

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)
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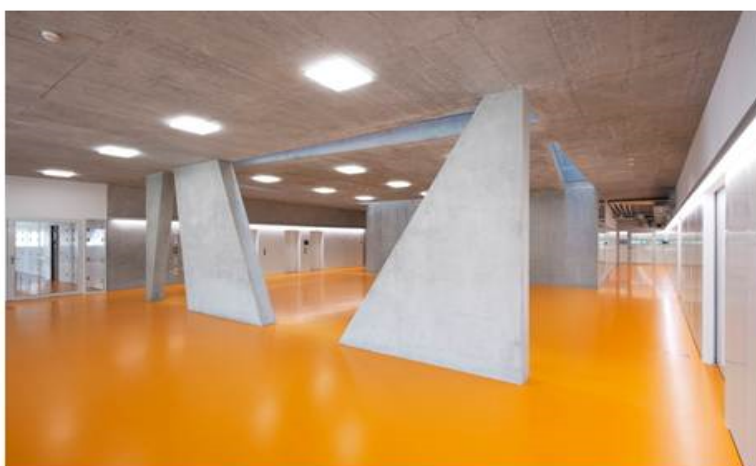
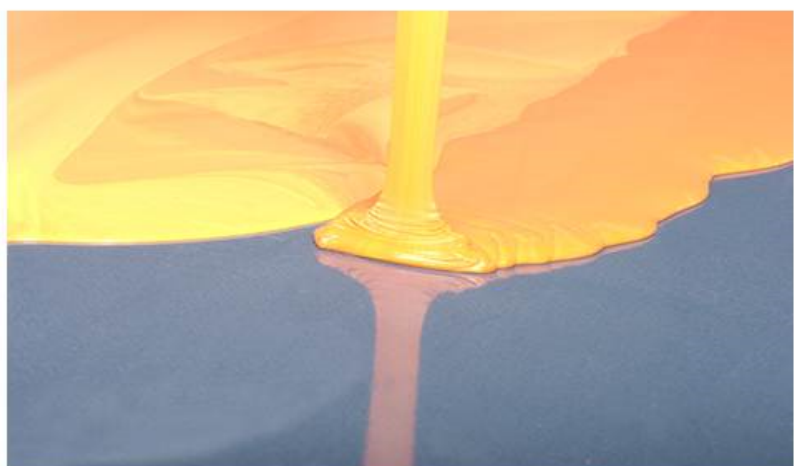
Master Builders Solutions from BASF **MasterTop P 660**

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



Institut Bauen
und Umwelt e.V.

 **BASF**
The Chemical Company



1. General Information

BASF Construction Chemicals Europe AG

Programme holder

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

Declaration number

EPD-BAS-20130088-IBE1-EN

This Declaration is based on the Product Category Rules:

Reaction resin products, 10-2012
(PCR tested and approved by the independent expert committee)

Issue date

22.07.2013

Valid to

21.07.2018



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



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

MasterTop P 660

Owner of the Declaration

BASF Construction Chemicals Europe AG
Hardmatt 434
CH-5082 Kaisten

Declared product / Declared unit

1 kg MasterTop P 660, unfilled, solvent-free
polyurethane-based reactive resin containing polyol;
approx. density: 1.10 g/cm³

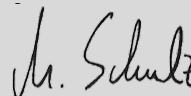
Scope:

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.

Verification

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

☐ internally ☒ externally



Matthias Schulz
(Independent tester appointed by SVA)

2. Product

2.1 Product description

MasterTop P 660 is an unfilled, solvent-free polyurethane-based reactive resin.

The reactive resins are manufactured as single- or dual-components using polyols (based on mineral oils or from renewable raw materials) and isocyanates. They fulfil manifold, often specific, tasks in the construction, furnishing and refurbishment of buildings. Using unfilled/solvent-free polyurethane-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

MasterTop P 660 unfilled and solvent-free polyurethane-based reactive resin is used for the following applications:

Application module 4: Screed material and floor screeds

MasterTop P 660 is a highly-reactive, solvent-free (totally solid), low-viscose and unpigmented 2-

component polyurethane-based primer for use on cement, bitumen and wood flooring surface constructions.

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 documents / declaration of performance / declaration of conformity

Construction data

MasterTop P 660 complies with the requirements of the EN 13813 standard in the MasterTop 1341 system, among others.

Name	Value	Unit
Density	1100	kg/m ³
Tensile bond strength nach DIN EN 14293	> 1,5	N/mm ²
Wear resistance EN 13892-4	< AR1	
Impact strength EN ISO 6272	> IR4	
Fire behavior EN 13501-1	Cfl-s1	

2.4 Placing on the market / Application rules

Screed material and floor screeds

A prerequisite for placing the product on the market and use in Germany is represented by CE marking of the products.

The legal basis for this is represented by Council Guideline 89/106/EEC until 30 June 2013 and the European Parliament and Council Directive (EU) No. 305/2011 (ABl. I 88/5 dated 4.4.2011) as of 1 July 2013 with the respective implementation specifications in national law. Building products placed on the market prior to 01.07.2013 which comply with Guideline 89/106/EEC are regarded as being conformant with Directive (EU) No. 305/2011.

CE marking in accordance with Guideline 89/106/EEC means that the manufacturer declares conformity of the product with the technical specification, i.e. DIN EN 1504-2, "Products and systems for the protection and repair of concrete structures".

CE marking in accordance with Directive (EU) No. 305/2011 means that the manufacturer declares conformity of the product with its declared performance.

As for the rest, the provisions outlined in Part II of the List of Technical Building Regulations shall apply.

2.5 Delivery status

Liquid in containers made of tinplate appropriately prepared in separate containers for the practical mixing ratio.

MasterTop P 660 is sold as 10-kg and 24-kg kits (Part A + Part B)

2.6 Base materials / Ancillary materials

MasterTop P 660 unfilled and solvent-free polyurethane-based reactive resin comprises resin and curing agent components. The resin component contains polyether and/or polyester polyols (based on mineral oils or from renewable raw materials). Curing takes place after installation on site and using the curing component. This involves the use of homologues, pre-polymers and polymers based on MDI. The components may contain auxiliaries such as accelerators, catalysts, wetting agents, foam regulators and viscosity regulators for fine adjustment of the product characteristics (application or marketing restrictions must be observed).

The resin and curing agent mixing ratio is adjusted according to the stoichiometric requirements. Product curing commences directly after the components are mixed. There are also single-component products which harden in the presence of moisture without adding a resin component.

On average, the products covered by this EPD contain the following ranges of base materials and auxiliaries referred to:

Resin component: ~ 35-95%

Curing agent component: ~ 5-65 %

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 filled into the container, whereby quality and environmental standards in accordance with DIN ISO 9001:2008-12 and DIN EN ISO 14001 as well as the provisions outlined in the relevant regulations such as the Industrial Safety Regulation or 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

MasterTop P 660 unfilled and solvent-free polyurethane-based reactive resin is processed by trowelling/knife-coating or rolling, during which possible health and safety measures (ventilation, respiratory protection devices) are to be taken and consistently adhered to in accordance with the information on the safety data sheet and conditions on site.

MasterTop P 660 solvent-free polyurethane primer bears the PU 40 GISCODE/Gisbau product code on account of its composition.

2.10 Packaging

A detailed description of packaging is outlined in section 2.5. 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 and solvent-free polyurethane-based reactive resins are hardened and essentially comprise an inert three-dimensional network.

They are long-lasting products which are used in buildings in the form of adhesives, coatings or sealants as well as contributing 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 and solvent-free polyurethane-based reactive resins have lost their reactive capacity making them 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 emission performance of building products in contact with indoor air must be submitted. MasterTop P 660 complies with the following schemes in MasterTop 1326 system design: 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 and solvent-free polyurethane-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, polyurethane-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. Networked polyurethane resins do not melt or drip with the result that they do not contribute to the spreading of fire.

Fire protection

MasterTop P 660 has achieved Cfl-s1 fire classification in accordance with EN 13501-1 (tested in the MASTERTOP 1341 system).

Name	Value
Building material class	Cfl
Smoke gas development	s1

Water

Unfilled and solvent-free polyurethane-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 polyurethane-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 polyurethanes adhere. If polyurethane 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.

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 (0)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 are available on the www.master-builders-solutions.basf.co.uk 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. The unit area of MasterTop P 660 applied comprehensively can range between 300 grams and 500 grams per square metre.

An LCA for unfilled and solvent-free polyurethane-based reactive resin products was calculated in this EPD.

The product with the highest environmental impact in the product groups 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 construction 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. The data was taken from GaBi 5:2010 data bases with the result that it is consistent.

3.7 Period under review

The review period concerns annual production in 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	0.0016	l/100km
Transport distance	500	km
Capacity utilisation (including empty runs)	85	%
Gross density of products transported	1100	kg/m ³
Capacity utilisation volume factor	100	-

Construction installation process (A5)

Name	Value	Unit
Material loss	0.01	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 BOUNDARIES
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: 1 kg MasterTop P 660, , polyurethane-based primer, unfilled and solvent-free, containing polyols

Parameter	Unit	A1-A3	A4	A5	D
Global warming potential	[kg CO ₂ -Eq.]	5.87E+0	2.58E-2	1.25E-1	-1.25E-1
Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	3.44E-8	1.38E-12	4.50E-12	-1.34E-10
Acidification potential of land and water	[kg SO ₂ -Eq.]	1.56E-2	1.64E-4	1.45E-5	-3.15E-4
Eutrophication potential	[kg (PO ₄) ³⁻ -Eq.]	4.74E-3	4.06E-5	2.94E-6	-2.77E-5
Formation potential of tropospheric ozone photochemical oxidants	[kg Ethen Eq.]	2.91E-3	-7.03E-5	1.30E-6	-4.39E-5
Abiotic depletion potential for non fossil resources	[kg Sb Eq.]	3.74E-5	1.18E-9	1.82E-9	-6.35E-9
Abiotic depletion potential for fossil resources	[MJ]	1.14E+2	3.56E-1	2.96E-2	-1.66E+0

RESULTS OF THE LCA - RESOURCE USE: 1 kg MasterTop P 660, , polyurethane-based primer, unfilled and solvent-free, containing polyols

Parameter	Unit	A1-A3	A4	A5	D
Renewable primary energy as energy carrier	[MJ]	3.86E+0	-	-	-
Renewable primary energy resources as material utilization	[MJ]	0.00E+0	-	-	-
Total use of renewable primary energy resources	[MJ]	3.86E+0	1.42E-2	2.19E-3	-6.74E-2
Non renewable primary energy as energy carrier	[MJ]	9.40E+1	-	-	-
Non renewable primary energy as material utilization	[MJ]	2.50E+1	-	-	-
Total use of non renewable primary energy resources	[MJ]	1.19E+2	3.56E-1	2.96E-2	-1.66E+0
Use of secondary material	[kg]	0.00E+0	-	-	-
Use of renewable secondary fuels	[MJ]	1.17E-3	3.01E-6	4.01E-7	7.66E-4
Use of non renewable secondary fuels	[MJ]	1.22E-2	3.16E-5	4.20E-6	8.07E-3
Use of net fresh water	[m ³]	2.68E+0	1.32E-3	2.53E-3	-6.09E-2

RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES:

1 kg MasterTop P 660, , polyurethane-based primer, unfilled and solvent-free, containing polyols

Parameter	Unit	A1-A3	A4	A5	D
Hazardous waste disposed	[kg]	-	-	-	-
Non hazardous waste disposed	[kg]	5.10E+0	1.88E-3	5.94E-3	-6.31E-1
Radioactive waste disposed	[kg]	1.88E-3	5.03E-7	1.52E-6	-3.57E-5
Components for re-use	[kg]	-	-	-	-
Materials for recycling	[kg]	-	-	-	-
Materials for energy recovery	[kg]	-	-	-	-
Exported electrical energy	[MJ]	-	-	1.77E-1	-
Exported thermal energy	[MJ]	-	-	4.27E-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

Consideration of the results of **non-renewable primary energy requirements** indicates that the largest percentage is attributable to the provision of preliminary products (97%). The preliminary products

used in the recipes are largely manufactured on the basis of crude oil and are associated with high energy requirements. A relatively large percentage of the

environmental impacts is incurred by the curing agent components in particular.

At < 3% of total primary energy, the percentage of **renewable primary energy** is very low. Contributions by preliminary products (A1) and production (A3) are most apparent in terms of renewable primary energy requirements. In the case of A1, the renewable percentage of the power mix is particularly causative while the values in A3 are attributable to wooden pallets for packaging as solar energy is required for photosynthesis during wood production (growth).

The **Global Warming Potential (GWP)** is also dominated by preliminary product manufacturing. The curing agent components are also associated with relatively higher environmental impact than the resin component. Production (A3) contributes less than 5% to the GWP. None of the other life cycle phases have any significant influence on the GWP.

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 the case of A3 (production), primarily electricity and the production of containers play a role contributing approx. 3-4% to the AP. Transport to the site and the nitrogen emissions associated with this are also apparent in the results although they account for less than 1% of the AP.

In the case of the **Eutrophication Potential (EP)**, it is obvious that this parameter is almost exclusively influenced by manufacturing (A1) (> 95%). Other modules do not really play a role at all.

The **Summer Smog Potential (POCP)** is also dominated by manufacturing (A1). Production (A3) also makes a significant contribution (> 15%) to the POCP. Apart from nitrogen monoxide and sulphur dioxide, NMVOCs in particular are responsible for the POCP.

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 [$\mu\text{g}/\text{m}^3$]):

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.

VOC emissions acc. to AgBB scheme

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 results outlined above Results were communicated for the MasterTop P 660 primer in MasterTop 1326 system design (AgBB overview of results **after 7 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.

Name	Value	Unit
TVOC (C ₆ - C ₁₆)	322	$\mu\text{g}/\text{m}^3$
Sum SVOC (C ₁₆ - C ₂₂)	0	$\mu\text{g}/\text{m}^3$
R (dimensionless)	0.272	-
VOC without NIK	21	$\mu\text{g}/\text{m}^3$
Carcinogenic Substances	0	$\mu\text{g}/\text{m}^3$

8. References

Institut Bauen und Umwelt 2011

Institut Bauen und Umwelt e.V., Königswinter (pub.):
Generation of Environmental Product Declarations
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General principles

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(IBU), 2011-09
www.bau-umwelt.de

PCR 2011, Part A

Institut Bauen und Umwelt e.V., Königswinter (pub.):
Product Category Rules for Construction Products
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of Institut Bauen und Umwelt (IBU), Part A: Calculation
Rules for the Life Cycle Assessment and
Requirements on the Background Report. September
2012
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 A:

Institut Bauen und Umwelt e.V., Königswinter (pub.):
Product Category Rules for Building Products from the
Environmental Product Declaration range of Institut
Bauen und Umwelt (IBU) Part A: Calculation rules for
the Life Cycle Assessment and requirements on the
background report, 2011-07
www.bau-umwelt.de

PCR 2011, Part B

Product Category Rules for Building Products, Part B:
Requirements on the EPD for reactive resin products,
2011-06
www.bau-umwelt.de

ISO 14025

DIN EN ISO 14025:2009-11, Environmental labels and
declarations — Type III environmental declarations —
Principles and procedures

DIN EN 15804

DIN EN 15804:2011-04, Sustainability of construction
works — Environmental product declarations — Core
rules for the product category of construction products

2000/532/EC: Commission Decision dated 3 May 2000
replacing Decision 94/3/EC on a waste directory in
accordance with Article 1 a) of Council Guideline
75/442/EEC on waste and Council Decision 94/904/EC
on a directory of hazardous waste in terms of Article 1,
section 4 of Guideline 91/689/EEC on hazardous
waste

DIN EN 1771:2004-11

Products and systems for the protection and repair of
concrete structures — Test methods — Determination of
injectability and splitting test; German version EN
1771:2004

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 1504-2:2005-01

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; German
version EN 1504-2:2004

DIN EN ISO 3219:1994-10

Plastics — Polymers/Resins in liquid state or as
emulsions or dispersions — Determination of viscosity
using a rotational viscometer with defined shear rate
(ISO 3219:1993); German version EN ISO 3219:1994

DIN EN ISO 9514:2005-07

Paints and varnishes — Determination of the pot life of
multi-component coating systems — Preparation and
conditioning of samples and guidelines for testing (ISO
9514:2005); German version EN ISO 9514:2005

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 1062-6:2002-10

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 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

DIN EN 12003:2009-01

Adhesive for tiles — Determination of shear adhesion
strength of reactive resin adhesives; German version
EN 12003:2008

DIN EN 12004:2012-09

Adhesive for tiles — Requirements, evaluation of
conformity, classification and designation; German
version EN 12004:2007+A1:2012

DIN EN 1346:2007-11

Adhesive for tiles — Determination of open time;
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