

ENVIRONMENTAL-PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A2

Owner of the Declaration	EFCC - European Federation for Construction Chemicals
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
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Dispersion-based products, group 2
DBC, EFCC, FEICA, IVK

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ECO PLATFORM

EPD
VERIFIED



1. General Information

DBC, EFCC, FEICA, IVK

Programme holder

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

Declaration number

EPD-DBC-20220147-IBF1-EN

This declaration is based on the product category rules:

Dispersion adhesives and primers for floor coverings, 01.08.2021
 (PCR checked and approved by the SVR)

Issue date

08.06.2022

Valid to

07.06.2027



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



Dr. Alexander Röder
 (Managing Director Institut Bauen und Umwelt e.V.)

Dispersion-based products, group 2

Owner of the declaration

EFCC - European Federation for Construction Chemicals
 Boulevard du Triomphe 172
 1160 Brussels
 Belgium

Declared product / declared unit

1 kg / 1 kg; density 1,000 - 1,500 kg/m³

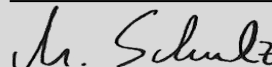
Scope:

This verified EPD entitles the holder to bear the symbol of the Institut Bauen und Umwelt e.V. It exclusively applies for products produced in Europe and for a period of five years from the date of issue. This EPD may be used by members of DBC, EFCC, FEICA and IVK and their members provided it has been proven that the respective product can be represented by this EPD. For this purpose, a guideline is available at the secretariats of the four associations. The members of the associations are listed on the respective 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.

The EPD was created according to the specifications of EN 15804+A2. In the following, the standard will be simplified as *EN 15804 bezeichnet*.

Verification

The standard EN 15804 serves as the core PCR	
Independent verification of the declaration and data according to ISO 14025:2011	
<input type="checkbox"/>	internally
<input checked="" type="checkbox"/>	externally



Matthias Schulz,
 (Independent verifier)

2. Product

2.1 Product description/Product definition

This EPD comprises dispersion-based products with a Volatile Organic Compound (VOC) content ≤ 1 % (VOC definition according to *Decopaint Directive*). The products typically consist of organic binding agents based on synthetic and/or natural resins, mineral fillers such as chalk as well as water and smaller volumes of auxiliaries (thickening agents, defoaming agents, surface-active agents, preservatives etc.). They dry physically through evaporation of the water contained therein. They comply with manifold, often specific, functions in the construction, furnishing and repair of buildings. Using dispersion-based products decisively improves the fitness for use of structures and extends their life expectancy. The product displaying the highest environmental impacts within the class of dispersion-based products considered was used as a representative product for calculating the Life Cycle Assessment results (worst-case approach). For the placing on the market in the European Union/European Free Trade Association (EU/EFTA) with the exception of Switzerland) products falling under the Regulation (EU) No 305/2011 (*CPR*) need a Declaration of Performance taking into consideration either the relevant harmonised European standard or the European Technical Assessment and the CE marking. For the application and use of the products the respective national provisions apply.

2.2 Application

Dispersion-based products are used for the following applications:

Module 1: Dispersion adhesives, fixatives, precoatings and primers for floor coverings and parquet flooring

Adhesives for, e.g. tufted carpets with various backings, woven textile coverings, fibre-bonded and natural fibre coverings, resilient coverings (PVC, rubber, PVC-free luxury vinyl tiles), linoleum, insulating bases and underlays, parquet, laminate and wood blocks on surfaces ready for laying. The products are suitable for normal wear in residential and commercial areas, also on heated floor constructions.

Module 2: Dispersion-based tile adhesive

Products for bonding ceramic tiles and paving as well as natural stone for internal and external installations on walls, floors and ceilings

Module 3: Dispersion-based adhesives and sealants

As structural adhesives and sealants: structural and repair adhesives, dispersion filler compounds, joint sealants

Module 4: Dispersion-based products for waterproofing of buildings

Products for waterproofing floors and/or walls in wet rooms inside buildings

Module 5: Dispersion-based primers and bonding agents for concrete and floor screeds

Products to improve the adhesion of e.g. self-levelling compounds or repair mortars on absorbent cement and calcium sulphate screeds, concrete, dry construction boards

Module 6: Dispersion-based products for surface

protection of concrete

To increase the durability of concrete and reinforced steel structures as well as for new concrete and for maintenance and repair work (for areas without vehicle traffic)

-Tensile adhesion strength after heat ageing (*EN 12004*)

-Tensile adhesion strength after freeze/thaw cycles (*EN 12004-2*)

-Open time: Tensile strength (*EN 12004-2*)

Module 7: Dispersion-based primers and barrier coatings

Products to protect a substrate from e.g. the immersion of water, thus preventing degradation, corrosion or damage

Further essential characteristics in accordance with the manufacturer's technical documentation

2.3 Technical Data

The density of the products is between 1,00 and 1,50 g/cm³, other relevant technical data can be found in the manufacturer's technical documentation.

Module 1: Dispersion adhesives, fixatives, precoatings and primers for floor coverings and parquet flooring

Dispersion adhesives for floor coverings have to comply with the requirements of the *EN ISO 22636*. The mechanical requirements of *EN ISO 22636* don't apply to fixatives; their strengths are lower in accordance with their specifications. The performance characteristics of precoatings and primers are subject to the manufacturer's technical documentation / declaration of performance. Dispersion adhesives for parquet: The test procedures and requirements of the *EN ISO 17178* have to be fulfilled.

Module 3: Dispersion-based adhesives and sealants

Performance characteristics in accordance with the manufacturer's technical documentation / declaration of performance

Module 4: Dispersion-based products for waterproofing of buildings

The minimum requirement of *EAD 030352-00-0503* -Liquid applied watertight covering kits for wet room floors and/or walls- must be maintained. The essential characteristics are to be specified in accordance with the European technical assessment (ETA, specification no.).

Module 2: Dispersion-based tile adhesive

The requirements on essential characteristics according to *EN 12004*, must be maintained. These are:

Tensile adhesion strength after dry storage (*EN 12004-2*)

-Tensile adhesion strength after water immersion (*EN 12004-2*)

Module 5: Dispersion-based primers and bonding agents for concrete and floor screeds

Performance characteristics in accordance with the manufacturer's technical documentation

Module 6: Dispersion-based products for surface protection of concrete

The requirements on essential characteristics for all intended uses in accordance with EN 1504-2, Tables 1 and 5, must be maintained. These are:

- Permeability to CO₂ (EN 1062-6)

- Water vapour permeability (EN ISO 7783-1/-2)

- Capillary absorption and permeability to water (EN 1062-3)

- Adhesion strength by pull-off test (EN 1542)

Further essential characteristics in accordance with the manufacturer's technical documentation / declaration of performance

Module 7: Dispersion-based primers and barrier coatings

The requirements of the *Decopaint Directive* must be maintained.

Essential characteristics in accordance with the manufacturer's technical documentation / declaration of performance.

Please select one of the following options and delete the header of the selected [alternative]:

[Alternative 1a: Product according to the CPR, based on a hEN]:

- Performance data of the product in accordance with the declaration of performance with respect to its essential characteristics according to EN xyz: *date, title*.
- Voluntary data: *source, date, title* (not part of CE-marking).

[Alternative 1b: Product according to the CPR, based on an ETA]:

- Performance data of the product in accordance with the declaration of performance with respect to its essential characteristics according to ETA no. xyz, *date, title*.
- Voluntary data: *source, date, title* (not part of CE-marking).

[Alternative 2a: Product not harmonised in accordance with the CPR but in accordance with other provisions for harmonisation of the EU]:

Performance data of the product according to the harmonised standards, based on provisions for harmonization.

Voluntary data: *source, date, title* (not part of CE-marking).

[Alternative 2b: Product harmonized as well in accordance with the CPR as with other legal provisions of the EU]:

- Performance data of the product in accordance with the declaration of performance with respect to its essential characteristics according to EN xyz: *date, title* or ETA no. xyz, *date, title* respectively.
- Performance data of the product, based on the harmonised standards, in accordance with the other provisions for harmonization.
- Voluntary data: *source, date, title* (not part of CE-marking)

[Alternative 3: Product for which no legal provisions for harmonisation of the EU exist]:

Performance data of the product with respect to its characteristics in accordance with the relevant technical provision (no CE-marking).

2.4 Delivery status

Liquid or pasty in containers made of plastic or metal. Typical container sizes contain 1 to 30 kg, usually 10 to 20 kg of product on pallets. For larger applications, vats with approx. volumes of 200 kg (litres) or IBCs (intermediate bulk containers) with a capacity of 1 tonne (m³) or more are also used. A plastic container was modelled for the Life Cycle Assessment.

2.5 Base materials/Ancillary materials

Dispersion-based products usually comprise at least one synthetic resin dispersion, natural or

synthetic resins dispersed in water, mineral fillers (e.g. chalk) and/or pigments. Auxiliaries such as thickening agents, defoaming agents, surface-active and dispersing agents as well as preservatives are used to fine-tune the product features. **Typically**, the products covered by this EPD contain the following range of base materials and auxiliaries (% by mass):

- Synthetic polymer dispersion (solids portion): 5 - 65

- Natural resins, natural resin derivatives: 0 - 25

- Mineral fillers: 0 - 60

- Pigments: 0 - 35

- Water: 15 - 95

- Auxiliaries: 1 - 5

- Thickening agents: < 3

- Dispersing agents / Emulsifying agents: < 2

- Wetting agent: 2

- Other: 0 - 2

- VOC according to *Decopaint Directive*: <1 % (**mandatory**)
 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).

Note: For companies to declare their products within the scope of this EPD it is not sufficient to simply comply with the product composition shown above. The application of this EPD is only possible for member companies of DBC, EFCC, FEICA, and IVK member associations and only for specific formulations with a total score below the declared maximum score for a product group according to the associated guidance document.

1. substances from the “Candidate List of Substances of Very High Concern for Authorisation” (SVHC)

If this product contains substances listed in the *candidate list* (latest version) exceeding 0.1 percentage by mass, the relevant information can be found in the safety data sheet of the relevant product covered by this model EPD.

2. CMR substances in categories 1A and 1B

If this product contains other carcinogenic, mutagenic, reprotoxic (CMR) substances in categories 1A or 1B which are not on the *candidate list*, exceeding 0.1 percentage by mass, the relevant information can be found in the safety data sheet of the relevant product covered by this model EPD.

3. Biocide products added to the construction product

If this construction product contains biocide products, the active substances, information on the concentration and/or concentration range, the product type together with information on their hazardous properties are listed in the safety data sheet of the respective product.

2.6 Manufacture

Dispersion-based products are usually mixed discontinuously in batch mode, i.e. in individual batches or a series of individual batches, and filled into

the delivery containers.

2.7 Environment and health during manufacturing

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

2.8 Product processing/Installation

Dispersion based products are processed on site using suitable tools, usually by hand. The products are applied by trowelling/knife-coating, painting, rolling or spraying. Precautions for safe handling and storage (e.g. air exchange, exhaust ventilation, personal protective measures, conditions for safe storage) must be observed in accordance with the information on the safety data sheet.

Depending on the application and product specifications, between 50 and 1,500 g/m² are applied.

2.9 Packaging

A detailed description of packaging is provided in section 2.4. Empty containers and clean foils can be recycled.

2.10 Condition of use

During the use phase, dispersion-based products are existent as hardened film.

They are long-lasting products which protect our buildings in the form of adhesives, primers, coatings or sealants as well as make an essential contribution towards their appearance, function and sustainability.

2.11 Environment and health during use

Option 1 – Products for applications outside indoor areas with permanent stays by people

No risks are known for water, air and soil if the products are used as designated.

Option 2 – Products for applications inside indoor areas with permanent stays by people

When used in indoor areas with permanent stays by people, evidence of the emission performance of construction products in contact with indoor air must be submitted according to national requirements (see chapter 7). No

further influences by emissions on the environment and health are known.

2.12 Reference service life

Dispersion-based products fulfill manifold, often specific, functions 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 load. Description of the influences on the ageing of the product when applied in accordance with the rules of technology.

2.13 Extraordinary effects

Fire

In terms of the volumes applied, dispersion based products have no or only a marginal influence on the fire performance characteristics of the building structure in which they have been installed.

Water

Dispersion-based products are water-resistant only to a certain degree and their strength can

deteriorate when exposed to water for longer periods (of time); detaching from the surface is possible in a worst-case scenario. The components of dispersion-based products are not hazardous to water or only slightly hazardous to water. Owing to the overall low volumes of dispersion-based products used on buildings, no relevant contribution towards environmental damage can be anticipated by buildings featuring dispersion-based products in the event of extraordinary exposure to water.

Mechanical destruction

The mechanical destruction of dispersion-based products does not lead to any decomposition products which are harmful to the environment or health.

2.14 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 dispersion-based products have been applied and on which they have dried.

2.15 Disposal

The low amounts of a dispersion-based product applied to a construction product will not interfere with the disposal/recycling of this.

Hardened product residue mechanically removed from substrates must be disposed of as commercial/construction waste. The following waste codes according to the European List of Waste (2000/532/EC) can apply:

Hardened product residue:

080112 Paint and varnish waste with the exception of that covered by 08 01 11

080410 Adhesive and sealant compound waste with the exception of that covered by 08 04 09

2.16 Further information

More information is available on the manufacturer's product or safety data sheets and is available on the manufacturer's websites or on request. Valuable technical information is also available on the associations' websites.

3. LCA: Calculation rules

3.1 Declared Unit

This EPD refers to the declared unit of 1 kg of dispersion-based product, group 2; applied into the building with a density of 1,000 - 1,500 kg/m³ in accordance with the *IBU PCR* part B for dispersion adhesives and primers for floor coverings. The results of the Life Cycle Assessment provided in this declaration have been selected from the product with the highest environmental impact (worst-case scenario).

Depending on the application, a corresponding conversion factor such as the density to convert volumetric use to mass must be taken into consideration.

The Declaration type is according to *EN 15804*: Cradle to gate with options, modules C1–C3, and module D (A1–A3, C, D) and additional modules (A4–A5).

Declared unit

Name	Value	Unit
Declared unit	1	kg
Gross density	1,000-1,500	kg/m ³

For IBU core EPDs (where clause 3.6 is part of the EPD): for average EPDs, an estimate of the robustness of the LCA values must be made, e.g. concerning variability of the production process, geographical representativeness and the influence of background data and preliminary products compared to the environmental impacts caused by actual production.

3.2 System boundary

Modules A1, A2 and A3 are taken into consideration in the LCA:

- A1
Production of preliminary products

- A2
Transport to the plant

- A3
Production incl. provision of energy, production of packaging as well as

auxiliaries and consumables and waste treatment

- A4 Transport to site

- A5
Installation, product applied into the building during A5 phase operations and packaging disposal.

The end of life for the packaging material considered is described below:

-Incineration, for materials like plastic and wood.

-C1-C2-C3-D

The building deconstruction (demolition process) takes place in the C1 module which considers energy production and consumption in terms of diesel and all the emissions connected with the fuel-burning process to run the machines. After the demolition, the product is transported to the end-of-life processing (C2 module) where all the impacts related to the transport processes are considered. For precautionary principle and as a worst-case scenario, thermal treatment is the only end of life scenario considered. This is modelled by the incineration process (module C3) where the product ends its life cycle.

Module D accounts for potential benefits that are beyond the defined system boundaries. Credits are generated during the incineration of wastes and related electricity produced that are occurring in the A5 module.

3.3 Estimates and assumptions

For this EPD formulation and production data defined and collected by FEICA were considered. Production waste was assumed to be disposed of by incineration without credits as a worst case.

An average of

plastic containers and wooden pallets was considered in the LCA.

3.4 Cut-off criteria

All raw materials submitted for the formulations and production data were taken into consideration.

The manufacture of machinery, plant and other infrastructure required for the production of the products under review was not taken into consideration in the LCA.

Transport of packaging materials is excluded.

3.5 Background data

Data from the *GaBi* database SP40 (2020) was used as background data.

3.6 Data quality

Representative products were applied for this EPD and the product in the group displaying the highest environmental impact was selected for calculating the LCA results. The background datasets used are less than 4 years old.

Production data and packaging are based on details provided by the manufacturer. The formulation used for evaluation refers to a specific product.

The data quality of the background data is considered to be good.

3.7 Period under review

Representative formulations are valid for 2021.

3.8 Geographic Representativeness

Land or region, in which the declared product system is manufactured, used or handled at the end of the product's lifespan: Europe

3.9 Allocation

Mass allocation has been applied when primary data have been used and implemented into the LCA model.

3.10 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.

The used background database has to be mentioned.

4. LCA: Scenarios and additional technical information

Characteristic product properties

Information on biogenic carbon

The packaging material contains biogenic carbon content which is presented below.

Information on describing the biogenic Carbon Content at factory gate

Name	Value	Unit
Biogenic carbon content in product	-	kg C
Biogenic carbon content in accompanying packaging	0.016	kg C

For the preparation of building life cycle assessments, it must be taken into account that in module A5 (installation in the building) the biogenic amount of CO₂ (0.016 kg C * 3.67 = 0.059 kg CO₂-eq.) of the packaging bound in module A1-A3 is mathematically booked out.

The following technical scenario information is required for the declared modules and optional for non-declared modules. Modules for which no information is declared can be deleted; additional information can also be listed if necessary.

The following technical information is a basis for the declared modules or can be used for developing specific scenarios in the context of a building assessment if modules are not declared

(MND).

A5 is not declared including the disposal of the packaging material on the construction site, the amounts of packaging materials included in the LCA calculations must be declared as technical scenario information for Module A5.

Transport to the building site (A4)

Name	Value	Unit
Transport distance	1000	km
Gross weight	34 - 40	t
Payload capacity	27	t

Installation into the building (A5)

Name	Value	Unit
Other resources for packaging material	0.067	kg
Material loss	0.01	kg

Material loss regards the amount of product not used during the application phase into the building. This amount is 1% of the product, impacts related to the production of this part are charged to the A5 module. This percentage is considered as waste to disposal and impacts of its end of life have been considered in the LCA model and declared in A5.

In case a **reference service life** according to applicable ISO standards is declared then the assumptions and in-use

conditions underlying the determined RSL shall be declared. In addition, it shall be stated that the RSL applies for the reference conditions only.

The same holds for a service life declared by the manufacturer. Corresponding information related to in-use conditions needs not be provided if a service life taken from the list on service life by BNB is declared.

End of life (C1-C3)

Name	Value	Unit
Collected as mixed construction waste	1	kg
Incineration	1	kg

5. LCA: Results

In Table 1 "Description of the system boundary", all declared modules shall be indicated with an "X"; all modules that are not declared shall be indicated with "MND" (As default the modules B3, B4, B5 are marked as MNR – module not relevant). In the following tables, columns can be deleted for modules that are not declared. Indicator values should be declared with three valid digits (eventually using exponential form (e.g. 1,23E-5 = 0,0000123)). A uniform format should be used for all values of one indicator.

If several modules are not declared and therefore have been deleted from the table, the abbreviations for the indicators can be replaced by the complete names, while the readability and clear arrangement should be maintained; the legends can then be deleted. If due to relevant data gaps, an indicator cannot be declared in a robust way, then the abbreviation "IND" (indicator not declared) should be used for this indicator.

- 0 - calculated value is 0
- 0 - value falls under the cut-off
- 0 - assumption which exclude any flows (e.g. exported electricity A1-A3)
- IND – in cases where the inventory does not support the methodological approach or the calculation of the specific indicator IND shall be used.

If no reference service life is declared (see chapter 2.13 "Reference Service Life"), the LCA results of the modules B1-B2 and B6-B7 shall refer to a period of one year. This shall then be indicated as an explanatory text below the tables. In addition, the formula for the quantification of such B-modules over the total life cycle shall be provided.

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; ND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	MND	MND	MNR	MNR	MNR	MND	MND	X	X	X	MND	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 kg of dispersion-based product, group 2

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	D
GWP-total	kg CO ₂ eq	2E+00	5.11E-02	1.8E-01	2.79E-04	1.24E-02	9.45E-01	-3.98E-01
GWP-fossil	kg CO ₂ eq	2.05E+00	5.06E-02	9.49E-02	2.66E-04	1.18E-02	4.29E-01	-3.97E-01
GWP-biogenic	kg CO ₂ eq	-3.96E-02	1.48E-04	8.54E-02	1.24E-05	5.42E-04	5.15E-01	-8.96E-04
GWP-luluc	kg CO ₂ eq	8.17E-04	4.1E-04	9.68E-06	6.39E-09	2.79E-07	3.5E-05	-2.51E-04
ODP	kg CFC11 eq	3.53E-14	6.08E-18	3.7E-16	2.84E-20	1.24E-18	3.02E-16	-3.72E-15
AP	mol H ⁺ eq	8.99E-03	1.52E-04	1.14E-04	3.6E-06	3.73E-05	5.25E-04	-5.26E-04
EP-freshwater	kg P eq	2.85E-05	1.54E-07	2.88E-07	5.75E-11	2.51E-09	1.04E-07	-4.62E-07
EP-marine	kg N eq	1.7E-03	6.75E-05	2.42E-05	1.63E-06	1.72E-05	2.01E-04	-1.39E-04
EP-terrestrial	mol N eq	1.95E-02	7.56E-04	3.08E-04	1.79E-05	1.89E-04	2.52E-03	-1.49E-03
POCP	kg NMVOC eq	6.25E-03	1.33E-04	8.24E-05	4.91E-06	3.39E-05	5.22E-04	-4.02E-04
ADPE	kg Sb eq	7.32E-07	3.63E-09	7.6E-09	8.06E-12	3.52E-10	4.62E-09	-6.06E-08
ADPF	MJ	4.44E+01	6.73E-01	4.75E-01	3.81E-03	1.66E-01	5.52E-01	-6.7E+00
WDP	m ³ world eq deprived	6.36E-02	4.52E-04	1.7E-02	5.27E-07	2.3E-05	1.57E-01	-3.7E-02

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 (user) deprivation potential)

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 kg of dispersion-based product, group 2

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	D
PERE	MJ	6.19E+00	3.79E-02	6.58E-01	1.2E-05	5.25E-04	9.36E-02	-1.32E+00
PERM	MJ	5.85E-01	0	-5.85E-01	0	0	0	0
PERT	MJ	6.77E+00	3.79E-02	7.35E-02	1.2E-05	5.25E-04	9.36E-02	-1.32E+00
PENRE	MJ	2.93E+01	6.74E-01	1.43E+00	3.81E-03	1.67E-01	1.48E+01	-6.7E+00
PENRM	MJ	1.52E+01	0	-9.53E-01	0	0	-1.42E+01	0

PENRT	MJ	4.44E+01	6.74E-01	4.76E-01	3.81E-03	1.67E-01	5.52E-01	-6.7E+00
SM	kg	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0
FW	m ³	1.54E-02	4.38E-05	5.38E-04	2.16E-08	9.41E-07	3.7E-03	-1.53E-03

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 EN 15804+A2: 1 kg of dispersion-based product, group 2

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	D
HWD	kg	1.51E-08	3.14E-08	1.87E-10	3.7E-13	1.62E-11	1.77E-09	-2.66E-09
NHWD	kg	2.75E-01	1.03E-04	4.97E-03	3.9E-07	1.7E-05	1.36E-01	-2.94E-03
RWD	kg	1.09E-03	8.34E-07	1.27E-05	4.09E-09	1.79E-07	2.51E-05	-4.51E-04
CRU	kg	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0
EEE	MJ	0	0	2.77E-01	0	0	0	0
EET	MJ	0	0	5.01E-01	0	0	0	0

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; EET = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 kg of dispersion-based product, group 2

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	D
PM	Disease incidence	ND	ND	ND	ND	ND	ND	ND
IR	kBq U235 eq	ND	ND	ND	ND	ND	ND	ND
ETP-fw	CTUe	ND	ND	ND	ND	ND	ND	ND
HTP-c	CTUh	ND	ND	ND	ND	ND	ND	ND
HTP-nc	CTUh	ND	ND	ND	ND	ND	ND	ND
SQP	SQP	ND	ND	ND	ND	ND	ND	ND

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 (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index

Potential Human

exposure efficiency relative to U235, Disclaimer 1 – 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.

ADP minerals

& metals, ADP fossil, WDP, ETF-fw, HTP-c, HTP-nc, SQP, Disclaimer 2 – The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

Additional

environmental impact indicators (suggested by EN15804, table 4) are not declared in the EPD. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high and as there is limited experience with the indicator (see ILCD classification in EN 15804, table 5). For this reason, results based on these indicators are not considered suitable for a decision-making process and are thus not declared in the EPD.

6. LCA: Interpretation

The majority of impacts are associated with the production phase (A1-A3). The most significant contribution to the production phase impacts is the upstream production of raw materials as the main driver. Another contributor in the production phase, in the category of Photochemical ozone formation (POCP), is the plastic used as a packaging material. Emissions associated with the manufacturing of products also have some influence on Ozone Depletion Potential (ODP) in the production phase. In all EPDs, CO₂ is the most important contributor to Global Warming Potential (GWP). For the Acidification Potential (AP), NO_x and SO₂ contribute the largest share.

The majority of life cycle energy consumption takes place during the production phase (A1-A3). Significant contributions to Primary Energy Demand – Non-renewable (PENRT) come from the energy resources used in the production of raw materials. The largest contributor to Primary Energy Demand – Renewable (PERT) impacts comes from the consumption of renewable energy resources required for the generation and supply of electricity. It should be noted that Primary Energy Demand – Renewable (PERT)

generally represents a small percentage of the production phase primary energy demand with the bulk of the demand coming from non-renewable energy resources.

Transportation to the construction site (A4) and the installation process (A5) make a low contribution to all impacts. Climate change from land-use change is the only indicator influenced by transport processes, due to the diesel production used as fuel because part of this diesel has been produced from bio-based raw materials.

The installation phase influence mainly climate change indicators, due to the impact related to the incineration processes used for packaging waste treatment and residual product treatment (1 % of the total mass).

The end-of-life phases influence climate change indicators, due to the thermal treatment process of the dispersion-based product occurring in the C3 module.

7. Requisite evidence

As a general rule, all statements must be documented with measured data (presented by the corresponding test certificates). The methods of evidence and the test conditions have to be described together with the results.

If substances are not detected, the limit of detection must be included in the declaration.

Interpreting statements such as "... free of ..." or "... are entirely harmless ..." are not allowed.

If evidence required by the specific PCR part B is not provided, this has to be justified under the respective title for the required evidence.

If relevant for the scope of application of the declared product, or if derivable from its material composition, it is recommended to provide additional adequate evidence.

VOCS special tests and evidence have not been carried out or provided within the framework of drawing up this Model EPD. Some member states require special documentation on VOC emissions into indoor air for specific areas of application. This documentation, as well as documentation for voluntary VOC labelling, has to be provided separately and is specific to the product in question.

Evidence pertaining to VOC emissions shall show

- either an attestation of compliance with,

- or documentation of test data that are required in

any of the existing regulations or in any of the existing voluntary labelling programs for low-emitting products, as far as these

(1) include limits for the parameters TVOC, TSVOC, carcinogens,

formaldehyde, acetaldehyde, LCI limits for individual substances (including but not limited to the European list of harmonized LCIs), and the R-value;

-
TVOC: 1000 µg/m³

(2)
base their test methods on *EN 16516*;

-
TSVOC: 100 µg/m³

(3)
perform testing and apply the limits after 28 days of storage in a ventilated test chamber, under the conditions specified in *EN 16516*; some regulations and programs also have limits after 3 days, on top of the 28 days limits;

-
Each carcinogen: 1 µg/m³

-
Formaldehyde: 100 µg/m³

(4)
express the test results as air concentrations in the European Reference Room, as specified in *EN 16516*.

-
LCI: different per substance involved

-
R-value: 1 (meaning that, in total, 100 % of the combined LCI values must not be exceeded).

Examples of such regulations are the *Belgian Royal Decree C-2014/24239*, or the *German AgBB/ABG*. Examples of such voluntary labelling programs are *EMICODE*, *Blue Angel* or *Indoor Air Comfort*.

Informative
Annexes (2 tables):

Table 1 shown below is an overview of the most relevant regulations and specifications as of October 2021, as regards requirements after 3 days of storage in a ventilated test chamber.

Relevant test results shall be produced either by an *ISO 17025* accredited commercial test lab or by a qualified internal test lab of the manufacturer. Examples for the applied limits after 28 days of storage in a ventilated test chamber are:

Table 2 provides an overview of the most relevant regulations and specifications as of October 2021, as regards requirements after 28 days of storage in a ventilated test chamber. Some details may be missing in the table due to lack of space. Values given represent maximum values/limits.

	TVOC µg/m ³	Sum of carcinogens. C1A, CA2 µg/m ³	Formaldehyde µg/m ³	Acetaldehyde µg/m ³	Sum of Form- and Acetaldehyde
German AgBB/ABG regulation	10 000	10	-/-	-/-	-/-
Belgian regulation	10 000	10	-/-	-/-	-/-
EMICODE EC1	1 000	10	50	50	50 ppb
EMICODE EC1 ^{PLUS}	750	10	50	50	50 ppb

	TVOC µg/m ³	TSVOC µg/m ³	Each carcinogen C1A, CA2 µg/m ³	Formalde- hyde µg/m ³	Acetalde- hyde µg/m ³	LCI	R value	Specials	Sum of non-LCI & non- identified µg/m ³
Belgian regulation	1000	100	1	100	200	Belgian list	1	Toluene 300 µg/m ³	-/-
French regulations class A+	1000	-/-	-/-	10	200	-/-	-/-	List of 8 VOCs, 4 CMR	-/-
French regulations class A	1500	-/-	-/-	60	300	-/-	-/-	List of 8 VOCs, 4 CMR	-/-
French regulations class B	2000	-/-	-/-	120	400	-/-	-/-	List of 8 VOCs, 4 CMR	-/-
French regulations class C	>2000	-/-	-/-	>120	>400	-/-	-/-	List of 8 VOCs, 4 CMR	-/-
German DIBt/AgBB regulation	1000	100	1	100	300	German AgBB list	1	-/-	100
EMICODE EC1	100	50	1	(after 3 days)	(after 3 days)	-/-	-/-	-/-	-/-
EMICODE EC1 ^{PLUS}	60	40	1	(after 3 days)	(after 3 days)	German AgBB list	1	-/-	40
Finnish M1, sealants	20	-/-	1	10	300	EU LCI list	-/-	Ammonia, odour	-/-
Finnish M1, adhesives	200 µg/m ² h	-/-	5 µg/m ² h	50 µg/m ² h	300	EU LCI list	-/-	Ammonia, odour	-/-

8. References

EN 1062-3

EN
 1062-3:2008-04, Paints and varnishes - Coating materials and
 coating systems
 for exterior masonry and concrete - Part 3: Determination of
 liquid water
 permeability

EN 1062-6

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

**EN
12004-2**

EN 1504-2

EN
1504-2:2004-10, Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity - Part 2: Surface protection systems for concrete

EN
12004-2:2017, Adhesives for ceramic tiles - Part 2: Test methods

ISO 14025

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

EN 1542

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

EN 15804

EN
15804:2019+A2+AC, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products.

EN ISO 7783-1/-2

EN ISO
7783-1/-2:2019-02, Paints and varnishes - Determination of water-vapour transmission properties - Cup method

EN 16516

EN 16516:2017
Construction products - Assessment of release of dangerous substances - Determination of emissions into indoor air

EN 12004

EN12004:2012,
Adhesives for ceramic tiles

EN ISO 17025

EN ISO 17025:
2018-03

General requirements for the competence of testing and calibration laboratories

EN ISO 17178

EN ISO
17178:2020, Adhesives - Adhesives for bonding parquet to
subfloor - Test
methods and minimum requirements

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 Directive 75/442/EEC on
waste and
Council decision 94/904/EC on a directory of hazardous waste
in terms of
Article 1, paragraph 4 of Directive 91/689/EEC on hazardous
waste

EN ISO 22636

EN ISO
22636:2020, Adhesives - Adhesives for floor coverings -
Requirements for
mechanical and electrical performance

Belgian Royal Decree C-2014/24239

Belgisch Staatsblad 8 MEI 2014, p. 60603. — Koninklijk besluit
tot vaststelling
van de drempelniveaus voor de emissies naar het binnenmilieu
van bouwproducten
voor bepaalde geoogde gebruiken

EAD 030352-00-0503

EAD
030352-00-0503:2019-01, Watertight covering kits for wet room
floors and or
walls Part 1: Liquid Applied Coverings with or without wearing
surface Part 2:
Kits based on flexible sheets Part 3: Kits based on inherently
watertight
boards

Blue Angel

Environmental
label organised by the federal

government of
Germany www.blauer-engel.de

(EU) No 528/2012

Biocidal Products Regulation (EU) No 528/2012 of the
European Parliament and of the
Council of 22 May 2012 concerning the making available on the
market and use of
biocidal products (current consolidated version: 2021-06)

Candidate list

Candidate List
of substances of very high concern for Authorisation, published
in accordance
with Article 59(10) of the REACH Regulation, ECHA,
www.echa.europa.eu/candidate-list-table

CPR

CPR Regulation
(EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011
laying down harmonised conditions for the marketing of construction products
and repealing Council Directive 89/106/EEC

Decopaint Directive

Directive
2004/42/CE of the European Parliament and the council of 21 April 2004 on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products and amending Directive 1999/13/EC

EMICODE

EMICODE, GEV – Gemeinschaft
Emissionskontrollierte Verlegewerkstoffe, Klebstoffe und Bauprodukte e. V.
(pub.) www.emicode.de

GaBi 10 software & documentation

Data base for
Life Cycle Engineering LBP, University of Stuttgart and Sphera,
documentation
of GaBi 10 data sets <http://documentation.gabi-software.com/>,
2020

German AgBB

Committee for
Health-related Evaluation of Building Products: health-related
evaluation of
emissions of volatile organic compounds (VOC and SVOC)
from building products;
status: June 2012

www.umweltbundesamt.de/produkte/bauprodukte/agbb.htm

IBU 2021

Institut Bauen und Umwelt e.V.: General
Instructions for the EPD programme of Institut Bauen und
Umwelt e.V. EPD programme.
Version 2.0. Berlin: Institut Bauen und Umwelt e.V., 2021

www.ibu-epd.com

Indoor Air Comfort

Product
certification by Eurofins, Hamburg, Germany

www.eurofins.com

PCR Part A

Product
Category Rules for Building-Related Products and Services,
Part A: Calculation
Rules for the Life Cycle Assessment and Requirements on the
Project report,
Version 1.1, Institut Bauen und Umwelt e.V., 2021-01

PCR Part B

Product Category Rules for Construction Products. Part B:
Dispersion adhesives and primers for floor coverings, Version
1.7, 2019.

REACH

Directive (EG)
No. 1907/2006 of the European Parliament and of the Council
dated 18 December

2006 on the registration, evaluation, approval and restriction of
chemical
substances (REACH), for establishing a European Agency for
chemical substances,
for amending Directive 1999/45/EC and for annulment of
Directive (EEC) No.
793/93 of the Council, Directive (EC) No. 1488/94 of the
Commission, Guideline
76/769/EEC of the Council and Guidelines 91/155/EEC,
93/67/EEC, 93/105/EC and
2000/21/EC of the Commission.

The literature referred to in the Environmental Product
Declaration must be listed in full. Standards already fully quoted
in the EPD do not need to be listed here again.
The current version of PCR Part A and PCR Part B of the PCR
document on which they are based must be referenced.



Publisher

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

+49 (0)30 3087748- 0
info@ibu-epd.com
www.ibu-epd.com



Programme holder

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

+49 (0)30 3087748- 0
info@ibu-epd.com
www.ibu-epd.com



Author of the Life Cycle Assessment

Sphera Solutions GmbH
Hauptstraße 111- 113
70771 Leinfelden-Echterdingen
Germany

+49 711 341817-0
info@sphera.com
www.sphera.com



Owner of the Declaration

EFCC - European Federation for Construction
Chemicals
Boulevard du Triomphe 172
1160 Brussels
Belgium

+32289720-39
info@efcc.be
www.efcc.eu



Deutsche Bauchemie e.V.
Mainzer Landstr. 55
60329 Frankfurt
Germany

+49 (0)69 2556-1318
info@deutsche-bauchemie.de
www.deutsche-bauchemie.de



FEICA - Association of the European Adhesive and
Sealant Industry
Rue Belliard 40 box 10
1040 Brussels
Belgium

+32 (0)267 673 20
info@feica.eu
www.feica.eu



Industrieverband Klebstoffe e.V.
Völklinger Straße 4
40219 Düsseldorf
Germany

+49 (0)211 67931-10
info@klebstoffe.com
www.klebstoffe.com