

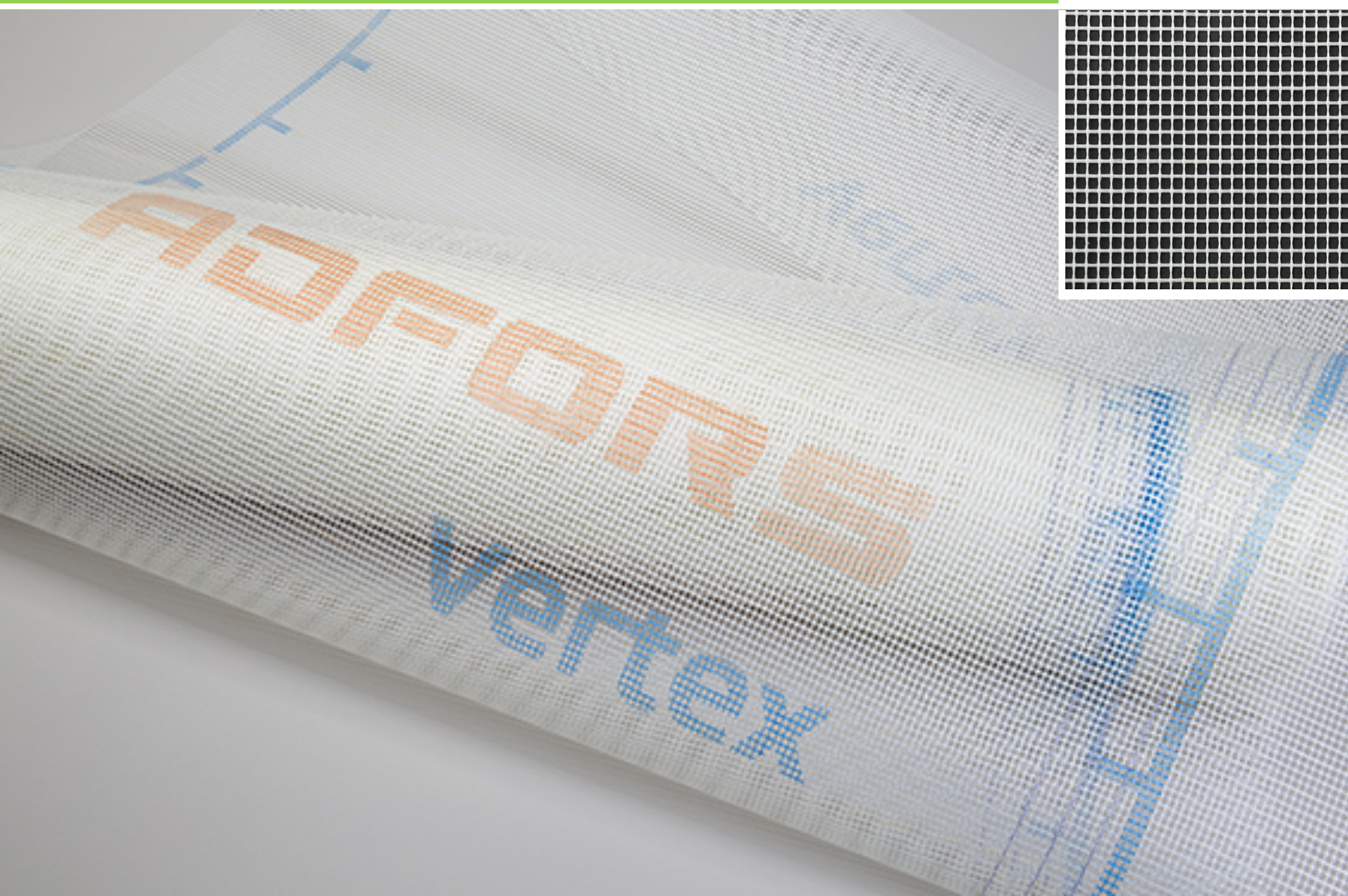
# ENVIRONMENTAL PRODUCT DECLARATION

as per /ISO 14025/ and /EN 15804/

Owner of the Declaration	SAINT-GOBAIN ADFORS CZ, s.r.o
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-SGA-20190024-CBA1-EN
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Valid to	24/06/2024

ADFORS Vertex® (0.16 kg/m²)  
SAINT-GOBAIN ADFORS, CZ s.r.o.

[www.ibu-epd.com](http://www.ibu-epd.com) / <https://epd-online.com>



## General Information

SAINT-GOBAIN ADFORS CZ, s.r.o.

### Programme holder

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### Declaration number

EPD-SGA-20190024-CBA1-EN

### This declaration is based on the product category rules:

Glass Reinforcement Mesh, 07.2014  
(PCR checked and approved by the SVR)

### Issue date

25/06/2019

### Valid to

24/06/2024



Prof. Dr.-Ing. Horst J. Bossenmayer  
(President of Institut Bauen und Umwelt e.V.)



Dr. Alexander Röder  
(Managing Director IBU)

ADFORS Vertex®

### Owner of the declaration

SAINT-GOBAIN ADFORS CZ, s.r.o.  
Sokolovská 106  
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570 01  
Czech Republic

### Declared product / declared unit

1 m<sup>2</sup> of glasfiber mesh **ADFORS Vertex®** with the grammage of 0,16 kg/m<sup>2</sup>.

This EPD declares a specific product from the manufacturer's plant.

### Scope:

This document refers to the manufacture of Vertex ® glass fibre mesh by SAINT-GOBAIN ADFORS CZ s.r.o. This product is produced in the manufacturing plant in Litomyšl in the Czech Republic, in which the production data for 2017 was recorded. This EPD declares the life cycle analysis (LCA) for a specific product.

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.

### Verification

The standard /EN 15804/ serves as the core PCR  
Independent verification of the declaration and data according to /ISO 14025:2010/

☐ internally ☒ externally



Vito D'Incognito  
(Independent verifier appointed by SVR)

## Product

### Product description / Product definition

The product is a glass fibre mesh which is half leno woven fabrics made of glass fibres. To provide resistance to alkali conditions, the strands are coated by an organic layer. The product is delivered as ready to use rolls. The product is sold under the brand name ADFORS Vertex® or a private name. This EPD is a so called average EPD, so it covers the full range of ADFORS meshes.

For the placing of the product on the market in the European Union/European Free Trade Association (EU/EFTA) (with the exception of Switzerland) the /Regulation (EU) No. 305/2011 Construction Product Rule (CPR)/ applies. The product needs a declaration of performance taking into consideration /ETA 13/0392/, 2/7/2018, EAD 040016-00-0404/ Glass fibre mesh for reinforcement of cement-based renderings. For the application and use the respective national provisions apply.

### Application

ADFORS Vertex® glass fibre meshes serve as a reinforcement of constructions. There are several typical applications:

#### REINFORCEMENT FABRICS FOR EXTERNAL FAÇADE SYSTEMS AND THERMAL INSULATION COMPOSITE SYSTEMS (ETICS)

Glass-fibre mesh fabrics are used as a thermal insulation composite façade system reinforcement complying with the high strength requirements of the European Electrical Products Certification Association (ETICS) system. The fabrics meet the requirements of the European standard /ETAG 004/ that defines the minimum residual tensile strength following exposure to alkaline substances.

#### REINFORCEMENT FABRICS FOR INTERIOR PLASTERS

Mesh fabrics can be used for reinforcement of interior plasters as well. They protect the plaster against

cracking. They are mainly applied in locations, where two types of materials with different expansion coefficient come into contact, i.e. in locations with high crack formation potential. The mesh fabrics covering such location absorb the tensions.

#### OTHER EXAMPLES OF FABRICS APPLICATION

Mesh fabrics are used also for fabrication of building elements. For example, structural boards are reinforced with fabrics on both sides. Mesh fabrics are broadly used in the marble processing industry mainly for the production of large or low-stability marble boards that are supported with mesh fabrics in the bottom.

#### Technical Data

The technical specifications are specified in accordance with information in the declaration of performance.

#### Constructional data

Name	Value	Unit
Tensile strength in delivered state (warp / weft - minimal) acc. to /EAD 040016-00-0404:2016/	1900 / 1900	N/5cm
Elongation in delivered state (warp / weft - maximal) acc. to /EAD 040016-00-0404:2016/	5 / 3,8	%
Alkali resistance (warp / weft - minimal) acc. to /EAD 040016-00-0404:2016/	1000 / 1000	N/5cm

Product according to the CPR, based on an European Technical Approval (ETA): performance data of the product in accordance with the declaration of performance with respect to its essential characteristics according to /ETA 13/0392/, 2/7/2018, /EAD 040016-00-0404/ Glass fibre mesh for reinforcement of cement based renderings.

#### Base materials / Ancillary materials

ADFORS Vertex® mesh fabrics ( 0,13 kg/m<sup>2</sup> **glass fibres** and 0,03 kg/m<sup>2</sup> **organic coating** based on self-crosslinking styrene butadiene rubber) are produced in three main phases:

- In the first phase, glass fibres are produced by melting of input materials followed by drawing and coiling. E (Eutal type) glass is used for the purpose of mesh fabric production in accordance with /DIN 1259-1/ thanks to its good strength characteristics maintained also following exposure to alkaline substances included in façade systems.

- The second production phase consists of glass-fibre weaving, where "greige fabrics" is produced. Leno weave method is used for mesh fabric production.

- The third phase is the hardening process, in which a finishing layer is applied to the greige fabric. There are two purposes of the finish:

- 1) Fabric fixation for its easy use and workability.
- 2) Glass protection in alkaline environment (e.g. base layers of the ETICS thermal insulation system).

The fabric does not contain any substances of very high concern (SVHC).

#### Reference service life

The reference service life (RSL) is not declared. A calculation according to /ISO 15686/ is not applied. The product is typically used as a part of an ETICS. If the whole system is well maintained, the life time is over 50 years.

## LCA: Calculation rules

#### Declared Unit

This declaration refers to the production of 1 m<sup>2</sup> of Vertex Mesh ® fiberglass mesh with the grammage of 0,16 kg/m<sup>2</sup>.

#### Declared unit

Name	Value	Unit
Declared unit	1	m <sup>2</sup>
Grammage	0.16	kg/m <sup>2</sup>
Conversion factor to 1 kg	6.25	-

#### System boundary

It represents a "cradle-to-gate" EPD with options.

The following life cycle stages are considered:

#### Production

A1-A3 – Raw material supply, transport and manufacturing

#### Installation

A4 – Transport to building site

A5 – Initial installation into building (including packaging waste processing)

#### End-of-life

C2 – Transport to waste processing,

C4 – Disposal (landfilling)

#### Benefits and loads beyond the product system boundary

D - Reuse-, recovery- or recycling- potential

#### 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.

GaBi ts serves as background database for the calculation /GaBi ts/.

## LCA: Scenarios and additional technical information

The following technical information is the basis for the declared modules.

#### Transport to the building site (A4)



Name	Value	Unit
Litres of fuel (per kg cargo)	0.00171	l/100km
Transport distance	700	km
Capacity utilisation (including empty runs)	85	%

#### Installation in the building (A5)

The following packaging materials are considered on construction site:

Name	Value	Unit
PE stretch film (40 MJ/kg*)	0,0006	kg/m <sup>2</sup>
Carton (13 MJ/kg*)	0,005	kg/m <sup>2</sup>
Wooden pallet (12 MJ/kg*)	0,012	kg/m <sup>2</sup>

\*Heating value

The amount of installation waste is not declared in this EPD. For calculation of the environmental impact of the product including installation waste, the values for the production stage (A1-A3) and end of life (C4, D) have to be multiplied with the amount of waste (e.g. 2% installation waste, factor 1.02)

#### End of life (C1-C4)

Name	Value	Unit
Collected as mixed construction waste	0.16	kg
Landfilling (100 % scenario)	0.16	kg
Transport to End of life (C1)	50	km
Capacity utilisation (including empty runs)	85	%
Litres of fuel (per kg cargo)	0,00171	l/100 km

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

For module D the potential benefits given in module A5 are declared. For waste incineration combustion in a WIP (R1 > 0.6) with energy recuperation is considered.

## LCA: Results

The following table depicts the results of the indicators concerning the estimated impact, use of resources as well as waste and other output flows in relation to 1 m<sup>2</sup> of Vertex ® with the grammage of 0,16 kg/m<sup>2</sup>. As End of life scenario (EoL) landfilling is considered in C4.

In the table "Description of the system boundary", all declared modules are indicated with an "X"; all modules that are not declared are indicated with "MND". As default the modules B3, B4, B5 are marked as MNR – module not relevant.

### DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE NOT DECLARED)

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	MND	X	MND	X	X

### RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: 1 m<sup>2</sup> ADFORS Vertex® fiberglass mesh with the grammage of 0,16 kg/m<sup>2</sup>

Parameter	Unit	A1-A3	A4	A5	C2	C4	D
Global warming potential	[kg CO <sub>2</sub> -Eq.]	3.94E-1	7.49E-3	3.08E-2	4.82E-4	2.38E-3	-1.07E-2
Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	7.62E-14	1.88E-18	8.30E-18	1.21E-19	1.38E-17	-1.34E-16
Acidification potential of land and water	[kg SO <sub>2</sub> -Eq.]	2.14E-3	3.14E-5	4.20E-6	2.02E-6	1.43E-5	-1.70E-5
Eutrophication potential	[kg (PO <sub>4</sub> ) <sup>3</sup> -Eq.]	1.32E-4	7.96E-6	8.77E-7	5.12E-7	1.62E-6	-1.88E-6
Formation potential of tropospheric ozone photochemical oxidants	[kg ethene-Eq.]	1.40E-4	-1.15E-5	2.86E-7	-7.40E-7	1.10E-6	-1.39E-6
Abiotic depletion potential for non-fossil resources	[kg Sb-Eq.]	1.36E-5	6.61E-10	4.12E-10	4.25E-11	8.76E-10	-1.80E-9
Abiotic depletion potential for fossil resources	[MJ]	7.43E+0	1.02E-1	6.87E-3	6.59E-3	3.33E-2	-1.54E-1

### RESULTS OF THE LCA - RESOURCE USE: 1 m<sup>2</sup> ADFORS Vertex® fiberglass mesh with the grammage of 0,16 kg/m<sup>2</sup>

Parameter	Unit	A1-A3	A4	A5	C2	C4	D
Renewable primary energy as energy carrier	[MJ]	6.23E-1	IND	2.12E-1	IND	4.37E-3	IND
Renewable primary energy resources as material utilization	[MJ]	2.10E-1	IND	-2.10E-1	IND	0.00E+0	IND
Total use of renewable primary energy resources	[MJ]	8.33E-1	6.11E-3	1.50E-3	3.93E-4	4.37E-3	-3.49E-2
Non-renewable primary energy as energy carrier	[MJ]	7.16E+0	IND	2.77E-2	IND	9.65E-1	IND
Non-renewable primary energy as material utilization	[MJ]	9.50E-1	IND	-2.00E-2	IND	-9.30E-1	IND
Total use of non-renewable primary energy resources	[MJ]	8.11E+0	1.03E-1	7.72E-3	6.62E-3	3.45E-2	-1.90E-1
Use of secondary material	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Use of renewable secondary fuels	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Use of non-renewable secondary fuels	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Use of net fresh water	[m <sup>3</sup> ]	1.59E-3	1.03E-5	7.74E-5	6.63E-7	8.69E-6	-4.12E-5

### RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES: 1 m<sup>2</sup> ADFORS Vertex® fiberglass mesh with the grammage of 0,16 kg/m<sup>2</sup>

Parameter	Unit	A1-A3	A4	A5	C2	C4	D
Hazardous waste disposed	[kg]	7.38E-9	5.71E-9	9.65E-12	3.68E-10	5.88E-10	-7.68E-11
Non-hazardous waste disposed	[kg]	5.67E-2	8.67E-6	3.79E-4	5.58E-7	1.60E-1	-7.68E-5
Radioactive waste disposed	[kg]	2.67E-4	2.11E-7	3.34E-7	1.36E-8	4.63E-7	-1.39E-5
Components for re-use	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Materials for recycling	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Materials for energy recovery	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Exported electrical energy	[MJ]	0.00E+0	0.00E+0	4.13E-2	0.00E+0	0.00E+0	0.00E+0
Exported thermal energy	[MJ]	0.00E+0	0.00E+0	8.88E-2	0.00E+0	0.00E+0	0.00E+0

## References

### /CPR/

Regulation (EU) No. 305/2011 Construction Product Rule (CPR)

### /EAD 040016-00-0404/

Glass fibre mesh for reinforcement of cement based renderings

### /ETAG 004/

External Thermal Insulation Composite Systems (ETICS) with rendering

### /ETA 13/0392/

Glass fibre meshes for reinforcement of cement based renderings

**/DIN 1259-1/**

Terminology for glass types and groups

**/IBU 2016/**

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**/ISO 14025/**

DIN EN /ISO 14025:2011-10/, Environmental labels and declarations — Type III environmental declarations — Principles and procedures

**/EN 15804/**

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**Software & Documentation**

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