ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804

Owner of the Declaration	BASF Construction Chemicals Europe AG
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-BAS-20130084-IBE1-EN
Issue date	22.07.2013
Valid to	21.07.2018

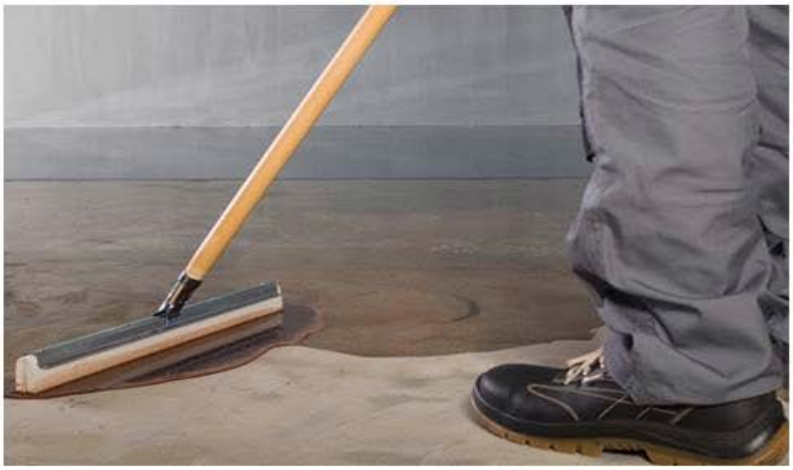
Master Builders Solutions from BASF

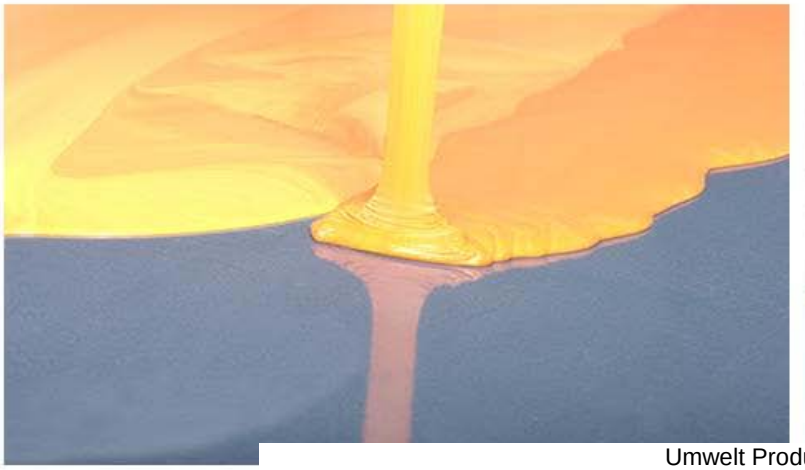
MasterTop P 615
MasterTop P 617
MasterTop P 617RC
MasterTop P 621

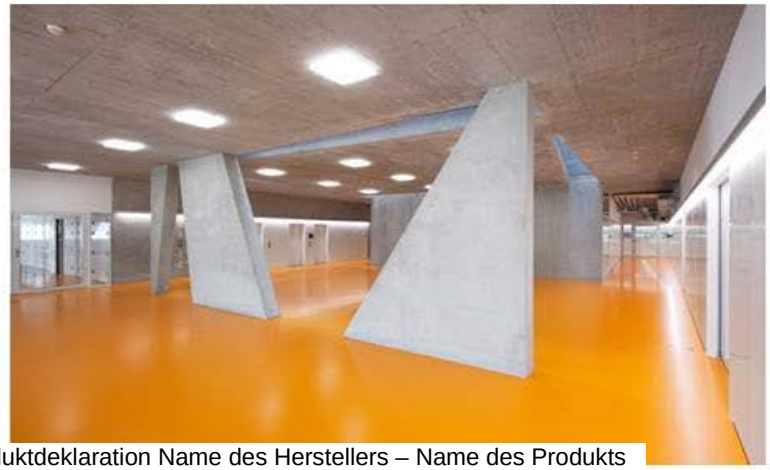
Institut Bauen und Umwelt e.V.

www.bau-umwelt.com / https://epd-online.com

BASF The Chemical Company







1. General Information

BASF Construction Chemicals Europe AG

MASTERTOP P 615
MASTERTOP P 617
MASTERTOP P 617 FAST
MASTERTOP P 621

Programme holder
IBU - Institut Bauen und Umwelt e.V.
Panoramastr. 1
D-10178 Berlin

Owner of the Declaration
BASF Construction Chemicals Europe AG
Industriestrasse 26
CH-8207 Schaffhausen

Declaration number
EPD-BAS-20130084-IBE1-EN

Declared product / Declared unit
Density 1.05 - 1.15 g/cm^3

This Declaration is based on the Product Category Rules:
Reaction resin products, 10-2012
(PCR tested and approved by the independent expert committee)

Scope:
This validated Declaration entitles the holder to use the symbol of Institut Bauen und Umwelt e.V. It exclusively covers the above-named product groups of manufacturing plants in Germany for a period of five years from the date of issue. It is an association EPD, where the product displaying the highest environmental impact in a group was selected for calculating the Life Cycle Assessment. The members of the associations are shown on the association websites. 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
22.07.2013

Valid to
21.07.2018

Verification

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

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

Prof. Dr.-Ing. Hans-Wolf Reinhardt
(Chairman of SVA)

Matthias Schulz
(Independent tester appointed by SVA)

2. Product

2.1 Product description

Epoxy resin-based reactive resins, unfilled/solvent-free.
2-component MasterTop P 615, MasterTop P 617, MasterTop P 617RC and MasterTop P 621 reactive resins are manufactured using epoxy resins and curing agents.
They comply with manifold, often specific, tasks in the construction, furnishing and refurbishment of buildings. Using unfilled/solvent-free epoxy resin-based reactive resins decisively improves the usability of buildings and significantly extends their service lives.
The product displaying the most environmental impacts was applied as a representative product for calculating the Life Cycle Assessment results.

2.2 Application

Application module 4: Screed material and floor screeds

MasterTop P 615, MasterTop P 617, MasterTop P 617RC and MasterTop P 621 are pore-sealing and capillary-sealing primers for screed / synthetic resin screed for use in *flooring construction.*

2.3 Technical Data

Screed material and floor screeds

The minimum requirements of EN 13813 "Screed material and floor screeds – Screed materials – Properties and requirements" must be adhered to. For synthetic resin screed, these are:
- Adhesive tensile strength (EN 13892-8): >1.5 N/mm²
- Wear resistance (EN 13892-4): < AR1
- Impact strength (EN ISO 6272): > IR4
- Fire performance (EN 13501-1): min. Efl

Other technical characteristics in accordance with the BASF CC Europe AG technical data sheets / system configurations / documents / declaration of performance / declaration of conformity

Construction data

Name	Value	Unit
Density	1050 - 1150	kg/m^3
Tensile bond strength (EN 13892-8)	>1,5	N/mm^2
Wear resistance (EN 13892-4)	< AR1	
Impact strength (EN 6272)	> IR4	
Fire performance (EN 13501-1)	Bfl-s1	

2.4 Placing on the market / Application rules

Screed material and floor screeds

A prerequisite for placing on the market and application in Germany is the CE mark declaring conformity with DIN EN 13813 "Screed material and floor screeds – Screed materials – Properties and requirements". The contents of CE marking based on DIN EN 13813 must comply with the corresponding application rules in Part II of the List of Technical Building Regulations.

2.5 Delivery status

Liquid in containers made of tinplate appropriately prepared for the practical mixing ratio.
Typical container sizes comprise 15 to 20 kg of material.
Barrels comprising approx. 200 kg or IBCs with more than 1 tonne are used for larger applications.
A tinplate container was analysed for the LCA.

2.6 Base materials / Ancillary materials

The unfilled/solvent-free epoxy resin-based reactive resins comprise a resin and a curing agent component. The resin component (A-component) contains diglycidylether based on Bisphenol-A or Bisphenol-F resins (MW < 700). Curing takes place after installation on site and using the curing component. Polyamines, polyamides, polyamine adducts or combinations thereof are used for this.
The components can contain so-called reactive diluents (glycidic ether) and other auxiliaries such as accelerators, catalysts, wetting agents, foam regulators and viscosity regulators for fine-tuning the product features.
The resin and curing agent mixing ratio is adjusted according to the stoichiometric requirements. Product curing commences directly after the components are mixed.
On average, the products covered by this EPD contain the following ranges of base materials and auxiliaries referred to:
Resin component: ~ 60 - 90%
Curing agent component: ~ 5 - 20%
Reactive diluent: ~ 0 - 30%
Other: ~ <1.5%
These ranges are average values and the composition of products complying with the EPD can deviate from these concentration levels in individual cases. More detailed information is available in the respective manufacturer's documentation (e.g. product data sheets).
In individual cases, it is possible that substances on the list of materials of particularly high concern for inclusion in Annex XIV of the REACH regulation are contained in concentrations exceeding 0.1%. If this is the case, this information can be found on the respective safety data sheet.

2.7 Manufacture

The product components formulated are usually mixed from the ingredients in batch mode and packaged for delivery, whereby quality standards in accordance with DIN EN ISO 9001 and DIN EN ISO 14001 as well as the provisions outlined in the relevant regulations such as the Industrial Safety Regulation and Federal Pollution Control Act are adhered to.

2.8 Environment and health during manufacturing

As a general rule, no other environmental protection measures other than those specified by law are necessary.

2.9 Product processing/Installation

Epoxy-based reactive resins, unfilled/solvent-free, are processed by trowelling/knife-coating or rolling, pouring, spraying or injecting, during which health and safety measures (hand and eye protection, ventilation) are to be taken and consistently adhered to in accordance with the information on the safety data sheet and conditions on site. On account of their composition, epoxy-based reactive resins, unfilled/solvent-free, are generally allocated to the GISCODE/GISBAU product code RE 1.
After mixing the resin and curing agent, epoxy-based reactive resins, unfilled/solvent-free, react and generate heat (exothermicity). The mixed components must therefore be processed rapidly within the specified pot time. If larger volumes remain in the container, this can lead to strong heat build-up and decomposition. Exothermicity is particularly prevalent in the case of reactively diluted products.

2.10 Packaging

Empty containers and clean foils can be recycled. Wooden reusable pallets are taken back by the building material trade (reusable pallets remunerated in the German deposit system) which returns them to the building product manufacturer who in turn redirects them into the production process.

2.11 Condition of use

During the use phase, unfilled/solvent-free epoxy-based reactive resins are hardened and essentially comprise an inert three-dimensional network.
They are long-lasting products which protect our buildings in the form of primers, coatings or sealants as well as making an essential contribution towards their function and conservation of value.

2.12 Environment and health during use

Option 1 – Products for applications outside recreation areas

During use, unfilled/solvent-free epoxy-based reactive resins lose their reactive capacity and are inert.
No risks are known for water, air and soil if the products are used as designated.

Option 2 - Products for applications in recreation areas

When used in recreation areas, evidence of the emission performance of building products in contact with indoor air must be submitted. The primers listed above comply with the following test schemes: AgBB VOC scheme, AFSSET VOC scheme and A+ VOC Directive. No further influences by emissions on the environment and health are known.

2.13 Reference service life

Unfilled/Solvent-free epoxy-based reactive resins fulfil a variety of often special tasks in the construction or refurbishment of building structures. They decisively improve the usability of building structures and significantly extend their original service lives. The anticipated reference service life depends on the specific installation situation and the exposure associated with the product. It can be influenced by weathering as well as mechanical or chemical loads.

2.14 Extraordinary effects

Fire
Even without any special fire safety features, unfilled/solvent-free epoxy-based reactive resins comply with at least the requirements of DIN EN 13501-1 standard for fire classes E and Efl. In terms of the volumes applied, they only have a subordinate influence on the fire performance characteristics of the building structure in which they are installed. As networked epoxy resins involve a duroplastic plastic which does not melt or drip, the resins do not contribute towards spreading fire. On the other hand, the flammability of the networked epoxy resins is greater than that of other duroplastics. Formaldehyde and phenols, for example, can form in the event of a fire.

Fire protection

Name	Value
Building material class	Bfl
Smoke gas development	s1

MasterTop P 615, P 617 and P 621 have achieved Bfl-s1 fire classification as per EN 13813 (incl. testing in MasterTop 1328AS system design).

MasterTop P 617RC has achieved Bfl-s1 fire classification as per EN 13813 (incl. testing in MasterTop 1339 system design.)

Water
Unfilled/solvent-free epoxy-based reactive resins are chemically inert and insoluble in water. They are often used to protect building structures from harmful water ingress / the effects of flooding.

Mechanical destruction
The mechanical destruction of epoxy resin-based reactive resins does not lead to any decomposition products which are harmful for the environment or health.

2.15 Re-use phase

According to present knowledge, no environmentally-hazardous effects in terms of landfilling are to be generally anticipated through dismantling and recycling components to which hardened epoxy resin products adhere.
If epoxy systems can be removed from the components at no great effort, thermal recycling on account of their energy content represents a practical re-use variant.
Low adhesion levels are negligible for disposal. They do not impair the disposal/recycling of other components / building materials.

2.16 Disposal

Individual components which can no longer be recycled must be combined at a specified ratio and hardened.
Hardened product residue is not special waste.
Non-hardened product residue is special waste.
Empty, dried containers (free of drops and scraped clean) are directed to the recycling process.
Residue must be directed to proper waste disposal taking consideration of local guidelines.

The following EWC/AVV waste codes can apply:
Hardened product residue:
080112 Paint and varnish waste with the exception of those covered by 08 01 11
080410 Adhesive and sealant compound waste with the exception of those covered by 08 04 09

Used sheet metal packaging can be returned through one of the 300 KBS deposit points. For further information, please contact:

KBS GmbH Düsseldorf
+49 211 239 228 10
www.kbs-recycling.de

2.17 Further information

More information is available in the product or safety data sheets of BASF CC Europe AG and is available on the www.flooring.basf.de website or on request.
Valuable technical information is also available on the associations' websites.
Information on Deutsche Bauchemie, for example, is available at www.deutsche-bauchemie.de.

3. LCA: Calculation rules

3.1 Declared Unit

The association EPD refers to the declared unit of 1 kg reactive resin product in the mixing ratio required for processing both components. Consumption per unit area of the products to be applied extensively can range between a few hundred grams and more than 1 kg per m^2. In the case of products which are injected, the application volume depends on the component to be injected.
An LCA for solvent-free, unfilled reactive resin products with a low reactive diluent content was calculated in this EPD.
The product with the highest environmental impact in the product group was declared.

Declared unit

Name	Value	Unit
Declared unit	1	kg
Conversion factor to 1 kg	1	-

3.2 System boundary

The LCA takes consideration of Modules A1/A2/A3, A4, A5 and D:
- A1 Manufacture of preliminary products
- A2 Transport to the plant
- A3 Production incl. provision of energy, manufacturing packaging as well as auxiliaries and consumables and waste treatment

- A4 Transport to the site
- A5 Installation (disposal of packaging and emissions during installation)
- D Credits from incineration of packaging materials and recycling the metal container

This therefore involves a Declaration from the "cradle to plant gate with options".

3.3 Estimates and assumptions

Where no specific GaBi processes were available, the individual recipe ingredients of formulae were estimated on the basis of information provided by the manufacturer or literary sources.

3.4 Cut-off criteria

No cut-off criteria were applied for calculating the LCA. All raw materials submitted by the associations for the formulae were taken into consideration.
The manufacture of machinery, plants and other infrastructure required for production of the products under review was not taken into consideration in the LCA.

3.5 Background data

Data from the GaBi 5 data base was used as background data. Where no background data was available, it was supplemented by manufacturer information and literary research.

3.6 Data quality

Representative products were applied for this sample EPD and the product in a group displaying the highest environmental impact was applied for calculating the LCA results. The data records are no more than 7 years old.

3.7 Period under review

The review period concerns annual production for the year 2011.

3.8 Allocation

No allocations were applied for production. A multi-input allocation with a credit for electricity and thermal energy was used for incineration of packaging in accordance with the simple credit method. The credits achieved through packaging disposal are offset in 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. In this case, 1 kg reactive resin was selected as the declared unit. Depending on the application, a corresponding conversion factor such as the specific unit area must be taken into consideration.

4. LCA: Scenarios and additional technical information

The following technical information forms the basis for the declared modules or can be used for developing specific scenarios in the context of a building evaluation if modules are not declared (MND).

Transport(A4)

Name	Value	Unit
Litres of fuel	0.00248	l/100km
Transport distance	500	km
Capacity utilisation (including empty runs)	85	%
Gross density of products transported	1050 - 1150	kg/m^3
Capacity utilisation volume factor	100	-

Construction installation process (A5)

Name	Value	Unit
Material loss	0.01	kg
VOC in the air	0.02	kg

Reference service life

Name	Value	Unit
Reference service life	40	a

5. LCA: Results

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 BOUNDARYS
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement[1)]	Refurbishment[1)]	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	MND	MND	MND	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: MasterTop P 615, MasterTop P 617, MasterTop P 617RC, MasterTop P 621, 1kg

Parameter	Unit	A1 - A3	A4	A5	D
Global warming potential	[kg CO_2-Eq.]	5.99E+0	2.51E-2	9.08E-2	-1.57E-1
Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	4.75E-8	1.35E-12	3.84E-12	-1.0E-10
Acidification potential of land and water	[kg SO_2-Eq.]	9.0E-3	1.59E-4	1.25E-5	-4.91E-4
Eutrophication potential	[kg $(PO_4)^{3-}$- Eq.]	1.27E-3	3.95E-5	2.51E-6	-4.1E-5
Formation potential of tropospheric ozone photochemical oxidants	[kg Ethen Eq.]	1.89E-3	-6.85E-5	7.22E-3	-7.22E-5
Abiotic depletion potential for non fossil resources	[kg Sb Eq.]	1.14E-5	1.2E-9	1.6E-9	-6.81E-9
Abiotic depletion potential for fossil resources	[MJ]	1.2E+2	3.47E-1	2.55E-2	-1.93E+0

RESULTS OF THE LCA - RESOURCE USE: MasterTop P 615, MasterTop P 617, MasterTop P 617RC, MasterTop P 621, 1kg

Parameter	Unit	A1 - A3	A4	A5	D
Renewable primary energy as energy carrier	[MJ]	3.03E+0	-	-	-
Renewable primary energy resources as material utilization	[MJ]	0.0E+0	-	-	-
Total use of renewable primary energy resources	[MJ]	3.03E+0	1.38E-2	1.87E-3	-3.41E-2
Non renewable primary energy as energy carrier	[MJ]	9.2E+1	-	-	-
Non renewable primary energy as material utilization	[MJ]	3.0E+1	-	-	-
Total use of non renewable primary energy resources	[MJ]	1.22E+2	3.47E-1	2.55E-2	-1.93E+0
Use of secondary material	[kg]	-	-	-	-
Use of renewable secondary fuels	[MJ]	1.16E-3	2.94E-6	3.48E-7	1.44E-3
Use of non renewable secondary fuels	[MJ]	1.22E-2	3.08E-5	3.64E-6	1.51E-2
Use of net fresh water	[m^3]	2.53E+0	1.29E-3	2.13E-3	-2.07E-2

RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES: MasterTop P 615, MasterTop P 617, MasterTop P 617RC, MasterTop P 621, 1kg

Parameter	Unit	A1 - A3	A4	A5	D
Hazardous waste disposed	[kg]	-	-	-	-
Non hazardous waste disposed	[kg]	7.2E+0	1.83E-3	7.73E-2	-9.63E-1
Radioactive waste disposed	[kg]	2.2E-3	4.9E-7	1.3E-6	-3.57E-6
Components for re-use	[kg]	-	-	-	-
Materials for recycling	[kg]	-	-	-	-
Materials for energy recovery	[kg]	-	-	-	-
Exported electrical energy	[MJ]	-	-	1.11E-1	-
Exported thermal energy	[MJ]	-	-	2.69E-1	-

"Hazardous waste for disposal" indicator: No Declaration in accordance with the Expert Committee (SVA) decision of 4.10.2012

***Use of fresh water resources (FW)**

Evidence of the use of fresh water resources indicator (FW) is provided on the basis of a standard definition in accordance with DIN EN 15804. The IBU Expert Committee (SVA) amended the definition of FW at its last meeting on 4 October 2012. FW can not however be fully evaluated at this point in time and in accordance with this new definition.

****Hazardous waste for disposal (HWD)**

The IBU Expert Committee (SVA) clearly defined the calculation rules for declaring waste at its last meeting on 4 October 2012. The data on which the background data is based must therefore be revised. This Environmental Product Declaration complies with the interim solution approved by the SVA and is drawn up without a declaration of hazardous and non-hazardous waste.

6. LCA: Interpretation

Most of the **non-renewable primary energy requirements** are necessitated by manufacture of the preliminary products as they almost exclusively involve preliminary products from fossil raw materials which generally incur energy-intensive manufacturing. The

most prevalent energy carriers used are therefore natural gas and crude oil, whereby more than 95% of the non-renewable primary energy is required for manufacturing the preliminary products (A1).
Amine components in particular are associated with very energy-intensive manufacturing while the resin components have fewer effects on primary energy requirements.
Other components have a low influence on the final result on account of the high expenses associated with manufacturing the main preliminary products used.
At < 4% (of total primary energy), the percentage of **renewable primary energy** is very low. A1 indicates the renewable share of the power mix, whereby the use of wooden pallets in packaging has the main impact in A3. Solar energy is required for photosynthesis during wood growth which is therefore noted here as a renewable source of primary energy.
The **Global Warming Potential (GWP)** is dominated by preliminary product manufacturing (A1). The amino components also have a high influence on the overall result in terms of the GWP. Production of the actual epoxy resin product also has a visible influence which is attributable to the energy required. Packaging is incinerated during installation with the result that the ensuing emissions are also listed here. The credits are primarily necessitated by the credit for redirecting sheet metal containers to the recycling process and less by the electricity and thermal energy incurred while incinerating the packaging. The GWP is dominated by carbon dioxide emissions.

In terms of the **Ozone Depletion Potential (ODP)**, it is apparent that the influences are almost exclusively necessitated by A1 and A3 primarily originating from halogenated organic emissions from the power mix used.
The **Acidification Potential (AP)** is primarily caused by nitric oxides and sulphur dioxide which are in turn incurred during manufacturing of the preliminary products. In A3, this is necessitated by electricity and manufacturing of the container. Transport to the site also makes a contribution with nitric oxide emissions primarily influencing acidification.
In the case of the **Eutrification Potential (EP)**, nitric oxides are again apparent with regard to emissions into air (80) but emissions into water also make a significant contribution with approx. 15% incurred by ammonia and nitrates. This is largely attributable to the provision of energy.
Only the **Photochemical Ozone Creation Potential (POCP)** is not dominated by preliminary product manufacturing: A1 only contributes < 20% to the POCP. The main share (> 80%) is incurred during installation of the epoxy resin product in the form of benzyl alcohol emissions.

Where a reactive diluent is mainly or exclusively used as resin components, higher impacts are incurred by all indicators reviewed as this is very energy-intensive. The epichlorhydrin used during manufacturing thereof is associated with particularly high environmental impacts.

7. Requisite evidence

7.1 VOC

Special tests and evidence have not been carried out or provided within the framework of drawing up this sample Environmental Product Declaration.
Where the products are used in an area of application (e.g. recreation area) demanding testing/provision of VOC emissions in the recreation area, such evidence should always be submitted in the individual EPDs. Evidence pertaining to VOC can be listed for selected products or applications (e.g. recreation area). The following limit values apply (maximum values in [µg/m³]):

Classification / EMICODE	EC1 PLUS	EC1	EC2	RAL UZ 113 (*)	DIBt/AgBB
TVOC (C_6-C_{16}) (after 3 / 28 d)	750 / 60	1000 / 100	3000 / 300	1000 / 100	10000 / 1000
TSVOC (C_{16}-C_{22}) (after 28 d)	40	50	100	50	100
C1, C2 substances * Total after 3 d, ** per substance after 28 d	10* / 1**	10* / 1**	10* / 1**	10/1**	10 / 1**
Total formaldehyde / acetaldehyde [ppb] (after 3 d)	50/50	50/50	50/50	50/50	-/-
Total VOC without NIK and unidentified substances (after 28 d)	40	-	-	40	100
R-value (after 28d)	1	-	-	1	1

(*) e.g. for flooring adhesives or for other dispersion-based products, other RAL UZ can be of relevance.

Measuring process: GEV test method for determining the emissions of volatile organic compounds from building products in accordance with DIN EN ISO 16000 Parts 3, 6, 9 and 11 in a test chamber. Testing for CMR substances and TVOC/TSVOC after 3 and 28 days.

The corresponding test certificate (e.g. AgBB test and DIBt approval) shall apply as **evidence**. If necessary, the results are to be provided in the form of the emission class.

VOC emissions acc. to AgBB scheme

The results outlined above were communicated for the MasterTop P 617 primer in MasterTop 1328AS system design.

Name	Value	Unit
TVOC (C6 - C16)	<200	µg/m^3
Sum SVOC (C16 - C22)	<10	µg/m^3
R (dimensionless)	<0.3	-
VOC without NIK	<15	µg/m^3
Carcinogenic Substances	0	µg/m^3

8. References

Institut Bauen und Umwelt 2011
Institut Bauen und Umwelt e.V., Königswinter (pub.): Generation of Environmental Product Declarations (EPDs);

General principles
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PCR 2011, Part A
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www.bau-umwelt.de

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

EN 15804
EN 15804:2012-04: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

PCR 2011, Part B: Product Category Rules for Building Products, Part B: Requirements on the EPD for reactive resin products, 2011-06
https://epd-online.com

DIN EN ISO 9001:2008-12
Quality Management Systems – Requirements (ISO 9001:2008); trilingual version EN ISO 9001:2008

DIN EN ISO 16000:2010-10
Plastic piping systems – Systems within the building structure – Mounting and fixing of components in the test apparatus to thermal attack by a single burning item

DIN EN 1502-2:2005-01
Products and systems for the protection and repair of concrete structures – Definitions, requirements, quality monitoring and evaluation of conformity – Part 2: Surface protection systems for concrete

DIN EN 1504-4:2005-02
Products and systems for the protection and repair of concrete structures – Definitions, requirements, quality monitoring and evaluation of conformity – Part 4: Adhesives for construction purposes

DIN EN 1504-5:2012-07
Products and systems for the protection and repair of concrete structures – Definitions, requirements, quality monitoring and evaluation of conformity – Part 5: Injecting concrete components

DIN EN 13813:2003-01
Screed material and floor screeds – Screed materials – Properties and requirements

DIN EN 18356: 2012-10
VOB German construction tendering and contract regulations – Part C: General technical contract terms for building work (ATV) – Parquet flooring

ETAG 022:2007-07, Part 1 Waterproofing for wet room walls and floors – Part 1: Liquid-applied coverings with or without wearing surface

ETAG 033:2010-09 Liquid-applied coverings for concrete bridges

DIN CEN/TS 14472-1 to 4: 2003-10
Resilient, textile and laminate floor coverings – Design, preparation and installation – Part 1: General; German version CEN/TS 14472-1:2003; Part 2: Textile floor coverings; German version CEN/TS 14472-2:2003; Part 3: Laminate floor coverings; German version CEN/TS 14472-3:2003; Part 4: Resilient floor coverings; German version CEN/TS 14472-4:2003

DIN CEN/TS 15717: 2008-07
Parquet flooring – General guideline for installation; German version CEN/TS 15717:2008

DIN EN 1062-6: 2002-10
Paints and varnishes – Coating materials and coating systems for exterior masonry and concrete – Part 6: Determination of carbon dioxide permeability; German version EN 1062-6:2002

DIN EN ISO 7783: 2012-02
Paints and varnishes – Determination of water-vapour transmission properties – Cup method (ISO 7783:2011); German version EN ISO 7783:2011

DIN EN 1062-3: 2008-04
Paints and varnishes – Coating materials and coating systems for exterior masonry and concrete – Part 3: Determination of water permeability; German version EN 1062-3:2008

DIN EN 1542: 1999-07
Products and systems for the protection and repair of concrete structures – Test methods – Measurement of bond strength by pull-off; German version EN 1542:1999

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