ENVIRONMENTAL PRODUCT DECLARATION

as per /ISO 14025/ and /EN 15804/

Owner of the Declaration	IGI - The Global Wallcoverings Association
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
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Vinyl Wallcoverings on cellulose fibre base

IGI - The Global Wallcoverings Association

Institut Bauen und Umwelt e.V.

www.ibu-epd.com / https://epd-online.com

ECO PLATFORM EPD EN 15804 VERIFIED

1. General Information

Participating companies:
A.S. Création Tapeten AG (DE), Anstey Wallpaper Co. Ltd (GB), Erismann & Cie. GmbH (DE), Fine Decor Wallcoverings Ltd (GB), Graham & Brown Ltd (GB), Grandeco NV (BE), Limonta Wall (IT), Muraspec Decorative Solutions Ltd (GB), Sirpi S.p.A. (IT), UGÉPA SA (FR)

Vinyl wallcoverings on cellulose fibre base

Programme holder
IBU - Institut Bauen und Umwelt e.V.
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10178 Berlin
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Owner of the Declaration
IGI - The Global Wallcoverings Association
Chaussée de Louvain 426
1380 LASNE - Belgium

Declaration number
EPD-IGI-20170143-IBG1-EN

Declared product / Declared unit
The declared unit is 1m² (square metre) decorative vinyl wallcovering on cellulose fibre base including packaging.

This Declaration is based on the Product Category Rules:
Wall coverings, 09.2016
(PCR tested and approved by the SVR)

Scope:
This EPD focusses on the production, transport and disposal of a weighted average of 1m² vinyl wallcoverings on cellulose fibre base of participating members of the IGI - The Global Wallcoverings Association.

Non-decorative wallcoverings for a later additional treatment like painting ("whites") are included in this scope as they follow a worst case approach.

10 out of 67 IGI-members are involved in this EPD. The EPD is valid only for those companies.

The technical properties are displayed in chapter 2.3.

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.

Issue date
11/12/2017

Valid to
10/12/2022

Verification

The CEN Norm /EN 15804/ serves as the core PCR
Independent verification of the declaration according to /ISO 14025/
☐ internally ☒ externally

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

Dr. Burkhart Lehmann
(Managing Director IBU)

Prof. Dr. Birgit Grahl
(Independent verifier appointed by SVR)

2. Product

2.1 Product description / Product definition

Vinyl wallcoverings on cellulose fibre base according to /EN 15102/ involve plasticized PVC (vinyl) and a cellulose fibre base. When the wallcovering is to be changed it can be delaminated from the wall. /EN 235/ defines delamination as peelable.

For the placing on the market of the product in the 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 15102/ and CE-marking. For the application and use the respective national provisions apply.

For the placing on the market in the USA the product should conform to /ASTM F 1141 – 93/ Standard Specification for Wallcovering and /ASTM F 793 – 06/ Standard Classification of Wall Covering by Use Characteristics.

2.2 Application

Wallcoverings are used for the decorative wall design of interior spaces in private or commercial use.

2.3 Technical Data

Constructional data
In accordance with /EN 233/, the following technical (structural) data can be declared on delivery:

Name	Value	Unit
Measures by categories /EN 233/	category 1 - 3	-
Straightness and parallelism in mm. according to /EN 12956/	equal or less than 1	-
Washability according to /EN 12956/	spongeable to extra-scrubbable	-
Colour fastness to light according to /EN ISO 105-B02/	3 - 6	-
Migration of heavy metals and certain other elements to /EN 12149/	fulfills the norm	-
Vinyl chloride monomer (VCM) content max. < 0,2 mg/m² according to /EN 12149/	fulfills the norm	-
Emissions of formaldehyde max. < 120 mg/kg according to /EN 12149/	fulfills the norm	-

In case of multiple answers, values need to be examined depending on the manufacturer.

For USA manufactured products should be in accordance with /ASTM F 793-0-06/ Table 1 Classification Criteria.

Depending on whether products are intended for the European or US market, the following performance data must be declared.

1a: Product according to the /CPR/, based on /EN 15102/:
Performance data of the product in accordance with the Declaration of Performance with respect to its Essential Characteristics according to /EN 15102/

or:

1b
Performance Category I, II, III, IV, V or VI as described in Table 1 of /F 793-0-06/ should be declared.

2.4 Delivery status
The products declared are provided within the following dimensions:

Width metres		Length metres	
Min.	Max.	Min.	Max.
0.06	1.32	4.57	50.75

This table contains the range of all wallcoverings examined. For more precise information please contact the specific manufacturer.

2.5 Base materials / Ancillary materials

The weighted average of the primary product components is shown in the following table, in percentage:

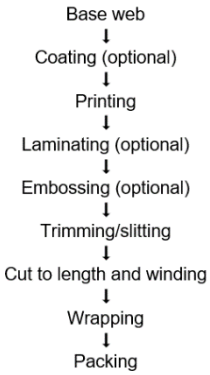
Name	Value	Unit
Paper	43	%
Ink	4	%
Chemicals and auxiliary materials	18	%
PVC Plastisol	27	%
Packaging	7	%
Sum	100	%

Pallets were considered as part of the packaging.

It cannot be ruled out that individual wallcoverings may contain small amounts of substances that are included in the SVHC candidate list. This can be attributed, for example, to the contents of used waste paper. Depending on the manufacturer and wallcoverings, different flame retardants, biocides and plasticizers can be used.

Further information can be obtained from the respective manufacturer.

2.6 Manufacture
The manufacturing process can be described with the help of the following graphic:



The order of manufacture may change and can slightly deviate for different producers.

2.7 Environment and health during manufacturing
Compliance with statutory health and safety for personnel is ensured. Further,
the energy and environmental management is certified for some members according to /ISO 14001/ and /ISO 50001/.
For greater detail please contact the specific manufacturer.

2.8 Product processing/Installation
Depending on the manufacturers suggestion, the adhesive is applied to the back of the wallcovering or the substrate using a wallpaper brush or short-napped roller. The wallcovering is pressed against the wall and is cut along the top and bottom edge to fit the wall.

2.9 Packaging
Product is wrapped in polyolefin film, packed in corrugated cardboard boxes and palletised.

2.10 Condition of use
There are no special features to be noted within the limits of normal and customary usage.

2.11 Environment and health during use
No environmental problems can be expected when the product is handled and used properly.

2.12 Reference service life
Given the wallcovering is professionally installed, the reference service life is 10 years according to the German Sustainable Building Assessment System (BNB).

2.13 Extraordinary effects

Fire
The fire performance according to /EN 13501/ is shown in the following table:*

Fire protection

Name	Value
Building material class	B-D
Burning droplets	s1-s3
Smoke gas development	d0-d2

*This table contains the range of all wallcoverings examined. For more precise information please contact the specific manufacturer.

For USA information on fire performance according to /ASTM E 84/ Test method for Surface Burning Characteristics of Building Materials.

Water
Product is not water resistant. There is no risk of a hazardous environmental impact in the event of water flooding.

Mechanical destruction
There is no risk of a hazardous environmental impact following unforeseen mechanical destruction.

2.14 Re-use phase
Product is not re-usable.

2.15 Disposal
Wallcoverings are subject to the waste code 170904 (mixed construction and demolition waste other than those mentioned in 170901, 170902 and 170903) in accordance with the /European Waste Catalogue/ (/EWC/).
Wallcoverings can therefore be disposed of as normal household waste, that is in the dustbin or in additional refuse sacks. Used wallcoverings should not be placed in the waste paper bank. Most household waste is incinerated or landfilled depending on regional legal regulations in the EU or in the US.

2.16 Further information
For further information please visit www.igiwallcoverings.org.

3. LCA: Calculation rules

3.1 Declared Unit
The declared unit is 1 m² wallcovering including packaging materials. The model shows a weighted average based on data (including produced square metres) from the participating manufacturers.

Declared unit

Name	Value	Unit
Declared unit	1	m^2
Grammage	0.272	kg/m²
Conversion factor to 1 kg	3.676	-

3.2 System boundary
Type of the EPD: cradle to gate - with option.
The EPD is considered as a declaration of an average product as calculated from the output of several manufacturers (2b).

Module A1-3, A4 and A5
The product stage begins with the consideration of the production of the necessary raw materials and energies including all corresponding upstream processes as well as transport. Furthermore, the entire production phase was investigated, including the treatment of production waste until reaching the end-of-waste status (EoW). In addition, distribution transport and installation in the building were taken into account.

Module C2-4
The modules include the environmental impacts of the waste treatment until reaching the end-of-waste status (EoW) including the associated transport at the end of the product life cycle.

Module D
Calculation of potential benefits through the generated energy (electric & thermic) by the incineration processes in the life cycle stages in A5 C3 and C4. The burdens resulting from the waste-to-energy plants are assigned in module C3 or C4 in case of landfill gas combustion.

3.3 Estimates and assumptions
Most solvents were modelled as a generic mix of solvents.

Even though this EPD is also valid for 'whites', they are not part of the average which is responsible for the results in chapter 5. 'Whites' are not decorative wallcoverings yet, because there is a final production step (e.g. painting) missing.
As a result, 'whites' have less environmental Impact than comparable decorative wallcoverings with similar weights.

3.4 Cut-off criteria
Some materials that contributed less than 0.2% to the total weight of the average wallcovering were cut off. In total, this is 1% of all mass inputs.
No energy consumption was neglected.

3.5 Background data
For modeling the lifecycle, the software system for holistic balancing /GaBi/ was used. All background data records relevant for production and disposal were almost exclusively taken from various /GaBi/ supplementary databases or rarely also from /ecoinvent/ (v.2.2). The data records included in the databases are documented online.

3.6 Data quality
Data collection for the investigated products was carried out on the basis of evaluations of the internal production and environmental data, the collection of LCA-relevant data within the supply chain as well as through the measurement of relevant energy supply data. The collected data was checked for plausibility and consistency. A good representation is to be assumed.
The data were collected in 2016 and refer to the calendar year 2015.

3.7 Period under review
The LCA data were collected for the calendar year 2015.

3.8 Allocation

Potential benefits resulting from the thermal utilization of the packaging waste (module A5) as well as from the energetic utilization of the wallcoverings at the end of life (module C3) are allocated to module D.

3.9 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.
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4. LCA: Scenarios and additional technical information

Transport to the building site (A4)

Name	Value	Unit
Gross density of products transported	-	kg/m^3
Truck transport	27	t payload
Transport distance	445	km
Train transport	726	t payload
Transport distance	7	km
Ship transport	27500	dwt payload
Transport distance	261	km
Cargo plane transport	65	t payload
Transport distance	47	km
Capacity utilisation (including empty runs)	80 - 90	%

Because many different countries are involved, there were always global data sets used to model the transport distances.

Reference service life

Name	Value	Unit
Reference service life	10	a

End of life (C1-C4)

Name	Value	Unit
Incineration	100	%

For the calculation of this LCA landfilling is chosen for the US and incineration for the EU. Different disposal routes are available but not taken into account for this industry average LCA.

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

In module D the potential benefits of the thermal combustion of the wallcoverings (C3) and their packaging (A5) are displayed.

5. LCA: Results

In this section, the LCA results for 1 m² wallcoverings are presented. It should be borne in mind that the LCA results only indicate possible effects.

Indicators used for evaluation:

The CML (Centrum voor Milieukunde) methodology with the characterization factors in version 2001 - April 2013 is used to evaluate the possible environmental effects of the wallcoverings. The following impact categories are evaluated:

Global warming potential (**GWP**), Degradation potential of the stratospheric ozone layer (**ODP**), Acidification potential of soil and water (**AP**), Eutrophication potential (**EP**), Photochemical ozone creation potential (**POCP**), Potential for abiotic degradation of non-fossil resources (**ADPE**), Potential for abiotic degradation of fossil fuels (**ADPF**)

The fresh water consumption corresponds to the "Blue Water" consumption according to "The Water Footprint Assessment Manual, 2011".

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	MND	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: 1m² vinyl wallcoverings on cellulose fibre base

Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
GWP	[kg CO_2-Eq.]	4.32E-1	5.22E-2	2.08E-2	1.75E-3	5.06E-1	0.00E+0	-1.53E-1
ODP	[kg CFC11-Eq.]	2.43E-9	1.69E-14	5.56E-15	1.42E-15	1.99E-11	0.00E+0	-3.03E-12
AP	[kg SO_2-Eq.]	1.45E-3	1.83E-4	4.62E-6	1.07E-5	4.22E-4	0.00E+0	-2.45E-4
EP	[kg $(PO_4)^{3-}$-Eq.]	2.54E-4	3.79E-5	9.10E-7	2.72E-6	2.18E-5	0.00E+0	-2.56E-5
POCP	[kg ethene-Eq.]	1.45E-4	3.06E-6	1.40E-8	-4.73E-6	1.03E-5	0.00E+0	-2.28E-5
ADPE	[kg Sb-Eq.]	8.84E-7	2.05E-9	3.86E-10	1.58E-10	1.28E-7	0.00E+0	-3.06E-8
ADPF	[MJ]	1.08E+1	7.21E-1	6.51E-3	2.41E-2	5.46E-1	0.00E+0	-2.11E+0

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

RESULTS OF THE LCA - RESOURCE USE: 1m² vinyl wallcoverings on cellulose fibre base

Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
PERE	[MJ]	4.45E+0	6.94E-3	2.40E-1	1.24E-3	1.56E+0	0.00E+0	-4.08E-1
PERM	[MJ]	1.70E+0	0.00E+0	-2.39E-1	0.00E+0	-1.46E+0	0.00E+0	0.00E+0
PERT	[MJ]	6.15E+0	6.94E-3	9.63E-4	1.24E-3	1.00E-1	0.00E+0	-4.08E-1
PENRE	[MJ]	9.35E+0	7.23E-1	8.68E-2	2.42E-2	3.30E+0	0.00E+0	-2.58E+0
PENRM	[MJ]	2.78E+0	0.00E+0	-7.94E-2	0.00E+0	-2.70E+0	0.00E+0	0.00E+0
PENRT	[MJ]	1.21E+1	7.23E-1	7.43E-3	2.42E-2	6.07E-1	0.00E+0	-2.58E+0
SM	[kg]	5.23E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
RSF	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
NRSF	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
FW	[m³]	4.01E-2	1.34E-5	5.91E-5	2.30E-6	1.17E-3	0.00E+0	-5.83E-4

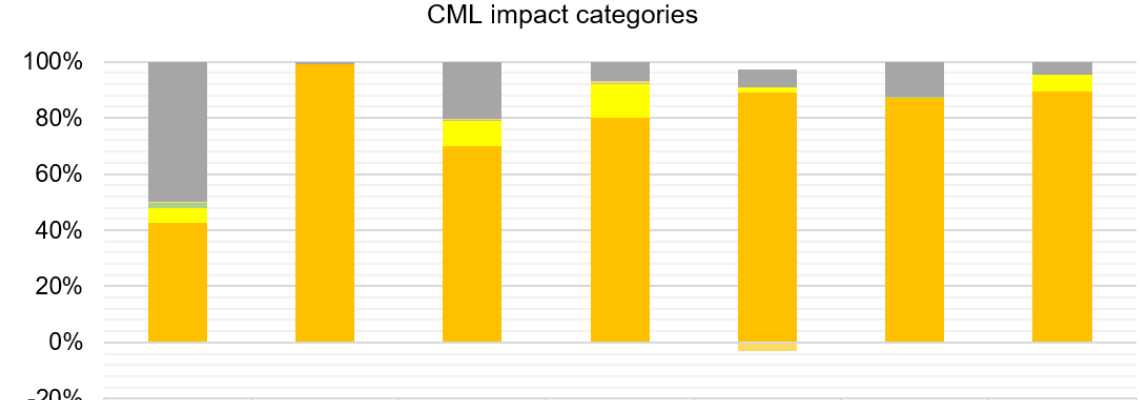
Caption	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable 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 – OUTPUT FLOWS AND WASTE CATEGORIES: 1m² vinyl wallcoverings on cellulose fibre base

Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
HWD	[kg]	1.92E-5	5.71E-9	7.88E-11	1.26E-9	1.01E-8	0.00E+0	-6.46E-10
NHWD	[kg]	4.91E-2	1.15E-5	4.69E-4	1.92E-6	1.83E-1	0.00E+0	-9.68E-4
RWD	[kg]	5.06E-4	8.22E-7	3.65E-7	5.01E-8	2.41E-5	0.00E+0	-1.87E-4
CRU	[kg]	0.00E+0	0.00E+0	2.29E-3	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MFR	[kg]	9.84E-3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MER	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EEE	[MJ]	0.00E+0	0.00E+0	2.83E-2	0.00E+0	5.08E-1	0.00E+0	0.00E+0
EET	[MJ]	0.00E+0	0.00E+0	6.63E-2	0.00E+0	1.21E+0	0.00E+0	0.00E+0

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

6. LCA: Interpretation



	GWP	ODP	AP	EP	POCP	ADPE	ADPF
C4	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
C3	5,06E-01	1,99E-11	4,22E-04	2,18E-05	1,03E-05	1,28E-07	5,46E-01
C2	1,75E-03	1,42E-15	1,07E-05	2,72E-06	-4,73E-06	1,58E-10	2,41E-02
A5	2,08E-02	5,56E-15	4,62E-06	9,10E-07	1,40E-08	3,86E-10	6,51E-03
A4	5,22E-02	1,69E-14	1,83E-04	3,79E-05	3,06E-06	2,05E-09	7,21E-01
A1-A3	4,32E-01	2,43E-09	1,45E-03	2,54E-04	1,45E-04	8,84E-07	1,08E+01

The production stage (module A1-A3) clearly dominates the LCA results. The loads caused by the disposal stage (modules C3 and C4) become noticeable especially in creating a major impact in the global warming potential (**GWP**). Transports play a subordinate yet not insignificant role.
The main environmental impacts are in all categories located in module A1-A3 and there mostly in the generation of thermal and electric energy for general production and heating/drying processes in A3. Besides the GWP, this affects mainly the acidification potential (**AP**) as well as the resource depletion of fossil fuels (**ADPF**).
However, also the production of PVC, pigments and plasticizers have a major effect. The production of PVC has a relatively high share of the greenhouse potential and also has a relatively large influence on the acidification potential (**AP**), the ozone depletion (**ODP**), the depletion of fossil resources (**ADPE**) and fossil fuels (**ADPF**).
The carrier material (paper) has a comparatively small influence. Visible effects are found in the categories acidification potential (**AP**), eutrophication potential (**EP**) and ozone depletion (**ODP**).
Transport processes do also affect GWP, AP, EP POCP and ADPF. The main reason is the combustion fuels.
The waste treatment in module C3 affects in particular the greenhouse potential (**GWP**) mainly due to the incineration of paper but also the AP and ADPE due to the incineration of PVC.

Range of the results
The individual results of the participating companies differ from the average results in the present environmental product declaration. In terms of GWP, the results may be 165 % higher or 44 % lower than the average for this EPD.
The main reason for the deviations are differences in the grammage of the individual wallcoverings. In addition, there are different materials used as well as varying heat and electricity consumptions depending on the manufacturer.

7. Requisite evidence

Members of the The Global Wallcoverings Association have the following certificates:

- The declared products comply with /EN 15102/.
- According to the (emission) test chamber assessment which follows the French measurement method /Arrêté du 19/04/11/ the wallcoverings meet the requirements of the test standard /ISO 16000/.
- Optional according to the chamber test which follows the german AgBB (Committee for health-related evaluation of building products) regulations the wallcoverings meet the requirements of test standard /ISO 16000/.
- Optional compliance with German /RAL-GZ 479/.
- Optional compliance with USA Wallcovering Association W-101 (2013) paragraph 8.1 when tested by California Specification Section 01350 to criteria /CDPH/EHLB/ Standard Method V1.1 (2010).

The certificates and classifications for the various wallcoverings can be obtained from the respective manufacturers.

8. References

ASTM E 84
ASTM E 84:2016: Standard Test Method for Surface Burning Characteristics of Building Materials

ASTM F 793
ASTM F793 / F793M-15, Standard Classification of Wall Coverings by Use Characteristics, ASTM International, West Conshohocken, PA, 2015

ASTM F1141 - 93
ASTM F1141-93(2009), Standard Specification for Wallcovering, ASTM International, West Conshohocken, PA, 2009

BNB
Lifetimes of components for life cycle analyses according to the Bewertungssystem Nachhaltiges Bauen, 2011.

CDPH/EHLB
Standard method for measuring and evaluating chemical emissions from indoor sources using environmental chambers, Version 1.1

CPR
Construction Product Regulation EU

EN 12149:1997
Wallcoverings in roll form - Determination of migration of heavy metals and certain other elements, of vinyl chloride monomer and of formaldehyde release.

EN 12956:1999
Wallcoverings in roll form - Determination of dimensions, straightness, spongeability and washability.

EN 13501-1:2007+A1:2009
Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire Tests.

EN 15102:2007+A1:2011
Decorative wall coverings - Roll and panel form.

EN 233:2016
Wallcoverings in roll form - Specification for finished wallpapers, wall vinyls and plastics wallcoverings.

EN 234:1997
Wallcoverings in roll form – Specification for wallcoverings for subsequent decoration.

EN 235:2001
Wallcoverings - Vocabulary and Symbols.

EN 259-1:2001
Wallcoverings in roll form - Heavy duty wallcoverings - Part 1: Specifications.

EN ISO 105-B02:2014
Textiles - Tests for colour fastness - Part B02: Colour fastness to artificial light: Xenon arc fading lamp test.

EN ISO 14025:2006
Environmental labels and declarations — Type III environmental declarations — Principles and procedures; 2009-11.

EN ISO 14044:2006
Environmental management - Life cycle assessment - Requirements and guidelines.

EN ISO 16000:2006
Indoor air - Part 3: Determination of formaldehyde and other carbonyl compounds in indoor air and test chamber air - Active sampling method.
Indoor air - Part 6: Determination of volatile organic compounds in indoor and test chamber air by active sampling on Tenax TA® sorbent, thermal desorption and gas chromatography using MS or MS-FID.
Indoor air - Part 9: Determination of the emission of volatile organic compounds from building products and furnishing - Emission test chamber method.
Indoor air - Part 11: Determination of the emission of volatile organic compounds from building products and furnishing - Sampling, storage of samples and preparation of test specimens.

Ecoinvent
Database for Life Cycle Assessment, version 2.2. Swiss Center for Life Cycle Inventories, St. Gallen, 2010.

European Waste Catalogue (EWC)
European Waste Catalogue / Ordinance on European List of Wastes

GaBi
GaBi 7.3: Software and Database for Comprehensive Accounting, LBP [Chair for Construction Physics] Universität Stuttgart and thinkstep AG, Leinfelden-Echterdingen, 1992 - 2015.

Institut Bauen und Umwelt e. V.
Product Category Rules for Building-Related Products and Services - Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report. 2016-08.

Institut Bauen und Umwelt e. V.
PCR Guidance-Texts for Building-Related Products and Services - Part B: Requirements on the EPD for Wallcoverings. 2016-09

ISO 14001:2015
Environmental management systems - Requirements with guidance for use (ISO 14001:2015).

ISO 50001:2011
Energy management systems - Requirements with guidance for use.

RAL-GZ 479
Wallpapers - Quality assurance

WA-101
WA Quality Standard for Polymer Coated Fabric Wallcovering

Institut Bauen und Umwelt
Institut Bauen und Umwelt e.V., Berlin (pub.):
Generation of Environmental Product Declarations (EPDs);
General Principles
for the EPD range of Institut Bauen und Umwelt e.V. (IBU), 2015/10
www.ibu-epd.de

/ISO 14025/
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