

# ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A2

Owner of the Declaration	VdL - Verband der deutschen Lack- und Druckfarbenindustrie e.V.
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-VDL-20240613-IBN1-EN
Issue date	03.06.2025
Valid to	02.06.2030

**Adhesive and undercoat plaster with organic binder**  
**Verband der deutschen Lack- und**  
**Druckfarbenindustrie e. V. (VdL)**

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## 1. General Information

### Verband der deutschen Lack- und Druckfarbenindustrie e. V. (VdL)

#### Programme holder

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

#### Declaration number

EPD-VDL-20240613-IBN1-EN

#### This declaration is based on the product category rules:

Coatings with organic binders, 01.08.2021  
(PCR checked and approved by the SVR)

#### Issue date

03.06.2025

#### Valid to

02.06.2030



Dipl.-Ing. Hans Peters  
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### Adhesive and undercoat plaster with organic binder

#### Owner of the declaration

VdL - Verband der deutschen Lack- und Druckfarbenindustrie e.V.  
Mainzer Landstraße 55  
60329 Frankfurt a. M.  
Germany

#### Declared product / declared unit

This product declaration refers to the production of 1 kg of adhesive and undercoat plaster with organic binder.

#### Scope:

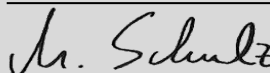
This is an Association EPD of the Verband der deutschen Lack- und Druckfarbenindustrie e.V. (Association of the German Paint and Printing Ink Industry) (VdL). To calculate the Life Cycle Assessment (LCA), a representative worst-case composition was determined for a range of products with the highest environmental impact.

This worst-case declaration is based on the information provided by the members of the sector group plasters & decorative coatings at VdL. It applies exclusively to the products represented by the worst-case composition for plants in Germany, for five years from the date of issue. The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

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

#### Verification

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



Matthias Schulz,  
(Independent verifier)

## 2. Product

### 2.1 Product description/Product definition

Adhesives and undercoat plasters with organic binders in accordance with *EN 15824* are factory-produced, paste-like mixtures of one or more aqueous polymer dispersions, mineral fillers, water, and additives.

Solidification is achieved by drying and filming of the polymer binders to form solid layers with high adhesion to the substrate and with very good bonding and adhesion properties.

They are usually preserved against bacteria, yeasts or fungi for the duration of storage. The range of compositions and properties was specified by the manufacturers of dispersion-bound plasters in the sector group plasters & decorative coatings at Verband der deutschen Lack- und Druckfarbenindustrie e.V. (VdL). This Environmental Product Declaration declares a representative worst-case composition for adhesives and undercoat plasters with organic binders. The *Construction Products Regulation* applies to the placing on the market in the EU/EFTA. For undercoat plasters (exterior reinforcement), a Declaration of Performance must be drawn up in accordance with *EN 15824*, Specification for external renders and internal plasters based on organic binders, and the CE marking must be affixed. The respective national regulations apply for use. *EN 13914-1* and generally the German Construction Contract Procedures (VOB) regulate the placing on the market and application.

### 2.2 Application

As an adhesive and undercoat plaster for mineral and organic substrates, including wood and metal surfaces in exterior areas in accordance with *EN 15824* and *EN 13914-1*. A common application is in the area of external thermal insulation composite systems.

### 2.3 Technical Data

The following technical data is relevant for the declared product.

#### Construction data

Name	Value	Unit
Density DIN EN ISO 2811	1100 - 1700	kg/m <sup>3</sup>
pH value	7 - 9	
Water vapour diffusion equivalent air layer thickness sd ISO 7783	0,10 - 1,00	m
Water vapour diffusion current density V ISO 7783	20 - 200	g/(m <sup>2</sup> ·d)
Water permeability rate w EN 1062-3	≤ 0,2	kg/(m <sup>2</sup> ·h <sup>1/2</sup> )

Further technical data according to the *PCR: Coatings with organic binders* are not relevant for the declared product.

The performance values of the product according to the Declaration of Performance with regard to its essential characteristics in accordance with *EN 15824*, specifications for exterior and interior plasters with organic binders, apply.

### 2.4 Delivery status

Adhesives and undercoat plasters with organic binders are manufactured in the factory as paste-like products and are mainly filled in plastic containers, stored temporarily if necessary and delivered to the construction site. Containers from 18 kg to 25 kg are typical delivery packaging. Filling into drums, big bags or wet silos is possible for larger applications.

### 2.5 Base materials/Ancillary materials

Adhesives and undercoat plasters with organic binders consist of at least one polymer dispersion, pigments, mineral fillers (carbonates, silicates), and water. To adjust the product properties, additives such as thickeners, defoamers, dispersing aids, film-forming agents, flame retardants, in-can preservatives and, if necessary, film preservatives are used.

Name	Value	Unit
Polymer dispersions 50 % *	≤ 25,0	% by mass
Pigments	≤ 1,0	% by mass
Aluminium hydroxide (flame retardant)	≤ 10,0	% by mass
Aggregates / fillers	≤ 75,0	% by mass
Water	≤ 15,0	% by mass
Caustic potash solution 50 % *	≤ 0,1	% by mass
In-can preservation	≤ 0,6	% by mass
Film preservation	≤ 0,3	% by mass
Dispersing agents	≤ 0,5	% by mass
Film-forming agents	≤ 2,0	% by mass
Water repellents	≤ 0,3	% by mass
Deafoamers	≤ 0,3	% by mass
Thickeners	≤ 1,0	% by mass
Fibres	≤ 2,0	% by mass

\* If the delivery form is different (e.g. concentration not 50 %), the mass specification (e.g. < 20 % by mass) must be corrected/adjusted.

The composition of products that comply with the EPD may deviate from the concentration bands mentioned in individual cases. More detailed information can be found in the respective manufacturer's specifications (e.g. product data sheets).

1) The product contains substances on the *ECHA candidate list* of substances of very high concern (SVHC) for authorisation (date: 21.01.2025) above 0.1% by mass: no.

2) The product contains other CMR substances of category 1A or 1B that are not on the candidate list, above 0.1% by mass: no.

3) Biocidal products have been added to this construction product or it has been treated with biocidal products (it is therefore a treated product within the meaning of the *Biocidal Products Regulation*): yes.

In-can preservatives: bis(3-aminopropyl)(dodecyl)amine (BDA); benzisothiazolinone (BIT); bronopol (BNPD); chloromethylisothiazolinone (CIT); chloromethylisothiazolinone (CIT) / methylisothiazolinone (MIT) 3:1; dibromodicyanobutane (DBDCB); (ethylenedioxy)dimethanol (EDDM); 3-iodo-2-propinyl butylcarbamate (IPBC); methylisothiazolinone (MIT); sodium pyrithione; silver chloride; tetramethylolacetylenediurea (TMAD); zinc pyrithione.

Film preservatives: diuron (DMCU), isoproturon, terbutryn, dichloroethylisothiazolinone (DCOIT), octylisothiazolinone (OIT), 3-iodo-2-propinyl butylcarbamate (IPBC), zinc pyrithione.

The functional chemical groups of the basic substances are:-

- organic solvents for film-forming agents,
- cellulose derivatives, polyacrylate and PU resins for thickeners.

### 2.6 Manufacture



Adhesives and undercoat plasters with organic binders are produced in mixing plants in the following steps:

1. Filling the storage or weighing hoppers
2. Conveying the input materials into the mixer
3. Dispersing and mixing
4. Quality control, adjustment of consistency if necessary
5. Filling products into storage and transport containers
6. Loading and delivery

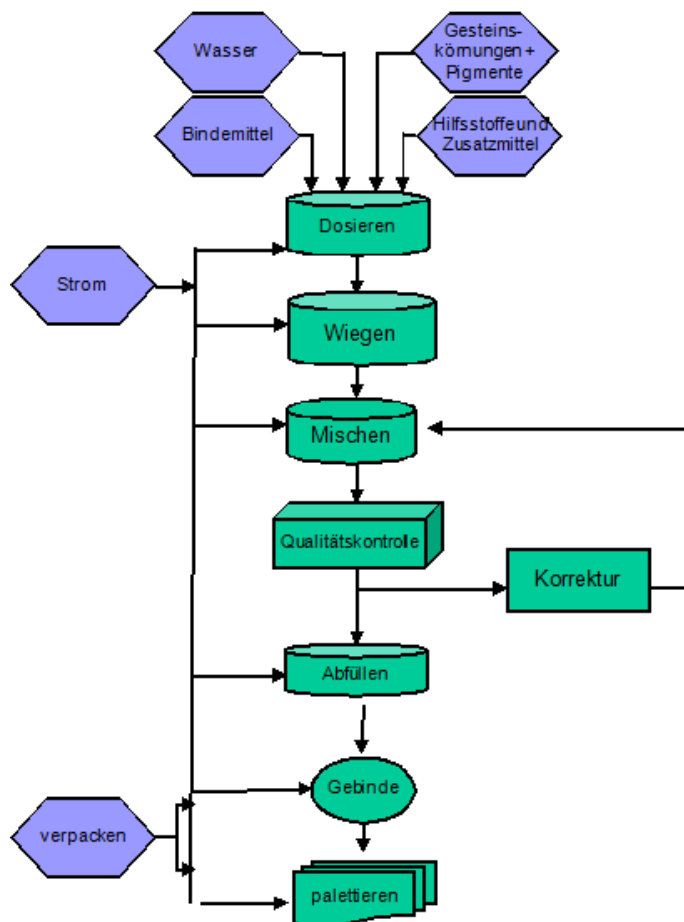


Figure:

Wasser	Water
Bindemittel	Binder
Gesteinskörnungen + Pigmente	Aggregates + pigments
Hilfsstoffe und Zusatzmittel	Ancillary materials and additives
Dosieren	Dosing
Wiegen	Weighing
Mischen	Mixing
Qualitätskontrolle	Quality control
Korrektur	Correction
Abfüllen	Filling
Gebinde	Container
Palettieren	Palletising
Strom	Electricity
verpacken	Packing

The raw materials are stored at the production plant in silos, big bags, drums or sacks. They are dosed gravimetrically and mixed intensively according to the respective formulation. After filling and packaging, they are stored temporarily or delivered directly. On the building site, it is possible to adjust the consistency of the products to the application and weather conditions with water.

## 2.7 Environment and health during manufacturing

The regulations of the *BetrSichV* apply to manufacturing companies. The raw materials are stored in accordance with

*TRGS 509* and *TRGS 510*. When storing and handling preservatives, the *Biocidal Products Regulation* and the manufacturer's instructions are observed.

In the chemical industry, goggles, gloves, and - if necessary - protective helmets are mandatory. Today's mixing plants have automatic dosing of raw materials so that employees have virtually no contact with raw materials.

## 2.8 Product processing/Installation

Adhesive or undercoat plaster with organic binders is almost exclusively applied manually. After the product has been applied to the intended surface, it is levelled using a suitable tool and textured if necessary.

Specific instructions for processing and other handling of this product are described in detail in the respective technical data sheet. The regulations of the trade associations and the product safety data sheets apply.

Direct contact with eyes and skin must be avoided by taking personal protective measures.

The compound must not enter the sewage system, surface water or groundwater. The cleaning water from the appliances should be collected in accordance with the instructions in the technical data sheets and disposed of in a suitable cleaning system.

Due to the value of these products, the residual material is kept and processed at the next building site.

## 2.9 Packaging

Packaging such as film and paper is collected separately and directed to recycling. The plastic containers can be collected by authorised disposal companies and sent for recycling.

The reusable wooden pallets are taken back by the manufacturers and reused or thermally recycled in return for a refund in the deposit system.

The composition of the packaging (18-litre plastic bucket) per declared unit is as follows:

- Polypropylene: 0.001 kg
- Polyethylene: 0.008 kg
- Steel: 0.001 kg.

## 2.10 Condition of use

After drying and during the use phase, the adhesive or undercoat plaster with organic binder forms a firm, elastic layer with good adhesion.

## 2.11 Environment and health during use

Film-forming agents (solvents) are released into the atmosphere during processing and drying of the plaster compound. After the plaster compound has been used as an adhesive or reinforcement as part of a construction system, this layer has no further contact with the atmosphere and therefore no further environmental impact is to be expected.

## 2.12 Reference service life

The adhesive or reinforcement layer has no contact with the atmosphere and is therefore not subject to the effects of weathering. The durability is therefore very high and is primarily linked to the durability of the entire construction system. The main application of adhesives and plasters with organic binders is in external thermal insulation composite systems. The loaded outer layers are replaced after approx. 50 years, depending on the location, construction, and material quality. With appropriate care of the system connections and by painting over with facade paint, they can reach the service life of the structures (approx. 100 years). The renovation intervals for repainting are generally 15 to 25 years.

## 2.13 Extraordinary effects



## Fire

The fire behaviour of the adhesive and undercoat plaster with organic binder is determined and classified in accordance with *EN 13501-1*. The classification only applies to the product when used as a coating for non-combustible substrates made of plasterboard and non-combustible substrates of Euroclasses A1 or A2 s1, d0 with a gross density of at least 525 kg/m<sup>3</sup>.

### Fire protection

Name	Value
Building material class	B
Smoke gas development	s1
Burning droplets	d0

## Water

Temporary flooding can cause the adhesive or reinforcement layer to soften. After drying, the original strength and adhesion are regained. Water-soluble components can be washed out. The main components of the products are not hazardous to water or only slightly hazardous to water according to the Ordinance on Installations for Handling Substances Hazardous to Water (AwSV). Therefore, no relevant contribution to environmental damage is to be anticipated from the building in the event of exceptional water impacts.

## Mechanical destruction

Adhesive and undercoat plaster with organic binder adheres firmly to the substrate and is protected by top coats. Mechanical destruction is only possible by destroying the entire component.

### 2.14 Re-use phase

The dried and solidified adhesive and undercoat plaster with organic binder cannot be reused.

### 2.15 Disposal

Adhesive and undercoat plaster with organic binder is firmly bonded to the corresponding component. It is not possible to separate the individual layers.

The dried adhesive or undercoat plaster can be landfilled. However, it is not separated due to the composite, but is landfilled in the composite with the remaining structure. The *waste code* is 170107 or 170904.

### 2.16 Further information

The various product types, along with many other terms, are explained in the *Technical Lexicon* of the VdL's sector group plasters & decorative coatings or in the brochure *Paste-like plasters for facades and interiors* (<https://www.putz.de/publikationen>).

Detailed information on the product can be found in the technical data sheet or safety data sheet of the respective manufacturer.

## 3. LCA: Calculation rules

### 3.1 Declared Unit

The declared unit is the production of 1 kg of adhesive and undercoat plaster with organic binder. The product with the highest environmental impact is used as the representative product for calculating the LCA results.

#### Declared unit and mass reference

Name	Value	Unit
Declared unit	1	kg
Gross density	1100 - 1700	kg/m <sup>3</sup>
Conversion factor to 1 kg	1	-

### 3.2 System boundary

Modules A1, A2, A3, A4, A5, C1, C2, C3, C4 and D are taken into account in the LCA:

- A1 - Production of primary products
- A2 - Transport to the factory
- A3 - Production incl. energy supply, production of packaging, ancillary and operating materials, and waste treatment
- A4 - Transport to the warehouse and building site
- A5 - Installation (disposal of packaging and product residues as well as emissions during installation)
- C1 - Manual removal
- C2 - Transport for disposal (50 km)
- C3 - No expenses
- C4 - Disposal of the product
- D - Credits from the incineration of packaging materials and the recycling of the steel components in the packaging.

This is therefore a Declaration from the cradle to the factory gate with options, modules C1-C4 and module D (A1-A3 + C + D and additional modules A4 and A5).

### 3.3 Estimates and assumptions

Formulations: If no specific *Sphera MLC processes* are available, the individual components of the formulations are estimated according to the manufacturer or literature

references.

Packaging: This study only considers the manufacture of the product packaging (18-litre plastic containers) and its disposal.

### 3.4 Cut-off criteria

No cut-off criteria are applied for the calculation of the LCA. All raw materials sent by the Association for the formulations are taken into account.

Packaging such as film and paper as well as reusable wooden pallets are negligible and therefore not included in the LCA. The plastic container is included in the calculation. The sum of the neglected processes contributes less than 5 % to the impact categories considered.

The manufacture of the machinery, equipment and other infrastructure required to produce the products under review is not included in the LCA.

### 3.5 Background data

*Sphera Life Cycle Assessment for Experts (LCA FE)* software system developed by Sphera GmbH is used to model the life cycle of the declared product. The underlying database is the *Sphera Managed Lifecycle Content (MLC) modelling database*.

### 3.6 Data quality

The data quality can be described as good. The primary data was collected in full, taking into account all relevant flows. The background data was taken from the *Sphera MLC databases*. The databases were last updated in 2023.

### 3.7 Period under review

The formulation data corresponds to the practical mass specifications that were drawn up with the members of the sector group plasters & decorative coatings in the VdL in spring 2024. The production data refers to the year 2023.

### 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: Germany

### 3.9 Allocation

Primary data:

No allocations are used for production. When incinerating the packaging, a multi-input allocation with a credit for electricity and thermal energy is used according to the simple credit method. The credits from packaging disposal are recognised in module D.

Background data:

The data sets used are listed in the background report. The allocation methods in background data (materials and energy),

which originate from the *Sphera MLC 2023 databases*, are documented online at <https://sphera.com/life-cycle-assessment-lca--database/>.

### 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 background data comes from the *Sphera MLC database CUP 2023.2*.

## 4. LCA: Scenarios and additional technical information

### Characteristic product properties of biogenic carbon

#### Information on describing the biogenic carbon content at the plant gate

Name	Value	Unit
Biogenic carbon content in product	0.0015	kg C
Biogenic carbon content in accompanying packaging	-	kg C

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO<sub>2</sub>.

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

#### Transport to the building site (A4)

Two sections are considered for transport to the building site: Transport to the warehouse followed by transport to the building site.

Name	Value	Unit
Litres of fuel to the warehouse	0.00159	l/100km
Transport distance to the warehouse	250	km
Capacity utilisation (including empty runs) to the warehouse	85	%
Litres of fuel to the building site	0,1238	l/100km
Transport distance to the building site	50	km
Capacity utilisation (including empty runs) to the building site	3	%
Gross density of products transported	1100 - 1700	kg/m <sup>3</sup>
Capacity utilisation volume factor	1	-

#### Installation in the building (A5)

Name	Value	Unit
Auxiliary	-	kg
Water consumption	-	m <sup>3</sup>
Other resources	-	kg
Electricity consumption	-	kWh
Other energy carriers	-	MJ
Material loss (water vapour)	0.168	kg
Output substances following waste treatment on site (product residues during installation)	0.01	kg
Dust in the air	-	kg
VOC in the air	0.02	kg
Polypropylene (packaging)	0,001	kg
Polyethylene (packaging)	0,008	kg
Steel (packaging)	0,001	kg

#### Reference service life

Name	Value	Unit
Reference service life	30 - 60	a

#### End of Life (C1-C4)

Name	Value	Unit
Collected separately waste type construction waste	0.802	kg
Collected as mixed construction waste	-	kg
Reuse	-	kg
Recycling	-	kg
Energy recovery	-	kg
Landfilling	0.802	kg

#### Reuse, recovery and recycling potential (D), relevant scenario information

Module D contains the credits from the incineration processes and recycling from A5 (packaging waste).

A waste incineration plant with an R1 value of > 0.6 was assumed.



## 5. LCA: Results

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = 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	X	X

### RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 kg Kleber und Unterputz mit organischem Bindemittel

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO <sub>2</sub> eq	1.06E+00	2.82E-01	2.89E-02	0	2.95E-03	0	1.74E-02	-1.64E-02
GWP-fossil	kg CO <sub>2</sub> eq	1.06E+00	2.8E-01	2.89E-02	0	2.93E-03	0	1.19E-02	-1.63E-02
GWP-biogenic	kg CO <sub>2</sub> eq	5.56E-04	7.96E-04	1.4E-06	0	8.32E-06	0	5.5E-03	-9.93E-05
GWP-luluc	kg CO <sub>2</sub> eq	8.22E-04	1.69E-03	5.09E-07	0	1.77E-05	0	3.75E-05	-2.25E-06
ODP	kg CFC11 eq	5.88E-12	6.99E-14	2.87E-15	0	7.31E-16	0	3.1E-14	-1.67E-13
AP	mol H <sup>+</sup> eq	3.03E-03	3.26E-04	5.45E-06	0	3.49E-06	0	8.55E-05	-1.95E-05
EP-freshwater	kg P eq	3.19E-06	6.68E-07	9.04E-10	0	6.98E-09	0	2.44E-08	-3.87E-08
EP-marine	kg N eq	6.23E-04	1.12E-04	9.74E-07	0	1.24E-06	0	2.21E-05	-6.54E-06
EP-terrestrial	mol N eq	6.73E-03	1.37E-03	2.35E-05	0	1.48E-05	0	2.43E-04	-6.97E-05
POCP	kg NMVOC eq	1.93E-03	2.81E-04	1.63E-02	0	3.06E-06	0	6.67E-05	-1.77E-05
ADPE	kg Sb eq	7.18E-06	2.05E-08	2.56E-11	0	2.14E-10	0	5.59E-10	-1.26E-09
ADPF	MJ	2.05E+01	3.85E+00	6.3E-03	0	4.03E-02	0	1.6E-01	-2.38E-01
WDP	m <sup>3</sup> world eq deprived	5.74E-02	1.49E-03	2.66E-03	0	1.55E-05	0	1.32E-03	-2.2E-04

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 Kleber und Unterputz mit organischem Bindemittel

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	4.37E+00	2.58E-01	1.54E-03	0	2.7E-03	0	2.63E-02	-8.18E-02
PERM	MJ	6E-02	0	0	0	0	0	0	0
PERT	MJ	4.43E+00	2.58E-01	1.54E-03	0	2.7E-03	0	2.63E-02	-8.18E-02
PENRE	MJ	1.79E+01	3.86E+00	4.27E-01	0	4.03E-02	0	1.61E-01	-2.38E-01
PENRM	MJ	2.66E+00	0	-4.21E-01	0	0	0	0	0
PENRT	MJ	2.05E+01	3.86E+00	6.3E-03	0	4.03E-02	0	1.61E-01	-2.38E-01
SM	kg	0	0	0	0	0	0	0	1.2E-03
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m <sup>3</sup>	6.87E-03	2.3E-04	6.24E-05	0	2.4E-06	0	4.05E-05	-3.15E-05

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 Kleber und Unterputz mit organischem Bindemittel

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	1.67E-06	6.5E-12	1.06E-13	0	6.8E-14	0	3.46E-12	-1.34E-11
NHWD	kg	1.36E-01	5.78E-04	1.01E-02	0	6.04E-06	0	8.03E-01	-9.3E-05
RWD	kg	7.29E-04	5.08E-06	1.48E-07	0	5.31E-08	0	1.81E-06	-8.45E-06
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0	0	1.2E-03	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	5.23E-02	0	0	0	0	0
EET	MJ	0	0	1.2E-01	0	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 Kleber und Unterputz mit organischem Bindemittel

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidence	3.27E-08	2.4E-09	4.05E-11	0	2.44E-11	0	1.05E-09	-1.79E-10
IR	kBq U235 eq	1.18E-01	5.44E-04	1.58E-05	0	5.69E-06	0	2.05E-04	-8.92E-04
ETP-fw	CTUe	8.8E+00	2.81E+00	1.57E-02	0	2.94E-02	0	8.69E-02	-3.73E-02
HTP-c	CTUh	5.04E-10	5.61E-11	3.43E-10	0	5.86E-13	0	1.35E-11	-6.22E-12
HTP-nc	CTUh	3.02E-08	2.35E-09	7.45E-10	0	2.46E-11	0	1.42E-09	-6.92E-11
SQP	SQP	3.42E+00	1.37E+00	1.82E-03	0	1.43E-02	0	4.05E-02	-5.72E-02

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

Disclaimer 1 – for the indicator 'Potential Human exposure efficiency relative to U235'. This impact category deals mainly with the eventual impact of low-dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure or radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, radon and from some construction materials is also not measured by this indicator.

Disclaimer 2 – for the indicators 'abiotic depletion potential for non-fossil resources', 'abiotic depletion potential for fossil resources', 'water (user) deprivation potential, deprivation-weighted water consumption', 'potential comparative toxic unit for ecosystems', 'potential comparative toxic unit for humans – cancerogenic', 'Potential comparative toxic unit for humans - not cancerogenic', 'potential soil quality index'. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high as there is limited experience with the indicator.

## 6. LCA: Interpretation

### Production (A1-A3)

As shown in the figure, the main part of the environmental impact for all impact categories comes from the product phase. The loads in this phase are mainly caused by the upstream chains of the raw materials (raw materials within modules A1A3 with a share of > 60%).

An exception to this statement is the POCP impact category. The environmental impacts caused by raw materials (A1) are in the region of 80% in most impact categories. The environmental impact caused by the use of resources and energy in A3 is between 1% and 10%. Transport (module A2) is rather unimportant within the impact categories.

### Transport to the building site (A4)

Due to the assumed distribution chain of the declared product (factory - warehouse - building site with a transport utilisation of 3% from the warehouse to the building site), the transport of the products to the building site is very important for EP and moderately important for GWP and ADPF. The impacts range from 1% to 20% in various categories.

### Installation (A5)

Module A5 takes into account the emissions of the solvents contained in the product as well as the treatment of the packaging and the product residue remaining in the bucket. The environmental impacts in this module play a rather subordinate role in the LCA results. The exception is the POCP category (formation potential for tropospheric ozone). Here, the emissions of the film-forming agent ethylene glycol butyl ether during installation lead to module A5 dominating the POCP impact category with a share of 88%.

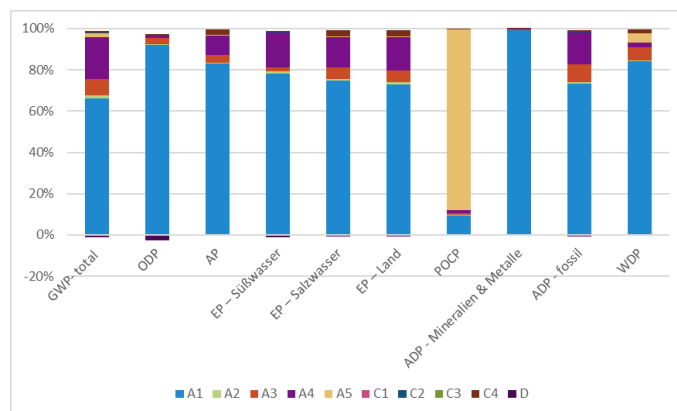
### Disposal stage (C1-C4)

Disposal of the declared product plays a negligible role for all

impact categories.

### Credits (D)

Module D contains the credits of energy or secondary material production from the disposal of the packaging buckets (i.e. thermal utilisation and recovery of steel).



**Figure:** Influence of life cycle phases on the environmental impact of adhesives and plasters with organic binders.

GWP-total	GWP total
ODP	ODP
AP	AP
EP-Süßwasser	EP fresh water
EP-Salzwasser	EP marine water
EP-Land	EP land
POCP	POCP
ADP - Mineralien & Metalle	ADP - minerals & metals
ADP-fossil	ADP fossil
WDP	WDP

## 7. Requisite evidence

### VOC evidence

Special tests and verifications have not been carried out or provided as part of the preparation of this Environmental Product Declaration.

If the products are used in an area of application (e.g. habitable rooms) in which testing / evidence of VOC emission is required, the evidence should always be submitted by the manufacturers.





## Leaching

There are currently no European or national assessment criteria or emission scenarios for a sprinklered components scenario.

A technical test verification analogous to the indoor area (AgBB scheme) is therefore not possible.

## 8. References

### Standards

#### EN 1062-3

DIN EN 1062-3:2004, Paints and varnishes – Coating materials and coating systems for exterior masonry and concrete – Part 3: Determination of liquid water permeability; German version EN 1062-3:2008

#### EN 13501-1

DIN EN 13501-1:2010-01, Fire classification of construction products and building elements – Part 1: Classification using data from reaction to fire tests; German version EN 13501-1:2007+A1:2009

#### EN 13914-1

DIN EN 13914-1:2016-09, Design, preparation and application of external rendering and internal plastering – Part 1: External rendering; German version EN 13914-1:2016

#### ISO 14025

EN ISO 14025:2011, Environmental labels and declarations – Type III environmental declarations – Principles and procedures

#### EN 15804

EN 15804:2012+A2:2019+AC:2021, Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products

#### EN 15824

DIN EN 15824:2017-09, Specifications for external renders and internal plasters based on organic binders; German version EN 15824:2017

#### ISO 2811

DIN EN ISO 2811: Paints and varnishes – Determination of density – Part 1: Pycnometer method (ISO 2811-1:2016); German version EN ISO 2811-1:2016; Determination of density – Part 2: Immersed body (plummet) method (ISO 2811-2:2011); German version EN ISO 2811-2:2011; Paints and varnishes – Determination of density – Part 3: Oscillation method (ISO 2811-3:2011); German version EN ISO 2811-3:2011

#### ISO 7783

DIN EN ISO 7783:2011-11, Paints and varnishes – Determination of water-vapour transmission rate – Cup method (ISO 7783:2018); German version EN ISO 7783:2019

### Further references

#### Waste code

Ordinance on the European Waste Catalogue (AVV), 2001-12

#### AgBB

Committee for Health Evaluation of Construction Products, 2024-09

#### AwSV

Ordinance on installations for handling substances hazardous

## Toxicity of fire gases

The fire gases from organic products contain hazardous substances, but no particularly dangerous emissions. Testing the toxicity of fire gases is particularly useful in the system structure of the products and is not carried out for individual coatings for this reason, as the fire gases are significantly influenced by the type of substrate.

to water, 2017-04

#### BetrSichV

Ordinance on industrial safety and health; Ordinance on Safety and Health Protection in the Provision of Work Equipment and its Use at Work, on Safety in the Operation of Installations Requiring Monitoring and on the Organisation of Occupational Health and Safety, 2015-02

#### Construction Products Regulation

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, 2011-03

#### Biocidal Products Regulation

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, 2012-05

#### ECHA Candidate List

European Chemicals Agency (ECHA): List of substances of very high concern for authorisation, Helsinki: European Chemicals Agency, 21 January 2025.  
<https://echa.europa.eu/de/candidate-list-table>  
<https://echa.europa.eu/de/candidate-list-table>

#### Technical Lexicon

Fachgruppe Putz & Dekor (sector group plasters & decorative coatings) in the Verband der deutschen Lack- und Druckfarbenindustrie e.V. (Association of the German Paint and Printing Ink Industry): Technical lexicon for plasters and coatings, Frankfurt: Verband der deutschen Lack- und Druckfarbenindustrie e.V., 2019;  
<https://www.putz.de/fachlexikon/alphabetisch>

#### IBU 2021

Institut Bauen und Umwelt e.V.: General instructions for the EPD programme of Institut Bauen und Umwelt e.V., Version 2.0, Berlin: Institut Bauen und Umwelt e.V., 2021  
<http://www.ibu-epd.com>

#### PCR, Part A

Product category rules for building-related products and services. Part A: Calculation rules for the Life Cycle Assessment and requirements for the project report, Berlin: Institut Bauen und Umwelt e.V. (ed.), Version 1.3, 31.08.2022 ([www.ibu-epd.com](http://www.ibu-epd.com))

#### PCR: Coatings with organic binders

Product category rules for building-related products and services. Part B: Requirements for the EPD for coatings with organic binders, Institut Bauen und Umwelt e.V., [www.ibu-epd.com](http://www.ibu-epd.com), Version 7, 24 July 2023

#### REACH Regulation

Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals



Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No. 793/93 and Commission Regulation (EC) No. 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EEC and 2000/21/EEC, 2006-12

**Sphera LCA software and database**

Sphera LCA For Experts (formerly GaBi Software System) with the associated databases Managed LCA Content MLC (formerly GaBi databases), Sphera Solutions GmbH. CUP version: 2023.2. University of Stuttgart, Leinfelden-Echterdingen, MLC data documentation at <https://spha.com/product-sustainability-gabi-data-search> (March 2024)

**TRGS 509**

Storage of liquid and solid hazardous substances in stationary

containers and filling and emptying points for transportable containers, 2017-04

**TRGS 510**

Storage of hazardous substances in transportable containers, 2013-01

In my capacity as a public translator for the English language, duly registered, commissioned and sworn by the President of the Landgericht (Regional Court) Saarbrücken, I hereby certify the foregoing to be a true and complete translation of the copy which has been submitted to me. Marius Schütz, 66636 Tholey, 25 July 2025



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