-04	7,20E-08	1,06E-06	1,05E-04	9,14E-04	-1,91E-03	-3,25E-03
EP [kg PO <sub>4</sub> <sup>3-</sup> - eq.]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
POCP [kg ethene-eq.]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,96E+00	0,00E+00	0,00E+00
ADPE [kg Sb eq.]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,96E+00	0,00E+00	0,00E+00	0,00E+00
ADPF [MJ]	0,00E+00	0,00E+00	2,45E-01	0,00E+00	0,00E+00	9,80E+00	0,00E+00	0,00E+00	0,00E+00

Caption

GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification Potential for Soil and Water; EP = Eutrophication Potential; POCP = Photochemical Ozone Creation Potential; ADPE = Abiotic depletion potential for non-fossil resources (ADP - substances); ADPF = Abiotic depletion potential for fossil fuels (ADP - fossil energy sources)

## Building product disclosure and optimization – sourcing of raw materials

*Intent of this credit*

To encourage the use of products and materials for which life cycle information is available and that have environmentally, economically, and socially preferable life cycle impacts. To reward project teams for selecting products verified to have been extracted or sourced in a responsible manner.

Product information for EVALASTIC® within this credit:

Option 1. raw material source and extraction reporting	Description / Unit
Third-party verified corporate sustainability report (CSR)?	No CSR, but alwitra has a certified environmental management system according to ISO 14001 ( <a href="#">Certificate Registr. No.: 170918115/1</a> )
Link to download the report	-
Option 2. leadership extraction practices	Description / Unit
Participation in an extended producer responsibility program?	Yes: Member in " <a href="#">ROOFCOLLECT</a> " – a collection and recycling system for thermoplastic membranes
Bio-based products meet the Sustainable Agriculture Network's Sustainable Agriculture Standard?	Not applicable
Wood products certified by the Forest Stewardship Council or USGBC-approved equivalent?	Not applicable
Postconsumer recycled content	0 % postconsumer recycled content
Preconsumer recycled content	0 % preconsumer recycled content 5-10 % internally recycled raw materials

**Building product disclosure and optimization – material ingredients***Intent of this credit*

To encourage the use of products and materials for which life-cycle information is available and that have environmentally, economically, and socially preferable life-cycle impacts. To reward project teams for selecting products for which the chemical ingredients in the product are inventoried using an accepted methodology and for selecting products verified to minimize the use and generation of harmful substances. To reward raw material manufacturers who produce products verified to have improved life-cycle impacts.

Product information for EVALASTIC® is within this credit:

Type of reporting/Item	Value/Comment
Health Product Declaration	no
Green Screen	no
International Alternative Compliance Path – REACH Optimization	The formulation was checked according to the current REACH candidate list. The formulation does not contain any substances of very high concern (SVHC) and is therefore compliant with REACH.

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