

ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A2

Owner of the Declaration	fischerwerke GmbH & Co. KG
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-DBC-FIW-20230413-IBF1-EN
Issue date	20.11.2023
Valid to	07.06.2027

FFB-ES Plus fischerwerke GmbH & Co. KG

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1. General Information

fischerwerke GmbH & Co. KG

Programme holder

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

Declaration number

EPD-DBC-FIW-20230413-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

20.11.2023

Valid to

07.06.2027



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



Florian Pronold
 (Managing Director Institut Bauen und Umwelt e.V.)

FFB-ES Plus

Owner of the declaration

fischerwerke GmbH & Co. KG
 Klaus-Fischer-Straße 1
 72178 Waldachtal
 Germany

Declared product / declared unit

1 kg / 1 kg; density 1,52 - 1,62 g/cm³

Scope:

This is a manufacturer-individualised EPD based on model declaration "Dispersion-based products, group 1" (EPD-DBC-20220146-IBF1-EN) from Deutsche Bauchemie e.V. in which the product exhibiting the highest environmental impact in a particular group was selected from the group to calculate the LCA.

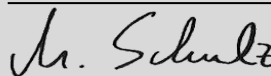
This verified EPD entitles the holder to bear the symbol of the Institut Bauen und Umwelt e.V. It exclusively applies to products produced in Europe and applies to a period of five years from the date of issue. This EPD may be used by members of DBC, EFCC, FEICA and IVK and their members provided. It has been proven that the respective product can be represented by this EPD.

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

fischer FFB-ES Plus is a one-part water-based acrylic spray which has been designed to provide smoke and fire protection on horizontal construction joints, vertical penetrations and perimeter joints. It is formulated to be halogen and solvent free.

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 of the product on the market in the European Union European Free Trade Association (EU/EFTA) (with the exception of Switzerland) *Regulation (EU) No. 305/2011 (CPR)* applies.

Hence, the product is CE-marked and requires a declaration of performance based on the performance assessed in the *European Technical Approvals ETA-23/0164* and *ETA-23/0166*.

Furthermore, this product is certified by UL: Representative samples of this product have been evaluated by UL against EN-, UL- and ASTM standards. As a result, the production is subject to regular audits and the product bears the UL-US and UL-EU marks and is UL listed at UL product IQ, UL's global, online product directory.

For the application and use of the products the respective national provisions apply.

2.2 Application

fischer FFB-ES Plus is a one-part water-based acrylic spray which has been designed to provide smoke and fire protection on horizontal construction joints, vertical penetrations and perimeter joints. It is installed in combination with a stonewool backing.

fischer FFB-ES Plus is supplied in liquid form contained within 19 l plastic buckets. The material is airless sprayed or applied with a trowel.

2.3 Technical Data

The density of the products is between 1,52 and 1,62 g/cm³, other relevant technical data can be found in the manufacturer's technical documentation.

Constructional data

Name	Value	Unit
Density (mean value) EN ISO 1183-1	1,57	g/ml

Additional technical data are not relevant for FFB-ES Plus.

Performance data of the product in accordance with the declaration of performance with respect to its essential characteristics according to *ETA-23/0164* and *ETA-23/0166*.

2.4 Delivery status

Sold in plastic buckets of 19 l.

A plastic container was modelled for the Life Cycle Assessment.

2.5 Base materials/Ancillary materials

- Synthetic polymer dispersion (solids portion): 10 - 25
- Mineral fillers: 50 - 75
- Water: 5 - 15
- Auxiliaries: 5 - 10
- Thickening agents: < 3
- Dispersing agents/Emulsifying agents: < 2
- Other: 0 - 2

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

This product contains substances listed in the *candidate list* (date: 06.07.2023) exceeding 0.1 percentage by mass: no

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: no

Biocide products were added to this construction product: yes

This construction product contains biocides for in-can preservation. The product contains reaction mass of 5-chloro-2-methyl-2H-isothiazol-3-one and 2-methyl-2H-isothiazol-3-one (3:1) and 1,2-benzisothiazol-3(2H)-one as active substances. Further information is listed in the safety data sheet of this product.

2.6 Manufacture

All raw materials are sourced in Europe. The transport is exclusively by truck. The product is mixed discontinuously in batch mode and filled into the delivery containers. Process control technology is used to weigh and mix solid and liquid raw materials according to the recipe. Documentation of the production process is also done automatically by the process control system.

The manufacturing plant of FiAM Plus, fischerwerke GmbH & Co. KG, Otto-Hahn-Str. 15, 79211 Denzlingen, Germany, is certified according to *ISO 14001* which defines international standards for sustainable environmental management.

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

The sealant is gunned or trowelled into the aperture in or between the separating element/elements to a specified depth using various backing materials. Precautions for safe handling and storage (e.g. personal protective measures, conditions for safe storage) must be observed in accordance with the information on the safety data sheet.

The applied film thickness and width depends on the application. The specifications from the certification documents must be adhered to.

2.9 Packaging

A detailed description of packaging is provided in section 2.4. Empty buckets can be recycled. The product can be disposed with household waste.

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

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

2.12 Reference service life

The provisions made in the European Technical Assessment are based on an assumed working life of FFB-ES Plus of 25

years, provided that the conditions laid down in the product datasheet for the packaging / transport / storage / installation / use / repair are met. The indications given on the working life cannot be interpreted as a guarantee given by the producer or the Technical Assessment Body, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works. Description of the influences on the ageing of the product when applied in accordance with the rules of technology.

2.13 Extraordinary effects

Fire

The FFB-ES Plus (at cured state) complies with the requirements of the *DIN EN 13501-1* standard for fire class D-s1,d0.

Additionally, the product is tested according to *ASTM E84 / UL723--11* as per International Building code 2021, section 803.1.2: Flame spread index class A, Smoke development index: class A.

The product's resistance to fire is detailed in the certification documents.

Fire protection

Name	Value
EN 13501-1	
Building material class	D
Smoke gas development	s1
Burning droplets	d0
ASTM E84	
Flame spread index class	A
Smoke development index class	A

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 product can be disposed with normal household waste. EAK Code: *20 00 00 MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS*

or

08 04 10 waste adhesives and sealants other than those mentioned in 08 04 09

2.16 Further information

More information is available on www.fischer-international.com. 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 1; applied into the building with a density of 1,000 - 1,5000 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

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. *GaBi* database SP40 2020 was used as background data base.

4. LCA: Scenarios and additional technical information

Characteristic product properties of 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.

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO₂

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.

End of life (C1-C3)

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

5. LCA: Results

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 1

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	D
GWP-total	kg CO ₂ eq	1.32E+00	5.11E-02	1.73E-01	2.79E-04	1.24E-02	9.45E-01	-3.98E-01
GWP-fossil	kg CO ₂ eq	1.36E+00	5.06E-02	8.81E-02	2.66E-04	1.18E-02	4.29E-01	-3.97E-01
GWP-biogenic	kg CO ₂ eq	-5.05E-02	1.48E-04	8.53E-02	1.24E-05	5.42E-04	5.15E-01	-8.96E-04
GWP-luluc	kg CO ₂ eq	4.52E-04	4.1E-04	6.04E-06	6.39E-09	2.79E-07	3.5E-05	-2.51E-04
ODP	kg CFC11 eq	3E-14	6.08E-18	3.18E-16	2.84E-20	1.24E-18	3.02E-16	-3.72E-15
AP	mol H ⁺ eq	4.9E-03	1.52E-04	7.29E-05	3.6E-06	3.73E-05	5.25E-04	-5.26E-04
EP-freshwater	kg P eq	2.65E-05	1.54E-07	2.68E-07	5.75E-11	2.51E-09	1.04E-07	-4.62E-07
EP-marine	kg N eq	1.03E-03	6.75E-05	1.75E-05	1.63E-06	1.72E-05	2.01E-04	-1.39E-04
EP-terrestrial	mol N eq	1.24E-02	7.56E-04	2.36E-04	1.79E-05	1.89E-04	2.52E-03	-1.49E-03
POCP	kg NMVOC eq	3.63E-03	1.33E-04	5.62E-05	4.91E-06	3.39E-05	5.22E-04	-4.02E-04
ADPE	kg Sb eq	6.5E-07	3.63E-09	6.77E-09	8.06E-12	3.52E-10	4.62E-09	-6.06E-08
ADPF	MJ	3.3E+01	6.73E-01	3.61E-01	3.81E-03	1.66E-01	5.52E-01	-6.7E+00
WDP	m ³ world eq deprived	4.6E-01	4.52E-04	2.1E-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 1

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	D
PERE	MJ	4.66E+00	3.79E-02	6.43E-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	5.25E+00	3.79E-02	5.83E-02	1.2E-05	5.25E-04	9.36E-02	-1.32E+00
PENRE	MJ	1.78E+01	6.74E-01	1.31E+00	3.81E-03	1.67E-01	1.49E+01	-6.7E+00
PENRM	MJ	1.53E+01	0	-9.53E-01	0	0	-1.43E+01	0
PENRT	MJ	3.3E+01	6.74E-01	3.62E-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	1.19E-02	4.38E-05	5.03E-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 1

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	D
HWD	kg	8.74E-09	3.14E-08	1.23E-10	3.7E-13	1.62E-11	1.77E-09	-2.66E-09
NHWD	kg	1.3E-02	1.03E-04	2.35E-03	3.9E-07	1.7E-05	1.36E-01	-2.94E-03
RWD	kg	6.56E-04	8.34E-07	8.31E-06	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 1**

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 are 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

VOC Emissions

fischer FFB-ES Plus was tested according to Indoor Air Comfort GOLD by Eurofins Product Testing A/S in Denmark (test report from 10.02.2023).

Selected values for AgBB are shown in table 7.1, compliance

with different regulations is shown in table 7.2.

Table 7.1: AgBB overview of results (28 days [$\mu\text{g}/\text{m}^3$])

Name	Value	Unit
TVOC (C6 - C16)	9	$\mu\text{g}/\text{m}^3$
Sum SVOC (C16 - C22)	5	$\mu\text{g}/\text{m}^3$
R (dimensionless)	-	-
VOC without NIK	3	$\mu\text{g}/\text{m}^3$
Carcinogenic Substances	1	$\mu\text{g}/\text{m}^3$

Table 7.2: Results of different VOC evaluations

Name	Value	Unit
Indoor Air Comfort GOLD	Pass	-
French VOC regulation	A+	-
ABG/AgBB	Pass	-
Belgian Regulation	Pass	-
Blue Angel (DE-UZ 123)	Pass	-
EMICODE	EC 1 PLUS	-
BREEAM International	Exemplary Level	-
BREEAM NOR	Exemplary Level	-

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

DIN EN ISO 1183-1

DIN EN ISO 1183-1:2019-09, Plastics - Methods for determining the density of non-cellular plastics - Part 1: Immersion method, liquid pycnometer method and titration method

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 1542

EN1542:1999-07, Products and systems for the protection and repair of concrete structures - Test methods - Measurement of bond strength by pull-off

EN ISO 7783-1/-2

EN ISO 7783-1/-2:20-02, Paints and varnishes - Determination of water-vapour transmission properties - Cup method

EN 12004

EN12004:2012, Adhesives for ceramic tiles

EN 12004-2

EN12004-2:2017, Adhesives for ceramic tiles - Part 2: Test methods

DIN EN 13501-1

DIN EN 13501-1:2019-05, Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests

ISO 14001

DIN EN ISO 14001:2015-11, Environmental management systems - Requirements with guidance for use

ISO 14025

DIN EN ISO14025:2011-10, Environmental labels and declarations — Type III environmental declarations — Principles and procedures

EN 15804

EN15804:2019+A2+AC, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products.

EN 16516

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

EN ISO 17025

EN ISO 17025:2018-03 General requirements for the competence of testing and calibration laboratories

EN ISO 17178

EN ISO17178:2020, Adhesives - Adhesives for bonding parquet to subfloor - Test methods and minimum requirements

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UL

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