

Annex

For Aqua technology self-adhesive layer for wall coverings

to the

ENVIRONMENTAL PRODUCT DECLARATION

as per /ISO 14025/ and /EN 15804/

Owner of the Declaration	Vitrulan Textile Glass GmbH
Declaration number	
Issue date	
Valid to	

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General Information

Vitrulan Textile Glass GmbH

Programme holder

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

Declaration number**This declaration is based on the product category rules:**

Wall coverings, 01/08/2021
(PCR checked and approved by the SVR)

Issue date**Valid to**

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

Dipl.-Ing. Hans Peters
(Managing Director Institut Bauen und Umwelt e.V.)

Aqua technology (self adhesive layer)

Owner of the declaration

Vitrulan Textile Glass GmbH
Bernecker Straße 8
95509 Marktschorgast
Germany

Declared product / declared unit

1 m² of Aqua technology by Vitrulan Textile Glass GmbH, as a public annex to their woven glass fibre covering and non-woven glass fibre covering EPD documents with a grammage of 0.0254 kg/m².

Scope:

This specific EPD document (public annex) refers to Aqua technology, a layer of adhesive which is applied evenly on the backside of the glass fibre wallcovering (woven or non-woven) produced by Vitrulan Textile Glass GmbH. The production data was recorded in 2021. The production plant is located in Marktschorgast, Germany.

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 14025:2010

internally	x	externally
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Name of verifier,
(Independent verifier)

Product

Product description

Aqua Technology was introduced by Vitruvan in 2001. It consists of a uniform layer of adhesive pre-applied to the back of the wall covering in the factory and activated by water. The adhesive complies with the same requirements as conventional dispersion adhesives but with one particular advantage – since the wall covering is pre-pasted with just the right amount of adhesive, there is no danger of missing areas or applying too much. To activate the adhesive coating, the wall covering is drawn through a water bath, loosely folded (approx. 1 m long folds) and cut to the desired length. After an activation time of 1 to 3 minutes*, the lengths are ready to hang. The application characteristics and pre-pasted adhesive make Aqua Technology an extremely economical product:

- No need to purchase, transport, and store adhesive
- Always the right amount of adhesive: no excess, no missed areas
- No more time-consuming tool cleaning
- Less physical effort, easier handling
- Saves time, improves m² coverage and thus increases efficiency
- Perfect results

Application

With Aqua technology, the wall coverings come with a dry adhesive layer which is applied evenly to the back of the wall coverings. The adhesive layer is activated by water. Therefore, pull the roll correctly through the water-filled Aqua Quick pasting machine according to the instructions and fold loosely without creasing. It takes approximately 1 minute to activate the integrated adhesive, or 2 to 3 minutes when applying to ceilings. For more information, please refer to the Aqua Quick manual. The drying time is 12 – 24 hours at normal room climate/temperature (18 °C, 60 %).

After activating the adhesive, process the wall coverings within a maximum of 20 minutes. When applying under extreme climatic conditions (high humidity, high temperatures), the duration can change significantly. Make corrections within a maximum of 10 minutes after application to the surface. Depending on the surface and the ambient climate/temperature, the duration can change significantly.

Do not leave glass-based wall coverings immersed in water for more than 5 minutes as this may cause the adhesive to swell and liquefy. If the dwell time is longer, the optimum quantity and consistency of adhesive on the fabric can no longer be guaranteed.

Recommendation if a break is desired between cutting two lengths: Pull the length 50 cm shorter than required through the Aqua Quick pasting machine, then cut the length at the rear edge of the tub and pull the rest through the water. (Example: Pull the length to 2.00 m and cut off at the rear edge of the tub = total length 2.50 m).

LCA: Calculation rules

Declared Unit

The declared unit is 1m² of Aqua self-adhesive layer with an area weight of 0.0254 kg/m².

Declared Unit

Name	Value	Unit
Declared Unit	1	m ²
Grammage	0.0254	kg/m ²

LCA: Scenarios and additional technical information

The values refer to the declared unit of 1 m² Aqua self-adhesive layer.

Characteristics product properties of biogenic carbon

Information on describing the biogenic carbon content at factory gate

Name	Value	Unit
Biogenic Carbon Content in product	0.0119	kg C
Biogenic Carbon Content in accompanying packaging	0	kg C

Transport to the building site (A4)

Name	Value	Unit
Litres of fuel	5.10E-05	l/100km
Transport distance	100	km
Capacity utilisation (including empty runs)	50	%
Gross weight of products transported	0.0254	kg/m ²

Installation into building (A5)

Vitruan Textile Glass GmbH offers, among others, the Aqua technology. Herein, the wall covering comes with a water-activatable adhesive which is already applied to the wall covering's backing – this adhesive then can be easily activated by water using the 'Aqua-Quick device' specially developed for this purpose. After activation of the adhesive, the strip of wall covering is hung on the dry substrate.

Name	Value	Unit
Water consumption (for activating the self-adhesive layer)	0.1	kg

End of life (C1-C4)

For the End-of-Life stage, the product dismantling (C1) is done mainly through the use of electric driven machines (0.1 MJ of electricity per kg of a wall covering).

The transport to End of Life (C2) is calculated with a distance of 50 km (with 55% utilization).

The Waste processing scenario adopted (C4) is landfill of the Aqua self-adhesive layer.

Name	Value	Unit
Collected separately (Aqua)	0.0254	kg
Landfilling	0.0254	kg

LCA: Results

The following tables display the environmental relevant results according to EN 15804 for 1 m² Aqua.

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	MND	MND	MND	MND	MND	X	X	X	X	X	

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN15804+A2: 1 m² Aqua

Core Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ -Eq.]	1.64E-01	1.56E-04	1.58E-05	2.58E-04	1.06E-04	0.00E+00	4.41E-02	0.00E+00
GWP-fossil	[kg CO ₂ -Eq.]	2.07E-01	1.55E-04	1.46E-05	2.56E-04	1.05E-04	0.00E+00	3.73E-04	0.00E+00
GWP-biogenic	[kg CO ₂ -Eq.]	-4.34E-02	6.49E-07	1.16E-06	2.31E-06	4.40E-07	0.00E+00	4.37E-02	0.00E+00
GWP-luluc	[kg CO ₂ -Eq.]	8.26E-05	1.06E-06	4.40E-09	5.42E-08	7.20E-07	0.00E+00	6.89E-07	0.00E+00
ODP	[kg CFC11-Eq.]	3.58E-13	1.55E-17	1.11E-16	3.75E-15	1.05E-17	0.00E+00	8.76E-16	0.00E+00
AP	[mol H ⁺ -Eq.]	3.94E-04	1.70E-07	3.49E-08	5.62E-07	1.26E-07	0.00E+00	2.64E-06	0.00E+00
EP-freshwater	[kg PO ₄ -Eq.]	1.38E-05	5.63E-10	1.18E-09	7.47E-10	3.82E-10	0.00E+00	6.32E-10	0.00E+00
EP-marine	[kg N-Eq.]	1.68E-04	5.36E-08	1.25E-08	1.26E-07	4.20E-08	0.00E+00	6.76E-07	0.00E+00
EP-terrestrial	[mol N-Eq.]	1.60E-03	6.44E-07	8.69E-08	1.32E-06	5.00E-07	0.00E+00	7.43E-06	0.00E+00
POCP	[kg NMVOC-Eq.]	2.85E-04	1.46E-07	2.30E-08	3.41E-07	1.10E-07	0.00E+00	2.06E-06	0.00E+00
ADPE	[kg Sb-Eq.]	1.60E-07	1.59E-11	2.84E-12	6.98E-11	1.08E-11	0.00E+00	3.82E-11	0.00E+00
ADPF	[MJ]	3.23E+00	2.07E-03	2.30E-04	4.65E-03	1.40E-03	0.00E+00	4.89E-03	0.00E+00
WDP	[m ³ world-Eq deprived]	1.41E-01	1.76E-06	1.37E-04	5.84E-05	1.20E-06	0.00E+00	4.09E-05	0.00E+00

Caption: 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 use

RESULTS OF THE LCA – INDICATORS TO DESCRIBE RESOURCE USE according to EN15804+A2: 1 m² Aqua

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	[MJ]	1.51E+00	1.43E-04	5.28E-05	2.58E-03	9.72E-05	0.00E+00	7.33E-04	0.00E+00
PERM	[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
PERT	[MJ]	1.51E+00	1.43E-04	5.28E-05	2.58E-03	9.72E-05	0.00E+00	7.33E-04	0.00E+00
PENRE	[MJ]	3.23E+00	2.08E-03	2.30E-04	4.65E-03	1.41E-03	0.00E+00	4.89E-03	0.00E+00
PENRM	[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
PENRT	[MJ]	3.23E+00	2.08E-03	2.30E-04	4.65E-03	1.41E-03	0.00E+00	4.89E-03	0.00E+00
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
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
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
FW	[m ³]	1.04E-02	1.66E-07	1.00E-04	2.46E-06	1.12E-07	0.00E+00	1.24E-06	0.00E+00

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

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN15804+A2: 1 m² Aqua

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	[kg]	5.48E-08	1.10E-14	2.10E-14	4.02E-13	7.45E-15	0.00E+00	2.51E-13	0.00E+00
NHWD	[kg]	1.24E-02	3.38E-07	3.04E-05	3.50E-06	2.29E-07	0.00E+00	2.50E-02	0.00E+00
RWD	[kg]	1.09E-04	3.86E-09	5.90E-09	7.43E-07	2.61E-09	0.00E+00	5.43E-08	0.00E+00
CRU	[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
MFR	[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
MER	[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
EEE	[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
EET	[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

Caption: 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; EEE = Exported thermal energy

RESULTS OF THE LCA– additional impact categories according to EN15804+A2-optional: 1 m² Aqua

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	[Disease Incidence]	4.35E-09	1.19E-12	5.43E-13	4.66E-12	8.41E-13	0.00E+00	3.25E-11	0.00E+00
IR	[kBq U235-Eq.]	1.01E-02	5.82E-07	5.94E-07	1.26E-04	3.95E-07	0.00E+00	6.03E-06	0.00E+00
ETP-fw	[CTUe]	7.47E-01	1.47E-03	4.96E-04	2.04E-03	9.94E-04	0.00E+00	2.74E-03	0.00E+00
HTP-c	[CTUh]	5.33E-11	3.02E-14	9.85E-15	5.85E-14	2.05E-14	0.00E+00	4.18E-13	0.00E+00
HTP-nc	[CTUh]	5.04E-09	1.63E-12	9.66E-13	2.14E-12	1.11E-12	0.00E+00	4.63E-11	0.00E+00
SQP	[-]	1.14E+01	8.76E-04	3.83E-05	1.68E-03	5.94E-04	0.00E+00	1.02E-03	0.00E+00
Caption	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; HTP-nc = Potential comparative Toxic Unit for humans; 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.

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