

ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A2

Owner of the Declaration	Sika Services AG
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-SIK-20240200-IBA2-EN
Issue date	29/07/2024
Valid to	28/07/2029

SikaMembran-820 / 800
Sika Services AG

www.ibu-epd.com | <https://epd-online.com>



General Information

Sika Services AG

Programme holder

IBU – Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

Declaration number

EPD-SIK-20240200-IBA2-EN

This declaration is based on the product category rules:

Plastic and elastomer roofing and sealing sheet systems,
01/08/2021
(PCR checked and approved by the SVR)

Issue date

29/07/2024

Valid to

28/07/2029



Dipl.-Ing. Hans Peters
(Chairman of Institut Bauen und Umwelt e.V.)



Florian Pronold
(Managing Director Institut Bauen und Umwelt e.V.)

SikaMembran-820 / 800

Owner of the declaration

Sika Services AG
Tüffenwies 16-22
8064 Zurich
Switzerland

Declared product / declared unit

1 m² SikaMembran®-820/800 waterproofing and vapour control membrane.

Scope:

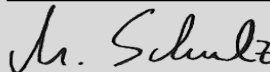
This document applies to SikaMembran®-820 and SikaMembran®-800 waterproofing and vapour control membrane in thickness of 0.3 mm, manufactured by Sika Manufacturing AG in DE-53840 Troisdorf, Germany. There are two membranes from Sika considered in this study (SikaMembran 800 and SikaMembran 820). SikaMembran 820 is non-perforated membrane, which is produced with the same recipe and production processes as SikaMembran 800 (perforated membrane; except perforation process). The EPD declares a worst case scenario which is calculated for one of the variations - SikaMembran 800 (perforated membrane) that can also cover SikaMembran 820 (non-perforated membrane).

The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

The EPD was created according to the specifications of EN 15804+A2. In the following, the standard will be simplified as *EN 15804*.

Verification

The standard EN 15804 serves as the core PCR	
Independent verification of the declaration and data according to ISO 14025:2011	
☐	internally
☒	externally



Matthias Schulz,
(Independent verifier)

Product

Product description/Product definition

SikaMembran®-820/800 is a polymeric waterproofing and vapour control membrane, an elastic EPDM Hybrid and is treated with stabilizers against UV radiation.

SikaMembran®-820/800 is available in the thickness of 0.3 mm and in single rolls of different widths.

SikaMembran 820 is non-perforated membrane, which is produced with the same recipe and production processes as SikaMembran 800 (perforated membrane; except perforation process). The EPD declares a worst case scenario which is calculated for one of the variations - SikaMembran 800 (perforated membrane) that can also cover SikaMembran 820 (non-perforated membrane).

For the placing on the market of the product in the European Union/European Free Trade Association (EU/EFTA) (with the exception of Switzerland) Regulation (EU) No. 305/2011 (CPR) applies. The product needs a declaration of performance taking into consideration EN 13984:2013, Flexible sheets for waterproofing – Plastic and rubber vapour control layers - and the CE-marking.

Application

SikaMembran®-820/800 systems provide a secure and durable vapour barrier and waterproof seal at junctions between building elements mainly in curtain wall facades but also in ventilated facades and window installations. The membrane is attached to the building elements with a pasty adhesive on all four sides.

Technical Data

Constructional data

SikaMembran®-820

Name	Value	Unit
Tensile strength as per EN 12311-2	10	N
Elongation as per EN 12311-2	> 600	%
Tear propagation resistance as per EN 12310-1	85	N
Artificial ageing as per EN 1297	passed	-
Dimensional stability as per EN 1107-2	≤ 1.6	%
Chemical Resistance as per EN 1847	passed	

LCA: Calculation rules

Declared Unit

Name	Value	Unit
Grammage	0.34	kg/m ²
Declared unit	1	m ²
Layer thickness	0.0003	m

The EPD declares a worst case scenario which is calculated for one of the variations - SikaMembran 800 (perforated membrane) that can also cover SikaMembran 820 (non-perforated membrane). The model was calculated on the basis of production data for the thickness 0.3 mm provided by Sika Technology AG from the year 2022.

Other declared units are allowed if the conversion is shown transparently.

Additional technical data are not relevant for this product.

Performance values of the product in accordance with the Declaration of Performance with regard to its essential characteristics as defined by DIN EN 13984:2013, Flexible sheets for waterproofing – Plastic and rubber vapour control layers.

Base materials/Ancillary materials

The raw materials and additives of SikaMembran®-820/800 waterproofing and vapour control membrane can be given as follows:

- Polymer including elastomer 75-85 %
- Mineral Flame retardant 10-20 %
- Stabilizer 0.1-0.5 %
- Pigments: 0-5 %

This product contains substances listed in the candidate list (date: 20.04.2023) exceeding 0.1 percentage by mass: No

This product contains other CMR substances in categories 1A or 1B which are not on the candidate list, exceeding 0.1 percentage by mass: No
Biocide products were added to this construction product or it has been treated with biocide products (this then concerns a treated product as defined by the (EU) Ordinance on Biocide Products No. 528/2012): No

Reference service life

The service life depends on climatic conditions and the installation in the building. Based on the study Durability of Sarnafil® T Polymeric Waterproofing Membranes from 2014, it is reasonable to expect a service life of up to 50 years for the SikaMembran®-820/800, assuming correct application and maintenance.

This finding reflects the product's high resistance to weathering and ageing when used properly.

System boundary

Declaration type with respect to life cycle stages covered according to clause 5.2 EN 15804+A2 is cradle to gate with modules C1–C4 and module D (A1–A3, A4, A5, C and D).

Module A1 to A3:

The product stage includes provision of all materials, products and energy, as well as waste processing up to the end-of waste state or disposal of final residues during the product stage. These modules consider the manufacturing of system components/raw materials, the transport to the production site and the production processes/manufacturing/assembly of the product under study. The impact of packaging materials is included.

Module A4:

This module considers 100 km truck transport to site (diesel driven, EURO 6, 40 tons total load, 61% utilization). The transport distance can be modified project specific if required by linear scaling.

Module A5:

Installation of membranes is considered manually, with negligible amount of adhesive. Treatment and disposal of packaging material. Credits for potential avoided burdens due to energy substitution of electricity and thermal energy generation are declared in module D and affects only the rate of primary material (no secondary materials).

Module C1 to C4:

- Manual dismantling → no loads (**C1**).
- 50 km transport by 40 to truck, EURO 6, 61% average utilization (**C2**).
- Thermal treatment of materials (**C3**) with heating value >2 MJ/kg in MWI plants, assuming an R1 value of >0.6
- The membrane is not subjected to landfill (**C4**), hence landfill scenario (C4) is not relevant.

Module D:

For the thermal and electrical energy generated in Module A5 and C3 due to thermal treatment of packaging and product waste, avoided burdens have been calculated by the inversion of electricity grid mix and thermal energy from natural gas, using German datasets.

As a conservative approach, credits are only given to the incineration of the plastic parts in order not to overestimate the benefits from the product incineration.

Geographic Representativeness

Land or region, in which the declared product system is manufactured, used or handled at the end of the product's lifespan: Germany

Comparability

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to *EN 15804* and the building context, respectively the product-specific characteristics of performance, are taken into account. Background database: LCAFE Software Database 2023.2

LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon

Name	Value	Unit
Biogenic carbon content in product	-	kg C
Biogenic carbon content in accompanying packaging	0.01118	kg C

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

Transport to the building site (A4)

Name	Value	Unit
Litres of fuel	0.0018	l/100km
Transport distance	100	km
Capacity utilisation (including empty runs)	61	%

Installation into the building (A5)

Name	Value	Unit
Output substances following waste treatment on site - Wooden Pallets	0.02795	kg

End of life (C1-C4)

Name	Value	Unit
Collected separately waste type	0.34	kg
Energy recovery	0.34	kg

Reuse, recovery and/or recycling potentials (D), relevant scenario information

Module D includes the potential benefits in form of energy recovery of the incineration process in A5 (incineration of packaging wastes) and C3 (combustion of the product).

LCA: Results

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)

Product stage			Construction process stage		Use stage							End of life stage				Benefits and loads beyond the system boundaries
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	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
X	X	X	X	X	MND	MND	MNR	MNR	MNR	MND	MND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 m² SikaMembran®-820/800

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq	9.08E-01	2.99E-03	4.28E-02	0	1.38E-03	7.83E-01	0	-2.44E-01
GWP-fossil	kg CO ₂ eq	9.48E-01	2.96E-03	8.36E-04	0	1.37E-03	7.81E-01	0	-2.43E-01
GWP-biogenic	kg CO ₂ eq	-4.07E-02	8.43E-06	4.2E-02	0	3.89E-06	1.94E-03	0	-1.77E-03
GWP-luluc	kg CO ₂ eq	4.41E-04	1.79E-05	1.95E-07	0	8.29E-06	4.48E-06	0	-2.24E-05
ODP	kg CFC11 eq	5.52E-08	7.4E-16	7.67E-15	0	3.42E-16	1.23E-13	0	-3E-12
AP	mol H ⁺ eq	1.15E-03	2.53E-06	8.66E-06	0	1.17E-06	2.29E-04	0	-2.47E-04
EP-freshwater	kg P eq	1.6E-06	7.07E-09	2.01E-09	0	3.27E-09	3.43E-08	0	-6.64E-07
EP-marine	kg N eq	3.32E-04	7.25E-07	2.19E-06	0	3.35E-07	7.09E-05	0	-9.13E-05
EP-terrestrial	mol N eq	3.65E-03	9.26E-06	3.72E-05	0	4.28E-06	1.1E-03	0	-9.7E-04
POCP	kg NMVOC eq	1.43E-03	2.14E-06	5.8E-06	0	9.87E-07	1.85E-04	0	-2.34E-04
ADPE	kg Sb eq	3.45E-06	2.17E-10	5.76E-11	0	1E-10	9.25E-10	0	-2.13E-08
ADPF	MJ	2.67E+01	4.08E-02	1.13E-02	0	1.88E-02	2.04E-01	0	-3.81E+00
WDP	m ³ world eq deprived	3E-02	1.57E-05	4.67E-03	0	7.28E-06	7.97E-02	0	-3.23E-03

GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential)

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 m² SikaMembran®-820/800

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	1.37E+00	2.73E-03	4.06E-01	0	1.26E-03	8.37E-02	0	-1.46E+00
PERM	MJ	4.26E-01	0	-4.02E-01	0	0	-2.33E-02	0	0
PERT	MJ	1.8E+00	2.73E-03	3.75E-03	0	1.26E-03	6.04E-02	0	-1.46E+00
PENRE	MJ	1.23E+01	4.09E-02	1.13E-02	0	1.89E-02	1.46E+01	0	-3.81E+00
PENRM	MJ	1.44E+01	0	0	0	0	-1.44E+01	0	0
PENRT	MJ	2.67E+01	4.09E-02	1.13E-02	0	1.89E-02	2.05E-01	0	-3.81E+00
SM	kg	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m ³	3.42E-03	2.43E-06	1.1E-04	0	1.12E-06	1.88E-03	0	-5.19E-04

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 - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 m² SikaMembran®-820/800

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	2.32E-09	6.89E-14	4.71E-14	0	3.18E-14	3.25E-12	0	-2.3E-10
NHWD	kg	1.18E-02	6.12E-06	6.18E-04	0	2.83E-06	1.67E-02	0	-2.05E-03
RWD	kg	3E-04	5.38E-08	3.87E-07	0	2.48E-08	6.22E-06	0	-1.51E-04
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	5.02E-02	0	0	8.51E-01	0	0
EET	MJ	0	0	1.18E-01	0	0	1.95E+00	0	0

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 m² SikaMembran®-820/800

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidence	1.38E-08	1.88E-11	5.77E-11	0	8.67E-12	1.25E-09	0	-1.79E-09
IR	kBq U235 eq	2.72E-02	5.76E-06	4.09E-05	0	2.66E-06	6.57E-04	0	-1.6E-02
ETP-fw	CTUe	1.12E+01	2.98E-02	4.37E-03	0	1.38E-02	7.43E-02	0	-5.98E-01
HTP-c	CTUh	2.93E-10	5.94E-13	4.12E-13	0	2.74E-13	8.27E-12	0	-4.64E-11
HTP-nc	CTUh	1.19E-08	2.49E-11	1.83E-11	0	1.15E-11	3.77E-10	0	-1.24E-09
SQP	SQP	7.71E+00	1.45E-02	4E-03	0	6.71E-03	6.15E-02	0	-1.01E+00

PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index

Disclaimer 1 – for the indicator “Potential Human exposure efficiency relative to U235”. 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 or radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, radon and from some construction materials is also not measured by this indicator.

Disclaimer 2 – for the indicators “abiotic depletion potential for non-fossil resources”, “abiotic depletion potential for fossil resources”, “water (user) deprivation potential, deprivation-weighted water consumption”, “potential comparative toxic unit for ecosystems”, “potential comparative toxic unit for humans – cancerogenic”, “Potential comparative toxic unit for humans - not cancerogenic”, “potential soil quality index”. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high as there is limited experience with the indicator.

References

Regulation (EU) No. 305/2011 (CPR)

of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC Text with EEA relevance.

DIN EN 13948:2013

Flexible sheets for waterproofing – Plastic and rubber vapour control layers

EN 12311-2

Flexible Sheets For Waterproofing - Determination Of Tensile and Elongation Properties - Part 2: Plastic And Rubber Sheets For Roof Waterproofing

EN 12310-1

Flexible Sheets For Waterproofing - Determination Of Resistance To Tearing.

EN 1297

Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roof waterproofing - Method of artificial ageing by long term exposure to the combination of UV radiation, elevated temperature and water.

EN 1107-2

Flexible sheets for waterproofing - Determination of dimensional stability - Part 2: Plastic and rubber sheets for roof waterproofing.

EN 1847

Flexible sheets for waterproofing - Plastics and rubber sheets for roof waterproofing - Methods for exposure to liquid chemicals, including water.

EN 15804

EN 15804:2012+A1 2013, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products.

EN 15804

EN 15804:2012+A2:2019+AC:2021, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products.

ISO 14025

EN ISO 14025:2011, Environmental labels and declarations — Type III environmental declarations — Principles and procedures.

IBU 2021

Institut Bauen und Umwelt e.V.: General Instructions for the EPD programme of Institut Bauen und Umwelt e.V., Version 2.0, Berlin: Institut Bauen und Umwelt e.V., 2021
www.ibu-epd.com

IBU PART A

PCR - Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report according to EN 15804+A2:2019, version 1.3, Institut Bauen und Umwelt e.V., www.bau-umwelt.com, 31/08/2022

IBU Part B

PCR – Part B: Requirements of the EPD for Plastic and elastomer roofing and sealing sheet systems, version 8, Institut Bauen und Umwelt e.V., www.bau-umwelt.com, 30/04/2024

LCAFE software

Sphera Solutions GmbH, GaBi Software System and Database for Life Cycle Engineering CUP Version: 2023.1 University of Stuttgart Leinfelden Echterdingen

LCAFE documentation

LCAFE life cycle inventory data documentation(<https://sphera.com/product-sustainability-gabi-data-search/>)

REACH

Directive (EC) No. 1907/2006 of the European Parliament and Council of 18 December 2006 on the Registration, Evaluation, Authorisation of Chemicals (REACH) for establishing a



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