SENTINEL HOLDING
INSTITUT

SHI PRODUCT PASSPORT

Find products. Certify buildings.

SHI Product Passport No.:

2318-10-1012

FRANKOSIL® 1K Basement

Product group: Sealants - Construction chemicals - Coatings

FRANKEN SYSTEMS

FRANKEN SYSTEMS GmbH
Südstraße 3
97258 Gollhofen

Product qualities:

- SHI Product Assessment 2024
- QNG Qualitätssiegel Nachhaltiges Gebäude
- DGNB NEW CONSTRUCTION 2023
- DGNB NEW CONSTRUCTION 2018
- BNB-BN NEUBAU V2015
- EU taxonomy
- BREEAM DE NEUBAU 2018
- LEED v4.1 (outside US)

CERTIFIED SUSTAINABLE PRODUCT
SHI PRODUCT PASSPORT
SENTINEL HOLDING INSTITUT
www.sentinel-holding.eu

Köttner

Helmut Köttner
Scientific Director
Freiburg, 18 May 2026

SENTINEL HOLDING
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Product:
FRANKOSIL® 1K Basement

SHI Product Passport no.:
2318-10-1012

FRANKEN SYSTEMS

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The SHI Database is the first and only database for construction products whose comprehensive processes and data accuracy are regularly verified by the independent auditing company SGS-TÜV Saar

SGS TÜV SAAR

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SHI Product Assessment 2024

Since 2008, Sentinel Holding Institut GmbH (SHI) has been establishing a unique standard for products that support healthy indoor air. Experts carry out independent product assessments based on clear and transparent criteria. In addition, the independent testing company SGS regularly audits the processes and data accuracy.

Criteria	Product category	Harmful substance limit	Assessment
SHI Product Assessment	Sealants and adhesives	TVOC ≤ 300 µg/m^3 Formaldehyd ≤ 24 µg/m^3	Indoor Air Quality Certified
Valid untill: 09 February 2029			

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QNG - Qualitätssiegel Nachhaltiges Gebäude

The Qualitätssiegel Nachhaltiges Gebäude (Quality Seal for Sustainable Buildings), developed by the German Federal Ministry for Housing, Urban Development and Building (BMWSB), defines requirements for the ecological, socio-cultural, and economic quality of buildings. The Sentinel Holding Institut evaluates construction products in accordance with QNG requirements for certification and awards the QNG ready label. Compliance with the QNG standard is a prerequisite for eligibility for the KfW funding programme. For certain product groups, the QNG currently has no specific requirements defined. Although classified as not assessment-relevant, these products remain suitable for QNG-certified projects.

Criteria	Pos. / product group	Considered substances	QNG assessment
3.1.3 Schadstoffvermeidung in Baumaterialien	4.2 On-site applied adhesives and sealants based on PU	VOC / Emissions / hazardous substances / chlorinated paraffins / polybrominated biphenyls (PBB) / polybrominated diphenyl ethers (PBDE) / SVHC	QNG ready
Verification: Herstellererklärung vom 17.02.2026			

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DGNB New Construction 2023

The DGNB System (German Sustainable Building Council) assesses the sustainability of various types of buildings. It can be applied to both large-scale private and commercial projects as well as smaller residential buildings. The 2023 version sets high standards for ecological, economic, socio-cultural, and functional aspects throughout the entire life cycle of a building.

Criteria	No. / Relevant building components / construction materials / surfaces	Considered substances / aspects	Quality level
ENV 1.2 Local environmental impact, 03.05.2024 (3rd edition)	3 Coatings on predominantly mineral substrates indoors	VOC	Quality level 4
Verification: Sicherheitsdatenblatt vom 27.01.2026			

Criteria	Assessment
SOC1.2 Indoor air quality (*)	May positively contribute to the overall building score
Verification: SHI-Schadstoffgeprüft	

Criteria	Assessment
ENV1.1 Climate action and energy (*)	May positively contribute to the overall building score
Verification: Kreislauffähigkeit nein, Langlebigkeit geprüft 25 Jahre, ETA	

Criteria	Assessment
ECO1.1 Life cycle cost (*)	May positively contribute to the overall building score
Verification: Wartungsarm und durch längere Nutzungsdauer geringere Lebenszykluskosten	

Criteria	Assessment
SOC2.1 Barrier-free design (*)	May positively contribute to the overall building score
Verification: Schwellenlose Türanschlüsse durch Produkteigenschaften, Frankosil und WP200 - ift Rosenheim Prüfnachweis	

Criteria	No. / Relevant building components / construction materials / surfaces	Considered substances / aspects	Quality level
ENV 1.2 Local environmental impact, 29.05.2025 (4th edition)	3 Coatings on predominantly mineral substrates indoors	VOC	Quality level 4
Verification: Sicherheitsdatenblatt vom 27.01.2026			

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FRANKEN SYSTEMS

DGNB New Construction 2018

The DGNB System (German Sustainable Building Council) assesses the sustainability of various types of buildings. It can be applied to both large-scale private and commercial projects as well as smaller residential buildings.

Criteria	No. / Relevant building components / construction materials / surfaces	Considered substances / aspects	Quality level
ENV 1.2 Local environmental impact	3 Coatings on predominantly mineral interior subsurfaces such as concrete	VOC	Quality level 4
Verification: Sicherheitsdatenblatt vom 27.01.2026			

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BNB-BN Neubau V2015

The Bewertungssystem Nachhaltiges Bauen (Assessment System for Sustainable Building) is a tool for evaluating public office and administrative buildings, educational facilities, laboratory buildings, and outdoor areas in Germany. The BNB was developed by the former Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) and is now overseen by the Federal Ministry for Housing, Urban Development and Building (BMWSB).

Criteria	Pos. / product type	Considered substance group	Quality level
1.1.6 Risiken für die lokale Umwelt	11 Epoxy resin, PU, dispersion, and PMMA coatings	VOC / hazardous substances	Quality level 5
Verification: EMICODE EC1+ Zertifikat vom 09.02.2024			

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EU taxonomy

The EU Taxonomy classifies economic activities and products according to their environmental impact. At the product level, the EU regulation defines clear requirements for harmful substances, formaldehyde and volatile organic compounds (VOCs). The Sentinel Holding Institut GmbH labels qualified products that meet this standard.

Criteria	Product type	Considered substances	Assessment
DNSH - Pollution prevention and control		Substances according to Annex C	EU taxonomy compliant
Verification: SHI-Schadstoffgeprüft. Herstellererklärung vom 17.02.2026.			

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BREEAM DE Neubau 2018

BREEAM (Building Research Establishment Environmental Assessment Methodology) is a UK-based building assessment system that evaluates the sustainability of new constructions, refurbishments, and conversions. Developed by the Building Research Establishment (BRE), the system aims to assess and improve the environmental, economic, and social performance of buildings.

Criteria	Product category	Considered substances	Quality level
Hea 02 Indoor Air Quality	Interior adhesives and sealants (including flooring adhesives)	Emissions: Formaldehyde, TVOC, carcinogens	Exemplary quality
Verification: EMICODE EC1+ Zertifikat vom 09.02.2024			

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FRANKEN SYSTEMS

LEED v4.1

LEED (Leadership in Energy and Environmental Design) is an internationally recognised building certification system developed by the U.S. Green Building Council. It is one of the most widely used sustainability standards for buildings worldwide and is particularly applied in internationally oriented projects. LEED assesses buildings holistically across categories such as energy efficiency, resource conservation, material selection, indoor environmental quality and site sustainability. Depending on the number of points achieved, projects are awarded one of the certification levels: LEED Certified, Silver, Gold or Platinum.

Criteria	Product category	Considered substances	Assessment
EQ Credit: Low-Emitting Materials	Kleb- und Dichtstoffe	Emissionen: Formaldehyd, VOC, Krebserregende Stoffe	compliant
Verification: EMICODE EC1+ Zertifikat vom 09.02.2024			

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Product:
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Product labels

In the construction industry, high-quality materials are crucial for a building's indoor air quality and sustainability. Product labels and certificates offer guidance to meet these requirements. However, the evaluation criteria of these labels vary, and it is important to carefully assess them to ensure products align with the specific needs of a construction project.

The EMICODE® label, awarded by the German manufacturers' association "GEV – Gemeinschaft Emissionskontrollierte Verlegewerkstoffe, Klebstoffe und Bauprodukte e. V.", is primarily relevant for flooring installation materials. The EMICODE® EC1^{PLUS} label, as the premium class, sets significantly stricter emission limits than the other label variants.

The IBU ("Institut Bauen und Umwelt e.V.") is an initiative of building product manufacturers committed to sustainability in construction. It serves as the programme operator for Environmental Product Declarations (EPDs) in accordance with the EN 15804 standard. The IBU EPD programme provides comprehensive life cycle assessments and environmental impact data for construction products, supported by independent third-party verification.

This product is SHI Indoor Air Quality certified and recommended by Sentinel Holding Institut. Indoor-air-focused construction, renovation, and operation of buildings is made possible by transparent and verifiable criteria thanks to the Sentinel Holding concept.

Products bearing the Sentinel Holding Institute QNG-ready seal are suitable for projects aiming to achieve the "Qualitätssiegel Nachhaltiges Gebäude" (Quality Seal for Sustainable Buildings). QNG-ready products meet the requirements of QNG Appendix Document 3.1.3, "Avoidance of Harmful Substances in Building Materials." The KfW loan program Climate-Friendly New Construction with QNG may allow for additional funding.

Product:
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Legal notices

(*) These criteria apply to the construction project as a whole. While individual products can positively contribute to the overall building score through proper planning, the evaluation is always conducted at the building level. The information was provided entirely by the manufacturer.

Find our criteria here: https://www.sentinel-holding.eu/de/Themenwelten/Pr%C3%BCfkriterien%20f%C3%BCr%20Produkte

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SGS

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ABSCHNITT 1: Bezeichnung des Stoffs beziehungsweise des Gemischs und des Unternehmens

1.1 Produktidentifikator

Handelsname: FRANKOSIL® 1K Basement

UFI: PR40-00R5-A00R-792D

1.2 Relevante identifizierte Verwendungen des Stoffs oder Gemischs und Verwendungen, von denen abgeraten wird

Allgemeine Verwendung: Verwendung in Dichtmassen
Nur für gewerbliche Anwender

1.3 Einzelheiten zum Lieferanten, der das Sicherheitsdatenblatt bereitstellt

Firmenbezeichnung: FRANKEN SYSTEMS GmbH
Straße/Postfach: Südstraße 3
PLZ, Ort: 97258 Gollhofen
Deutschland
WWW: www.franken-systems.de
E-Mail: info@franken-systems.de
Telefon: +49 9339 98869-0
Telefax: +49 9339 98869-99
Auskunft gebender Bereich:
Telefon: +49 9339 98869-0, Email: info@franken-systems.de

1.4 Notrufnummer

GIZ-Nord, Göttingen, Deutschland,
Telefon: +49 551-19240

ABSCHNITT 2: Mögliche Gefahren

2.1 Einstufung des Stoffs oder Gemischs

Einstufung gemäß EG-Verordnung 1272/2008 (CLP)

Dieses Gemisch ist als nicht gefährlich eingestuft.

2.2 Kennzeichnungselemente

Kennzeichnung (CLP)

Gefahrenhinweise: entfällt

Sicherheitshinweise: entfällt

Besondere Kennzeichnung

EUH208 Enthält Trimethoxyvinylsilan, 4-Morpholincarbaldehyd. Kann allergische Reaktionen hervorrufen.

EUH210 Sicherheitsdatenblatt auf Anfrage erhältlich.

2.3 Sonstige Gefahren

Besondere Rutschgefahr durch auslaufendes/verschüttetes Produkt.

Bei Kontakt mit Feuchtigkeit setzt das Produkt Methanol frei.
Angabe zu Methanol (CAS 67-56-1):
Flüssigkeit und Dampf leicht entzündbar.
Giftig bei Verschlucken, Hautkontakt oder Einatmen. Schädigt die Organe.

Endokrinschädliche Eigenschaften, Ergebnisse der PBT- und vPvB-Beurteilung:

Keine Daten verfügbar

ABSCHNITT 3: Zusammensetzung/Angaben zu Bestandteilen

3.1 Stoffe: nicht anwendbar

3.2 Gemische

Gefährliche Inhaltsstoffe:

Identifikatoren	Bezeichnung Einstufung	Gehalt
REACH 01-2119513215-52-xxxx EG-Nr. 220-449-8 CAS 2768-02-7	Trimethoxyvinylsilan Flam. Liq. 3; H226. Acute Tox. 4; H332. Skin Sens. 1B; H317.	< 5 %
REACH 01-2119987993-12-xxxx EG-Nr. 224-518-3 CAS 4394-85-8	4-Morpholincarbaldehyd Skin Sens. 1B; H317.	< 1 %

Wortlaut der H- und EUH-Gefahrenhinweise: siehe unter Abschnitt 16.

Zusätzliche Hinweise: Bei Kontakt mit Feuchtigkeit setzt das Produkt Methanol frei.

Enthält Aluminiumhydroxid, Kalkstein, Calciumcarbonat, Titandioxid.
Die maximalen Arbeitsplatzgrenzwerte sind, soweit erforderlich, in Abschnitt 8 wiedergegeben.

ABSCHNITT 4: Erste-Hilfe-Maßnahmen

4.1 Beschreibung der Erste-Hilfe-Maßnahmen

Allgemeine Hinweise: Ist ärztlicher Rat erforderlich, Verpackung oder Kennzeichnungsetikett bereithalten. Kontaminierte Kleidung ausziehen und vor erneutem Tragen waschen.

Bei Einatmen: Bei Atembeschwerden die betroffene Person an die frische Luft bringen und in einer Position ruhigstellen, die das Atmen erleichtert. Bei andauernden Beschwerden Arzt aufsuchen.

Nach Hautkontakt: Sofort mit Wasser und Seife abwaschen und gründlich nachspülen. Bei Hautreaktionen Arzt aufsuchen.

Nach Augenkontakt: Sofort bei geöffnetem Lidspalt 10 bis 15 Minuten mit fließendem Wasser spülen. Eventuell vorhandene Kontaktlinsen nach Möglichkeit entfernen. Weiter ausspülen. Anschließend Augenarzt aufsuchen.

Nach Verschlucken: Sofort Mund ausspülen und reichlich Wasser nachtrinken. Niemals darf einem Bewusstlosen etwas über den Mund verabreicht werden. Kein Erbrechen herbeiführen. Arzt hinzuziehen.

4.2 Wichtigste akute und verzögert auftretende Symptome und Wirkungen

Kann bei bereits sensibilisierten Personen allergische Reaktionen auslösen.
Gefährliche Eigenschaften sind nicht auszuschließen.

4.3 Hinweise auf ärztliche Soforthilfe oder Spezialbehandlung

Symptomatische Behandlung.

ABSCHNITT 5: Maßnahmen zur Brandbekämpfung

5.1 Löschmittel

Geeignete Löschmittel: Wassersprühstrahl, alkoholbeständiger Schaum, Trockenlöschpulver, Kohlendioxid.

Aus Sicherheitsgründen ungeeignete Löschmittel:
Wasservollstrahl

5.2 Besondere vom Stoff oder Gemisch ausgehende Gefahren

Brennbar. Im Brandfall können gefährliche Brandgase und Dämpfe entstehen.
Ferner können entstehen: Metalloxidrauch, Calciumverbindungen, Siliziumoxide, Stickoxide (NOx), Kohlenmonoxid und Kohlendioxid.

5.3 Hinweise für die Brandbekämpfung

Besondere Schutzausrüstung bei der Brandbekämpfung:
Umgebungsluftunabhängiges Atemschutzgerät und Feuerschutzkleidung tragen.

Zusätzliche Hinweise: Gefährdete Behälter mit Sprühwasser kühlen.
Löschwasser nicht in Kanalisation, Erdreich oder Gewässer gelangen lassen.
Brandrückstände und kontaminiertes Löschwasser müssen entsprechend den örtlichen behördlichen Vorschriften entsorgt werden.

ABSCHNITT 6: Maßnahmen bei unbeabsichtigter Freisetzung

6.1 Personenbezogene Vorsichtsmaßnahmen, Schutzausrüstungen und in Notfällen anzuwendende Verfahren

Einatmen von Nebel/Dampf/Aerosol vermeiden. Substanzkontakt vermeiden.
Wenn möglich, Undichtigkeit beseitigen. Für ausreichende Lüftung sorgen.
Geeignete Schutzausrüstung tragen. Ungeschützte Personen fernhalten.
Kontaminierte Kleidung ausziehen und vor erneutem Tragen waschen.

6.2 Umweltschutzmaßnahmen

Nicht in das Grundwasser, in Gewässer oder in die Kanalisation gelangen lassen.
Gegebenenfalls zuständige Behörden benachrichtigen.

6.3 Methoden und Material für Rückhaltung und Reinigung

Mit flüssigkeitsbindendem Material (Sand, Kieselgur, Säurebinder, Universalbinder) aufnehmen und anschließend in geschlossenem Behälter der Entsorgung zuführen.
Verschüttetes Produkt zur Wiederverwendung nie in den Originalbehälter geben.

Zusätzliche Hinweise: Besondere Rutschgefahr durch auslaufendes/verschüttetes Produkt.

6.4 Verweis auf andere Abschnitte

Siehe ergänzend Abschnitt 8 und 13.

ABSCHNITT 7: Handhabung und Lagerung

7.1 Schutzmaßnahmen zur sicheren Handhabung

Hinweise zum sicheren Umgang:

Einatmen von Nebel/Dampf/Aerosol vermeiden.
Für gute Be- und Entlüftung von Lager und Arbeitsplatz sorgen.
Geeignete Schutzausrüstung tragen.
Bei Gebrauch nicht essen, trinken oder rauchen. Nach Gebrauch Hände gründlich waschen.
Kontaminierte Kleidung ausziehen und vor erneutem Tragen waschen. Berührung mit den Augen und der Haut vermeiden.
Augenspülflasche oder Augendusche im Arbeitsraum bereitstellen.

Hinweise zum Brand- und Explosionsschutz:

Vor Hitze schützen.

7.2 Bedingungen zur sicheren Lagerung unter Berücksichtigung von Unverträglichkeiten

Anforderungen an Lagerräume und Behälter:

Behälter dicht geschlossen an einem gut gelüfteten Ort aufbewahren.
Behälter trocken halten. Nur im Originalbehälter aufbewahren.
Vor Hitze und direkter Sonneneinstrahlung schützen.
Behälter aufrecht lagern.

Zusammenlagerungshinweise:

Nicht zusammen mit starken Oxidationsmitteln, Basen oder Säuren lagern.
Von Nahrungsmitteln, Getränken und Futtermitteln fernhalten.

Lagerklasse: 10 = Brennbare Flüssigkeiten, die keiner der vorgenannten LGK zuzuordnen sind

7.3 Spezifische Endanwendungen

Es liegen keine Informationen vor.

ABSCHNITT 8: Begrenzung und Überwachung der Exposition/Persönliche Schutzausrüstungen

8.1 Zu überwachende Parameter

Arbeitsplatzgrenzwerte:

CAS-Nr.	Bezeichnung	Typ	Grenzwert
13463-67-7	Titandioxid	Deutschland: DFG Kurzzeit	2,4 mg/m³ (alveolengängige Fraktion)
		Deutschland: DFG Langzeit	0,3 mg/m³ (alveolengängige Fraktion)
67-56-1	Methanol	Deutschland: TRGS 900 Kurzzeit	260 mg/m³; 200 ppm (kann über die Haut aufgenommen werden)
		Deutschland: TRGS 900 Langzeit	130 mg/m³; 100 ppm (kann über die Haut aufgenommen werden)
		Europa: IOELV: TWA	260 mg/m³; 200 ppm (kann über die Haut aufgenommen werden)

Biologische Grenzwerte:

CAS-Nr.	Bezeichnung	Typ	Grenzwert	Parameter	Probenahme
67-56-1	Methanol	Deutschland: TRGS 903, Urin	15 mg/L	Methanol	Expositionsende bzw. Schichtende

Zusätzliche Hinweise: Bei Kontakt mit Feuchtigkeit setzt das Produkt Methanol frei.

8.2 Begrenzung und Überwachung der Exposition

Innenanwendung: Für gute Belüftung bzw. Abzug sorgen oder mit völlig geschlossenen Apparaturen arbeiten.
Außenanwendung: Für gute Belüftung sorgen.

Persönliche Schutzausrüstung

Begrenzung und Überwachung der Exposition am Arbeitsplatz

Atemschutz: Bei Überschreitung der Arbeitsplatzgrenzwerte (AGW) ist ein Atemschutzgerät zu tragen. Die Atemschutzfilterklasse ist unbedingt der maximalen Schadstoffkonzentration (Gas/ Dampf/ Aerosol/ Partikel) anzupassen, die beim Umgang mit dem Produkt entstehen kann.

Handschutz: Schutzhandschuhe gemäß DIN EN ISO 374-1.
Die Angaben des Herstellers der Schutzhandschuhe zu Durchlässigkeiten und Durchbruchzeiten sind zu beachten.

Augenschutz: Dicht schließende Schutzbrille gemäß DIN EN ISO 16321-1.

Körperschutz: Bei der Arbeit geeignete Schutzkleidung tragen.

Schutz- und Hygienemaßnahmen:
Einatmen von Nebel/Dampf/Aerosol vermeiden.
Kontaminierte Kleidung ausziehen und vor erneutem Tragen waschen. Berührung mit den Augen und der Haut vermeiden. Bei Gebrauch nicht essen, trinken oder rauchen. Nach Gebrauch Hände gründlich waschen.
Augenspülflasche oder Augendusche im Arbeitsraum bereitstellen.

Begrenzung und Überwachung der Umweltexposition

Siehe "6.2 Umweltschutzmaßnahmen".

ABSCHNITT 9: Physikalische und chemische Eigenschaften

9.1 Angaben zu den grundlegenden physikalischen und chemischen Eigenschaften

Aggregatzustand bei 20 °C und 101,3 kPa	flüssig
Farbe:	siehe Produktbeschreibung
Geruch:	charakteristisch
Schmelzpunkt/Gefrierpunkt:	Keine Daten verfügbar
Siedepunkt:	Keine Daten verfügbar
Entzündbarkeit:	Keine Daten verfügbar
Untere und obere Explosionsgrenze:	Keine Daten verfügbar
Flammpunkt:	> 100 °C
Zündtemperatur:	Keine Daten verfügbar
Zersetzungstemperatur:	Keine Daten verfügbar
pH-Wert:	Keine Daten verfügbar
Kinematische Viskosität:	Keine Daten verfügbar
Dynamische Viskosität:	bei 25 °C: ca. 18000,00 mPas

Löslichkeit:	Keine Daten verfügbar
Verteilungskoeffizient n-Oktanol/Wasser (log-Wert):	Keine Daten verfügbar
Dampfdruck:	Keine Daten verfügbar
Dichte:	bei 20 °C: 1,35 g/mL
Relative Dampfdichte:	Keine Daten verfügbar
Partikeleigenschaften:	Nicht anwendbar

9.2 Sonstige Angaben

Explosive Eigenschaften:	Keine Daten verfügbar
Oxidierende Eigenschaften:	Keine Daten verfügbar
Selbstentzündungstemperatur:	Keine Daten verfügbar

ABSCHNITT 10: Stabilität und Reaktivität

10.1 Reaktivität

Bei Kontakt mit Wasser, Säuren und Basen setzt das Produkt Methanol frei.
Methanol: Flüssigkeit und Dampf leicht entzündbar.

10.2 Chemische Stabilität

Stabil unter angegebenen Lagerungsbedingungen.

10.3 Möglichkeit gefährlicher Reaktionen

Bei bestimmungsgemäßer Handhabung und Lagerung treten keine gefährlichen Reaktionen auf.

10.4 Zu vermeidende Bedingungen

Gegen direkte Sonneneinstrahlung schützen.
Von Hitzequellen, Funken und offenen Flammen fernhalten. Vor Luftfeuchtigkeit und Wasser schützen.

10.5 Unverträgliche Materialien

Starke Oxidationsmittel, Säuren, Basen, Wasser.

10.6 Gefährliche Zersetzungsprodukte

Methanol
Dieses Produkt kann in Anwesenheit von Luft bei ca. 150 °C und mehr geringe Mengen an Formaldehyd freisetzen.

Thermische Zersetzung:	Keine Daten verfügbar

ABSCHNITT 11: Toxikologische Angaben

11.1 Angaben zu den Gefahrenklassen im Sinne der Verordnung (EG) Nr. 1272/2008

Toxikologische Wirkungen: Die Aussagen sind von den Eigenschaften der Einzelkomponenten abgeleitet. Für das Produkt als solches liegen keine toxikologischen Daten vor.

Akute Toxizität (oral): Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
ATEmix (berechnet): > 2.000 mg/kg

Akute Toxizität (dermal): Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
ATEmix (berechnet): > 2.000 mg/kg

Akute Toxizität (inhalativ): Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
ATEmix (berechnet): > 50 mg/L/4h (Dampf)

Ätz-/Reizwirkung auf die Haut: Fehlende Daten.

Schwere Augenschädigung/-reizung: Fehlende Daten.

Sensibilisierung der Atemwege: Fehlende Daten.

Sensibilisierung der Haut: Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
Enthält Trimethoxyvinylsilan, 4-Morpholincarbaldehyd. Kann allergische Reaktionen hervorrufen.

Keimzellmutagenität/Genotoxizität: Fehlende Daten.

Karzinogenität: Fehlende Daten.

Reproduktionstoxizität: Fehlende Daten.

Wirkungen auf und über die Muttermilch: Fehlende Daten.

Spezifische Zielorgan-Toxizität (einmalige Exposition): Fehlende Daten.

Spezifische Zielorgan-Toxizität (wiederholte Exposition): Fehlende Daten.

Aspirationsgefahr: Fehlende Daten.

11.2 Angaben über sonstige Gefahren

Endokrinschädliche Eigenschaften:
Keine Daten verfügbar

Sonstige Angaben: Gefährliche Eigenschaften sind nicht auszuschließen.

Bei Kontakt mit Feuchtigkeit setzt das Produkt Methanol frei.
Angabe zu Methanol (CAS 67-56-1):
Giftig bei Verschlucken, Hautkontakt oder Einatmen. Schädigt die Organe.
Angabe zu Trimethoxyvinylsilan (CAS 2768-02-7):
LD50 Ratte, oral: 6.899 - 7.012 mg/kg (OECD 401)
LD50 Kaninchen, dermal: 3.158 mg/kg (OECD 402)
LC50 Ratte, inhalativ: 16,8 mg/L/4h (Dampf, OECD 403)

ABSCHNITT 12: Umweltbezogene Angaben

12.1 Toxizität

Wassergefährdungsklasse:
1 = schwach wassergefährdend

12.2 Persistenz und Abbaubarkeit

Sonstige Hinweise: Keine Daten verfügbar

12.3 Bioakkumulationspotenzial

Verteilungskoeffizient n-Octanol/Wasser:
Keine Daten verfügbar

12.4 Mobilität im Boden

Keine Daten verfügbar

12.5 Ergebnisse der PBT- und vPvB-Beurteilung

Keine Daten verfügbar

12.6 Endokrinschädliche Eigenschaften

Keine Daten verfügbar

12.7 Andere schädliche Wirkungen

Allgemeine Hinweise: Nicht in das Grundwasser, in Gewässer oder in die Kanalisation gelangen lassen.

ABSCHNITT 13: Hinweise zur Entsorgung

13.1 Verfahren der Abfallbehandlung

Produkt

Abfallschlüsselnummer: 08 01 12 = Farb- und Lackabfälle mit Ausnahme derjenigen, die unter 08 01 11 fallen
Empfehlung: Entsorgung gemäß den behördlichen Vorschriften.
Darf nicht zusammen mit Hausmüll entsorgt werden.

Verpackung

Empfehlung: Entsorgung gemäß den behördlichen Vorschriften.
Kontaminierte Verpackungen sind wie der Stoff zu behandeln.

Abschnitt 14. Angaben zum Transport

14.1 UN-Nummer oder ID-Nummer

ADR/RID, IMDG, IATA-DGR:
entfällt

14.2 Ordnungsgemäße UN-Versandbezeichnung

ADR/RID, IMDG, IATA-DGR:
Nicht eingeschränkt

14.3 Transportgefahrenklassen

ADR/RID, IMDG, IATA-DGR:
entfällt

14.4 Verpackungsgruppe

ADR/RID, IMDG, IATA-DGR:
entfällt

14.5 Umweltgefahren

Umweltgefährlich: Stoff/Gemisch ist nach den Kriterien der UN-Modellvorschriften nicht für die Umwelt gefährlich.

Meeresschadstoff: nein

14.6 Besondere Vorsichtsmaßnahmen für den Verwender

Kein Gefahrgut im Sinne dieser Transportvorschriften.

14.7 Massengutbeförderung auf dem Seeweg gemäß IMO-Instrumenten

Keine Daten verfügbar

ABSCHNITT 15: Rechtsvorschriften

15.1 Vorschriften zu Sicherheit, Gesundheits- und Umweltschutz/spezifische Rechtsvorschriften für den Stoff oder das Gemisch

Nationale Vorschriften - Deutschland

Lagerklasse: 10 = Brennbare Flüssigkeiten, die keiner der vorgenannten LGK zuzuordnen sind

Wassergefährdungsklasse: 1 = schwach wassergefährdend

Technische Anleitung Luft: 5.2.5

Hinweise zur Beschäftigungsbeschränkung: Beschäftigungsbeschränkungen für Jugendliche beachten.

Sonstige Vorschriften, Beschränkungen und Verordnungen: Keine Daten verfügbar

Nationale Vorschriften - EG-Mitgliedstaaten

Gehalt an flüchtigen organischen Verbindungen (VOC): < 0,1 Gew.-% / 1 g/L

Kennzeichnung der Verpackung bei einem Inhalt <= 125mL

Gefahrenhinweise:
EUH208 Enthält Trimethoxyvinylsilan, 4-Morpholincarbaldehyd. Kann allergische Reaktionen hervorrufen.
EUH210 Sicherheitsdatenblatt auf Anfrage erhältlich.

Sicherheitshinweise: entfällt

Sonstige Vorschriften, Beschränkungen und Verordnungen: Verwendungsbeschränkung gemäß REACH Anhang XVII Nr.: 40, 69, 75

15.2 Stoffsicherheitsbeurteilung

Für dieses Gemisch ist keine Stoffsicherheitsbeurteilung erforderlich.

ABSCHNITT 16: Sonstige Angaben

Einstufungsverfahren: Gesundheitsgefahren: auf der Basis von Prüfdaten

Wortlaut der H-Sätze unter Abschnitt 2 und 3:
H226 = Flüssigkeit und Dampf entzündbar.
H317 = Kann allergische Hautreaktionen verursachen.
H332 = Gesundheitsschädlich bei Einatmen.
EUH208 = Enthält Trimethoxyvinylsilan, 4-Morpholincarbaldehyd. Kann allergische Reaktionen hervorrufen.
EUH210 = Sicherheitsdatenblatt auf Anfrage erhältlich.

Literatur: BG RCI: TRGS 907 'Verzeichnis sensibilisierender Stoffe und von Tätigkeiten mit sensibilisierenden Stoffen '

Grund der letzten Änderungen:

Änderung in Abschnitt 2: Einstufung, Kennzeichnung
Änderung in Abschnitt 3: Zusammensetzung/Angaben zu Bestandteilen
Allgemeine Überarbeitung

Erstausgabedatum: 21.3.2023

Datenblatt ausstellender Bereich:

siehe Abschnitt 1: Auskunft gebender Bereich

Abkürzungen und Akronyme:

Acute Tox.: Akute Toxizität
ADN: Europäisches Übereinkommen über die internationale Beförderung gefährlicher Güter auf Binnenwasserstraßen
ADR: Europäisches Übereinkommen über die internationale Beförderung gefährlicher Güter auf der Straße
AGW: Arbeitsplatzgrenzwert
AS/NZS: Australische/neuseeländische Norm
ATEmix: Schätzwert der akuten Toxizität des Gemisches
BG RCI: Berufsgenossenschaft Rohstoffe und Chemische Industrie
CAS: Chemical Abstracts Service
CFR: Code of Federal Regulations
CLP: Einstufung, Kennzeichnung und Verpackung
DMEL: Abgeleitete Expositionshöhe mit minimaler Beeinträchtigung
DNEL: Abgeleitete Nicht-Effekt-Konzentration
EG: Europäische Gemeinschaft
EmS: Unfallbekämpfungsmaßnahmen auf Schiffen, die gefährliche Güter befördern
EN: Europäische Norm
EQ: Freigestellte Mengen
EU: Europäische Union
Flam. Liq.: Entzündbare Flüssigkeit
IATA: Verband für den internationalen Lufttransport
IATA-DGR: Verband für den internationalen Lufttransport – Gefahrgutvorschriften
IBC-Code: Internationaler Code für den Bau und die Ausrüstung von Schiffen zur Beförderung gefährlicher Chemikalien als Massengut
IMDG-Code: Gefahrgutvorschriften für den internationalen Seetransport
IMO: Internationale Seeschifffahrts-Organisation
LC50: Median-Letalkonzentration
LD50: Letale Dosis 50%
MAK: Maximale Arbeitsplatz-Konzentration
MARPOL: Internationales Übereinkommen zur Verhütung der Meeresverschmutzung durch Schiffe
OECD: Organisation für wirtschaftliche Zusammenarbeit und Entwicklung
OSHA: Arbeitsschutzadministration, Amerika
PBT: Persistent, bioakkumulierbar und toxisch
PNEC: Abgeschätzte Nicht-Effekt-Konzentration
REACH: Registrierung, Bewertung, Zulassung und Beschränkung chemischer Stoffe
RID: Ordnung für die internationale Eisenbahnbeförderung gefährlicher Güter
Skin Sens.: Sensibilisierung der Haut
TRGS: Technische Regeln für Gefahrstoffe
vPvB: Sehr persistent und sehr bioakkumulierbar

Die Angaben in diesem Datenblatt sind nach bestem Wissen zusammengestellt und entsprechen dem Stand der Kenntnis zum Überarbeitungsdatum. Sie sichern jedoch nicht die Einhaltung bestimmter Eigenschaften im Sinne der Rechtsverbindlichkeit zu.

Technisches Merkblatt

FRANKOSIL® 1K Basement

1-komponentige, lösemittelfreie Abdichtung für die Bauwerksabdichtung

Einsatzgebiete

FRANKOSIL® 1K Basement wird für die streifenweise Abdichtung von Arbeitsfugen und Sollrissquerschnitten in Bauteilen aus WU-Beton eingesetzt.

Merkmale

- Polyurethan-Hybrid
- rissüberbrückend bis 1 mm
- AbP für die Abdichtung von Arbeits- und Sollrissfugen bei Bauwerken aus WU-Beton
- Brandverhalten nach DIN EN 13501-1: Klasse E
- frei von Gefahren- und Sicherheitshinweisen
- feuchtigkeitsreagierend
- lösemittelfrei
- EMICODE EC1 PLUS & QNG-Ready
- alkalibeständig



Eigenschaften*

- Verarbeitungszeit: ca. 1,5 Stunden
- regenfest nach: ca. 1 Stunde
- überarbeitbar / begehbar nach: ca. 12 Stunden
- belastbar nach: ca. 24 Stunden
- überarbeitbar innerhalb von: ca.24 Stunden
- Wasserdampfdiffusionswiderstand: ca. μ 864
- Verarbeitung bei Untergrundtemperatur von -5°C bis +50°C
- Farbton: ca. RAL telegrau 4

*Alle Messungen bei +21 °C und einer relativen Luftfeuchte von 50 %. Durch Witterungseinflüsse wie Wind, Luftfeuchte und Temperatur werden die angegebenen Werte verändert.

Verbrauch

ca. 3,20 kg/m²

Lieferform

- 14 kg im Kunststoffgebinde

Lagerung

Originalgebinde bei +5 °C bis +30 °C trocken lagern.
Direkte Sonnenbestrahlung der Gebinde sollte, auch auf der Baustelle, vermieden werden.
Ab Produktion 12 Monate haltbar.

Verarbeitung

Untergrund
Der Untergrund muss sauber, trocken, griffig und tragfähig sein, genügend Dichtigkeit und Festigkeit aufweisen, frei von Zementschlämpe, Schalölen, Dichtungs- und Nachbehandlungsmittel (Curings), Schmutz, Öl, Fett usw. sein. Eine Untergrundvorbehandlung durch Granulat- oder Kugelstrahlen, Hoch- oder Höchstdruckwasserstrahlen, Fräsen oder oberflächenabtragendes Schleifen (inkl. der jeweiligen notwendigen Nachbehandlung) ist in der Regel zwingend erforderlich. Ablüftzeiten bzw. die Überarbeitbarkeit der einzelnen Lagen sind einzuhalten.

Anwendung
Die gemischte Abdichtung wird mit ca. 1/2 bis 2/3 der geplanten Menge in gleichmäßiger Schichtdicke aufgebracht. In diese noch frische Lage wird das Vlies falten- und hohlraumfrei eingelegt und mit einer trockenen Nylonfellrolle angerollt. Die Vlieszuschnitte müssen mindestens 5 cm untereinander überlappen. Danach wird die restliche Menge der gemischten Abdichtung von ca. 1/2 bis 1/3 auf die Fläche aufgetragen. Das Vlies muss vollständig getränkt sein und an seiner Oberfläche glänzen. Eine matte Oberfläche weist auf einen zu geringen Materialeinsatz oder auf eine höhere Aufnahmefähigkeit des Untergrundes hin.

Mischen
Unmittelbar vor Verarbeitung gut aufrühren.

Werkzeuge und Hilfsmittel



Sicherheitshinweise

Angaben zur persönlichen Schutzausrüstung entnehmen Sie bitte dem Produkt-Sicherheitsdatenblatt.
GISCODE: RSP20

Allgemeine Hinweise

Zeitangaben verkürzen sich bei höheren und verlängern sich bei niedrigen Umgebungs- und Untergrundtemperaturen. Die verwendeten Verarbeitungswerkzeuge und Geräte sowie unterschiedlichen Baustellenbedingungen haben einen Einfluss auf die angegebenen Verbrauchswerte. Diese können sich somit verändern. Aus dem Untergrund resultierende Unebenheiten können mit dem Produkt nicht ausgeglichen werden.
Das Produkt darf nicht mit systemfremden Stoffen gemischt und verarbeitet werden. Es dürfen keine anderen Materialien, als die von FRANKEN SYSTEMS GmbH angegeben, verwendet werden.
Die aktuelle Ausgabe der DAfStb Richtlinie „Schutz und Instandsetzung von Betonbauteilen“ ist zu beachten.

Verdünnung

Das Verdünnen mit bis zu maximal 3 % mit Systemverdünner ist möglich, s. Grundierungsempfehlung FRANKOSIL® (TL028).
Das Reinigen von Werkzeugen ist mit Systemreiniger möglich, s. Grundierungsempfehlung FRANKOSIL® (TL028).

Sonstiges

Die vorstehenden Informationen und unsere anwendungstechnische Beratung in Wort, Schrift sowie durch Versuche erfolgen nach bestem Wissen. Sie gelten jedoch nur als unverbindliche Hinweise, auch in Bezug auf etwaige Schutzrechte Dritter. Die Beratung befreit Sie nicht von einer eigenen Prüfung unserer aktuellen Beratungshinweise - insbesondere unserer Sicherheitsdatenblätter und technischen Informationen - und unserer Produkte im Hinblick auf ihre Eignung für die beabsichtigten Verfahren und Zwecke. Anwendung, Verwendung und Verarbeitung unserer Produkte und der aufgrund unserer anwendungstechnischen Beratung von Ihnen gewählte Einsatzzweck liegen außerhalb unserer Kontrollmöglichkeiten und sind daher ausschließlich in Ihrem Verantwortungsbereich. Der Verkauf unserer Produkte erfolgt nach Maßgabe unserer jeweils aktuellen Allgemeinen Verkaufs- und Lieferbedingungen. Auf den Produktetiketten befindliche Warnhinweise sind zu berücksichtigen. Es sind die jeweils gültigen Unterlagen in ihrer neuesten Ausgabe zu verwenden.
Bitte prüfen Sie die Aktualität der verwendeten Unterlagen und / oder fordern Sie vor jeder Anwendung ein aktuelles Dokument an.

Technical data sheet

FRANKOSIL® 1K Basement

1-component, solvent-free sealant used for structural waterproofing

Areas of application

FRANKOSIL® 1K Basement is used for waterproofing construction joints and controlled crack cross-sections in components made of impermeable concrete in strips.

Features

- Hybrid polyurethane
- Bridges cracks up to 1 mm wide
- AbP for waterproofing of construction joints and controlled crack joints in structures made of impermeable concrete
- Reaction to fire according to DIN EN 13501-1: Class E
- Free of hazard and safety notices
- Moisture-reactive
- Solvent-free
- EMICODE EC1 PLUS & QNG-Ready
- Alkali-resistant

Properties*

- Processing time: approx. 1.5 hours
- Rainproof after: approx. 1 hour
- Can be recoated / walked on after: approx. 12 hours
- Can take weight after: approx. 24 hours
- Can be recoated within: approx. 24 hours
- Water vapour diffusion resistance: approx. μ 864
- Application at substrate temperature of -5°C to +50°C
- Colour shade: Approx. RAL telegrey 4

*All measurements taken at +21°C and a relative humidity of 50%. Weather conditions such as wind, humidity and temperature will change the stated values.

Consumption

Approx. 3.20 kg/m²

Delivery form

- 14 kg in plastic container

Storage

Store in original container at +5°C to +30°C in a dry place.
Avoid containers coming into contact with direct sunlight, even on the construction site.
Can be stored for 12 months after production.

Processing

Substrate

The substrate must be clean, dry, non-slip and load-bearing, have sufficient impermeability and strength, be free of cement slurry, formwork oils, sealants and after-treatment agents (curings) as well as dirt, oil and grease, etc. Pre-treating the substrate by granulate or shot blasting, high-pressure or ultra-high-pressure water jetting, milling or surface-removing grinding (including the respective necessary after-treatment) is usually mandatory.



The airing times and the recoating ability of the individual layers must be observed.

Application

The mixed sealant is applied with about 1/2 to 2/3 of the planned amount in an even layer thickness. In this still fresh layer, the fleece is inserted without creases and voids and rolled on with a dry nylon fur roller. The fleece cuts must overlap one another by at least 5 cm. Then the remaining amount of approx. 1/2 to 1/3 of the mixed sealant is applied to the surface. The fleece must be completely saturated and have a shiny surface. A matt surface indicates that too little material is used or that the substrate has a higher absorption capacity.

Mixing

Stir well immediately before use.

Tools and equipment



Safety information

Please consult the product safety data sheet for information on personal protective equipment.
GISCODE: RSP20

General information

Times are reduced at higher ambient and substrate temperatures and extended at lower ones. The processing tools and equipment used as well as different construction site conditions play a role when it comes to the stated coverage. This means these are variable. Unevenness resulting from the substrate cannot be levelled out using the product.
The product must not be mixed and processed with other substances not belonging to the system. No materials other

than those specified by FRANKEN SYSTEMS GmbH are permitted to be used.
The current version of the DAfStb guideline “Protection and Repair of Concrete Structures” must be observed.

Thinning

Thinning with up to max. 3% with system thinner is possible, see primer recommendations FRANKOSIL® (TL028).
Tools can be cleaned using the system cleaner, see primer recommendations FRANKOSIL® (TL028).

Miscellaneous

It’s to the best of our knowledge that we’ve provided the above information as well as our technical advice on applications, whether verbal, in writing or by means of tests. However, this information shall only be regarded as non-binding, which also applies to any property rights of third parties. The advice does not release you from examining our current advisory notes yourself (our safety data sheets and technical information in particular) and our products with regard to their suitability for the intended processes and purposes. The application, use and processing of our products as well as the intended use selected by you on the basis of our technical application-specific advice are beyond our control and are therefore exclusively your responsibility. The sale of our products is subject to our current General Terms and Conditions of Sale and Delivery. Warnings on the product labels must be observed. The latest version of the applicable documents shall be used.
Please check that the documents used are up-to-date and/or request an up-to-date document before each application.

ENVIRONMENTAL PRODUCT DECLARATION

as per *ISO 14025* and *EN 15804+A2*

Owner of the Declaration	DBC, EFCC, FEICA, IVK
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-FEI-20220021-IBG1-EN
Issue date	01.06.2022
Valid to	31.05.2027

Products based on polyurethane or silane-modified polymer, group 1

DBC - Deutsche Bauchemie e.V.

EFCC - European Federation for Construction Chemicals

FEICA - Association of the European Adhesive and Sealant Industry

IVK - Industrieverband Klebstoffe e.V.

Institut Bauen und Umwelt e.V.

www.ibu-epd.com | https://epd-online.com

ECO PLATFORM EPD VERIFIED



1. General Information

DBC - Deutsche Bauchemie e.V.
EFCC - European Federation for Construction Chemicals
FEICA - Association of the European Adhesive and Sealant Industry
IVK - Industrieverband Klebstoffe e.V.

Products based on polyurethane or silane-modified polymer, group 1

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

Owner of the declaration
DBC, Mainzer Landstr. 55, D-60329 Frankfurt a.M.
EFCC, 172 Boulevard du Triomphe, B-1160 Brussels
FEICA, Rue Belliard 40, B-1040 Brussels
IVK, Völklingerstr. 4, D-40219 Düsseldorf

Declaration number
EPD-FEI-20220021-IBG1-EN

Declared product / declared unit
1 kg product based on polyurethane or silane-modified polymer; density 1.25 - 1.8 g/cm³

This declaration is based on the product category rules:
Reaction resin products, 07.2014
(PCR checked and approved by the SVR)

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.

Issue date
01.06.2022

Valid to
31.05.2027

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*
☐ internally ☒ externally

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

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

Matthias Schulz
(Independent verifier)

2. Product

2.1 Product description/Product definition

This EPD comprises reactive products based on polyurethane (PU) or silane-modified polymer (SMP) with a volatile organic copound (VOC) content ≤1 % (VOC definition according to *Decopaint Directive*) and a castor oil/-derivatives content ≤ 10%. The one- or two-component reactive PU products are manufactured using polyols and isocyanates. Reactive products based on SMP polymers are usually manufactured as a one-component system from polyols and alkoxysilane in a preliminary stage. The aqueous systems consist of (a) dispersion and are crosslinked by a dispersible isocyanate. The products fulfil manifold, often specific, functions in the construction, furnishing and repair of buildings. The product displaying the highest environmental impacts 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 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

Products based on polyurethane or silane-modified polymer, group 1, are used for the following applications:

Module 1: Adhesives for parquet and floor coverings
Parquet adhesives in accordance with *EN ISO 17178* for wooden and parquet floors and flooring adhesives in accordance with *EN ISO 22636* for floor coverings

Module 2: Reactive products for protecting and repairing concrete structures
Products for increasing the durability of concrete and reinforced concrete structures as well as for new concrete and for maintenance and repair work (requirements 2.1), products for structural bonding of strengthening materials to an existing concrete structure (requirements 2.2) and products for concrete injection for filling cracks, voids and interstices in concrete (requirements 2.3)

Module 3: Liquid-applied roof waterproofing kits
Reactive products for waterproofing roof constructions which are applied on site

Module 4: Reactive products for liquid-applied bridge deck waterproofing kits
Products for liquid-applied waterproofing for use on concrete bridge decks

Module 5: Screed material, floor screeds and decorative floors
Products for screed/synthetic resin screed for use in floor constructions

Module 6: Reactive products as an adhesive for tiles
Tile adhesives for internal and external tile installations on walls, floors and ceilings

Module 7: Adhesives and sealants
Reactive products for use as:
· Structural and repair adhesives
· Surface and joint sealants
Applications in accordance with the manufacturer's technical documentation/declaration of performance

Module 8: Reactive products for watertight covering kits
Products for waterproofing floors and/or walls in wet rooms inside buildings

Module 9: Reactive products for liquid-applied waterproofing
Liquid applied products for waterproofing of buildings

Module 10: Reactive products for waterproofing and/or for pre-treating mineral substrates
Applications in accordance with the manufacturer's technical documentation

Module 11*:* Liquid-applied waterproofing membranes for use beneath ceramic tiling

Module 12: One-component foam (OCF)
One component foam in a can is a one-component, self-expanding, ready to use polyurethane foam used for various construction applications. It consists of a low viscous semi-fluid in a can that leaves the can as a froth and immediately forms a polyurethane foam.
12.1 Window & External Door Sealing & Insulation:
Installing mechanically fixed external windows and doors with an OCF, as part of a system including sealants and tapes
12.2 Door Installation & Fixation:
Fixing interior doors with an OCF
12.3 General Gap Filling:
Filling of regularly and irregularly shaped spaces between at least two surfaces made of typical building materials with a one-component foam (OCF)

Module 13: Sealants for glazing
Two-component reactive sealants are to be used as the second barrier of the structural hermetic seal in insulating glass units.

Module 14: Bonded glazing sealants
One- and two-component reactive sealants are used for the bonding of insulating glass units in the window frame.

2.3 Technical Data

The density of the products is between 1,25 and 1,8 g/cm³, other relevant technical data can be found in the manufacturer's technical documentation.

Module 1: Reactive products as adhesive for parquet and floor coverings
The minimum requirements of *EN ISO 17178* and *EN ISO 22636* must be maintained.

Module 2: Reactive products for protecting and repairing concrete structures
2.1 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 CO_2 (*EN 1062-6*)
- Water vapour permeability (*EN ISO 7783-1/-2*)
- Capillary absorption and permeability to water (*EN 1062-3*)
- Adhesive strength by pull-off test (*EN 1542*)

2.2 Essential characteristics for all intended uses in accordance with *EN 1504-4*, Tables 3.1 and 3.2 (manufacturer's declaration of performance)
2.3 Requirements on essential characteristics for all intended uses in accordance with *EN 1504-5*, Table 3:
- Injectability (*EN 1771*)
- Viscosity (*EN ISO 3219*)

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

Module 3: Liquid-applied roof waterproofing kits
The minimum requirements of *EAD 030350-00-0402* Liquid-applied roof waterproofing kits must be maintained. The essential characteristics are to be specified in accordance with the European Technical Assessment (ETA, specification no.).

Module 4: Reactive products for liquid-applied bridge deck waterproofing kits
The minimum requirements of *ETAG 033* Liquid-applied bridge deck waterproofing kits must be maintained. The essential characteristics are to be specified in accordance with the European Technical Assessment (ETA, specification no.).

Module 5: Screed material, floor screeds and decorative floors
The requirements on essential characteristics according to E*N 13813* 'Screed material and floor screeds – Screed materials – Properties and requirements'/ must be maintained. For synthetic resin screeds, these are:
- Bond strength (*EN 13892-8*)
- Reaction to fire (*EN 13501-1*)
Further essential characteristics in accordance with the manufacturer's technical documentation/declaration of performance

Module 6: Reactive products as an adhesive for tiles
The requirements on essential characteristics according to *EN12004*, must be maintained. These are:
-Tensile adhesion strength after dry storage (*EN 12004-2*)
-Tensile adhesion strength after water immersion (*EN 12004-2*)
-Tensile adhesion strength after heat ageing *(EN 12004-2*)
-Tensile adhesion strength after freeze/thaw cycles (*EN 12004-2*)
-Open time: Tensile strength (*EN 12004-2*)
Further essential characteristics in accordance with the manufacturer's technical documentation

Module 7: Adhesives and sealants
Performance characteristics in accordance with the manufacturer's technical documentation / declaration of performance

Module 8: Reactive products for watertight covering kits
The minimum requirements 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 9*:* Reactive products for liquid-applied waterproofings
The minimum requirements of the test principles regarding the issuing of general building authority test certificates for liquid-applied products for waterproofing of buildings (*PG-FLK*) must be maintained. The characteristics for the proof of usability are to be specified in accordance with the test principles for granting general building authority test certificates for liquid applied polymer products for waterproofing buildings

Module 10: Reactive products for waterproofing and/or for pre-treating mineral substrates

Name	Value	Unit
Density acc. to EN ISO 2811-1	700 - 1800	kg/m³
Shore hardness A acc. to ISO 48-4	>15	
Shore hardness D acc. to ISO 48-4	>5	
Viscosity acc. to ISO 3219-2	<100	Pas

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

Module 11: Liquid-applied waterproofing membranes for use beneath ceramic tiling The minimum requirements on essential characteristics according to *EN 14891* - Liquid applied water-impermeable products for use beneath ceramic tiling - Definitions, specifications and test methods- must be maintained. These are:
- Initial tensile adhesion strength
- Tensile adhesion strength after water contact
- Tensile adhesion strength after heat ageing
- Tensile adhesion strength after freeze-thaw cycles
- Waterproofing
- Crack bridging ability

Module 12: One-Component Foams
Physical data of the one-component foam must be indicated in accordance with the respective product standards; these can include, for example:

12.1 Window & External Door Sealing & Insulation
Tensile Strength E*N 17333-4*, Movement Capability *EN 17333-4*, Curing Pressure *EN 17333-2*, Thermal conductivity *EN 17333-5*, Sound Insulation *EN ISO 717-1*, Post expansion *EN 17333-2*

12.2 Door Installation & Fixation
Shear Strength *EN 17333-4*, Tensile Strength *EN 17333-4*, Compression Strength *EN 17333-4*, Curing pressure *EN 17333-2*

12.3 General Gap Filling
Sagging *EN 17333-3* Other performance characteristics in accordance with the manufacturer's technical documents/declaration of performance.

Module 13: Sealants for glazing
Reactive sealants must comply with *EN 1279-4*
Performance characteristics in accordance with the manufacturer's technical documentation/declaration of performance

Module 14: Bonded glazing sealants
Reactive sealants must comply with *RAL-GZ 716* part 2 and *ift-Guideline VE-08/4*.
Performance characteristics in accordance with the manufacturer's technical documentation/declaration of performance

2.4 Delivery status
Liquid or pasty in containers made of tinplate or plastic packed in separate or combi-containers for the required mixing ratio. Packages containing one kg of product in different types of containers. Sealants in plastic cartridges and foil packs. Typical container sizes contain 10 to 25 kg of material. For major works, vats containing approx. 200 kg or IBCs (intermediate bulk containers) containing 1 tonne or more are also used. The LCA is based on tinplate, plastic and wood packaging.

2.5 Base materials/Ancillary materials
Products based on polyurethane or silane-modified polymer with a VOC content ≤1 % and a castor oil/-

derivatives content ≤10 % usually comprise a reactive polymer and a crosslinking system. The polymer component contains polyether and/or polyester polyols. Crosslinking takes place after installation on site. In the case of two-component systems, this involves the use of pre-polymers and polymers based on typically Methylene diphenyl diisocyanate (MDI), Toluene diisocyanate (TDI), Hexamethylene diisocyanate (HDI) or Isophorone diisocyanate (IPDI). The resin mixing ratio is adjusted according to the stoichiometric requirements. Crosslinking starts directly after the components have been mixed. There are also one-component reactive polymer formulations based on PU or SMP which crosslink in the presence of moisture. They comprise prepolymers based on e.g. MDI, TDI, HDI, IPDI or those with alkoxy-silane groups in the case of SMP formulations. In formulations with aqueous dispersions, dispersible isocyanates are used for crosslinking. The formulations can contain auxiliary materials such as accelerators, catalysts, wetting agents, foam regulators and viscosity regulators for fine-tuning the product features. Typically, the products covered by this EPD contain the following ranges of base materials and auxiliaries:
Polyol component: up to approx. 50 %
Crosslinking component: up to approx. 95 %
SMP component: up to approx. 80 %
Plasticiser: ~ 0-25 %
Additives / Pigments: ~ 0-30 %
Water: ~ 0-60 %
VOC: ≤1 % according to the *Decopaint Directive* (**mandatory**)
Castor oil and derivatives: ≤10 % **(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
The components of the formulation are usually mixed batch-wise and packaged for delivery.

2.7 Environment and health during manufacturing
As a general rule, no other environmental protection measures other than those specified by law are necessary.

2.8 Product processing/Installation
Products based on polyurethane or silane-modified polymer, are processed by trowelling/knife-coating or rolling, pouring, spraying or injection.
Precautions for safe handling and storage (e.g. air exchange, exhaust ventilation, personal protective measures, precautions required in the handling of isocyanates, conditions for safe storage) must be observed in accordance with the information on the safety data sheet.

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, products based on polyurethane or silane-modified polymer are crosslinked and essentially comprise an inert three-dimensional network. They are long-lasting products which protect our buildings in the form of adhesives, coatings or sealants as well as make an essential contribution in retaining their function and long-term value.

2.11 Environment and health during use
Option 1: Products for applications outside indoor areas with permanent stays by people
During use, the reactive products lose their reactive properties and become inert. 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
Cured products based on polyurethane or silane-modified polymer fulfil 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 loads.

2.13 Extraordinary effects

Fire
Even without any special fire safety features, cured products based on polyurethane or silane-modified polymer comply with at least the requirements of *EN 13501-1* standard for fire classes E and Efl. In terms of the volumes applied, they have only a marginal influence on the fire performance characteristics (e.g. smoke gas development) of the building structure in which they have been installed. As crosslinked polyurethane systems do not melt or drip, they do not contribute towards spreading fire.

Water
Cured reactive products based on polyurethane or silane-modified polymer are chemically inert and insoluble in water. They are often used to protect building structures from harmful water ingress or the effects of flooding.

Mechanical destruction
Mechanical destruction of cured reactive products based on polyurethane or silane-modified polymer 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 harmful effects are generally anticipated in landfilling, for example, as a result of de-construction and recycling of building materials with adherent crosslinked products. If the crosslinked products can be removed from construction products without large effort, thermal recovery is a practical recycling variant on account of their energy content. Minor adhesion is not taken into consideration during disposal. It does not interfere with the disposal/recycling of the remaining components/building materials.

2.15 Disposal
Residual material which cannot be used or recycled must be combined at a specified ratio and hardened. Hardened product residue is not special waste. Non-hardened product residue is hazardous waste. Empty, dried containers (free of drops and scraped clean) are directed to the recycling process. Residue must be directed to proper waste disposal taking into consideration the local guidelines. The following waste codes according to the European List of Waste (*2000/532/EC*) can apply:
Hardened product residue:
European Waste Calalogue (EWC) code 080112 (waste paint and varnish with the exception of that mentioned in 08 01 11)
EWC code 080410 (waste adhesives and sealants other than mentioned in 08 04 09)

2.16 Further information
More information is available on the manufacturer's product or safety data sheets and 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 product based on polyurethane or silane-modified polymer, group 1; applied into the building with a density of 1.25 - 1.8 g/cm³ in accordance with the *IBU PCR* part B for reaction resin products.
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.

Declared unit

Name	Value	Unit
Declared unit	1	kg
Gross density	1.25 - 1.8	g/cm³
Conversion factor to 1 kg	-	-

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. This stage considers VOC emissions during the installation phase. The declared product does not contain substances in the formulation that directly emit (as) VOC, but VOCs are generated by a chemical reaction that are occurring during this phase. The end of life for the packaging material considered is described below:
  -Incineration, for materials like plastic and wood.
  -Landfill, for inert material like metals (where used).

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

3.9 Comparability
Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to *EN 15804* and the building context, respectively the product-specific characteristics of performance, are taken into account.

The *GaBi* database SP40 (2020) was used.

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	0	kg C
Biogenic Carbon Content in accompanying packaging	0.016	kg C

Transport to the building site (A4)

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

Assembly (A5)

Name	Value	Unit
Other resources for packaging material	0.1	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	ND	ND	MNR	MNR	MNR	ND	ND	X	X	X	ND	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 kg of product based on polyurethane or silane modified polymer, group 1

Core Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	D
GWP-total	[kg CO_2-Eq.]	4.79E+0	5.27E-2	1.80E-1	2.79E-4	1.24E-2	2.21E+0	-9.50E-1
GWP-fossil	[kg CO_2-Eq.]	4.81E+0	5.22E-2	9.38E-2	2.66E-4	1.18E-2	2.21E+0	-9.47E-1
GWP-biogenic	[kg CO_2-Eq.]	-3.57E-2	1.52E-4	8.62E-2	1.24E-5	5.42E-4	8.82E-5	-2.23E-3
GWP-luluc	[kg CO_2-Eq.]	4.50E-3	4.22E-4	4.84E-5	6.39E-9	2.79E-7	2.08E-5	-6.66E-4
ODP	[kg CFC11-Eq.]	6.76E-9	6.27E-18	6.76E-11	2.84E-20	1.24E-18	2.62E-16	-9.93E-15
AP	[mol H^+-Eq.]	1.02E-2	1.56E-4	1.29E-4	3.60E-6	3.73E-5	1.31E-3	-1.33E-3
EP-freshwater	[kg P-Eq.]	1.93E-5	1.59E-7	1.98E-7	5.75E-11	2.51E-9	4.40E-8	-1.23E-6
EP-marine	[kg N-Eq.]	2.67E-3	6.96E-5	3.50E-5	1.63E-6	1.72E-5	6.31E-4	-3.43E-4
EP-terrestrial	[mol N-Eq.]	2.93E-2	7.80E-4	4.11E-4	1.79E-5	1.89E-4	7.26E-3	-3.68E-3
POCP	[kg NMVOC-Eq.]	9.47E-3	1.38E-4	7.20E-3	4.91E-6	3.39E-5	1.62E-3	-9.87E-4
ADPE	[kg Sb-Eq.]	8.18E-6	3.74E-9	8.22E-8	8.06E-12	3.52E-10	4.65E-9	-1.56E-7
ADPF	[MJ]	1.05E+2	6.94E-1	1.11E+0	3.81E-3	1.66E-1	5.87E-1	-1.61E+1
WDP	[m^3 world-Eq deprived]	1.34E+0	4.66E-4	2.69E-2	5.27E-7	2.30E-5	2.17E-1	-9.86E-2

Caption	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 product based on polyurethane or silane modified polymer, group 1

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	D
PERE	[MJ]	6.67E+0	3.90E-2	6.65E-1	1.20E-5	5.25E-4	8.23E-2	-3.52E+0
PERM	[MJ]	5.85E-1	0.00E+0	-5.85E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PERT	[MJ]	7.26E+0	3.90E-2	7.99E-2	1.20E-5	5.25E-4	8.23E-2	-3.52E+0
PENRE	[MJ]	8.33E+1	6.95E-1	1.63E+0	3.81E-3	1.67E-1	2.21E+1	-1.61E+1
PENRM	[MJ]	2.20E+1	0.00E+0	-5.20E-1	0.00E+0	0.00E+0	-2.15E+1	0.00E+0
PENRT	[MJ]	1.05E+2	6.95E-1	1.11E+0	3.81E-3	1.67E-1	5.87E-1	-1.61E+1
SM	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
RSF	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
NRSF	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
FW	[m^3]	4.03E-2	4.52E-5	7.22E-4	2.16E-8	9.41E-7	5.11E-3	-4.08E-3

Caption	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 product based on polyurethane or silane modified polymer, group 1

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	D
HWD	[kg]	1.12E-5	3.23E-8	1.12E-7	3.70E-13	1.62E-11	3.34E-10	-6.41E-9
NHWD	[kg]	1.66E-1	1.06E-4	4.75E-2	3.90E-7	1.70E-5	1.11E-2	-7.44E-3
RWD	[kg]	2.34E-3	8.60E-7	2.54E-5	4.09E-9	1.79E-7	2.37E-5	-1.20E-3
CRU	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MFR	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MER	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EEE	[MJ]	0.00E+0	0.00E+0	2.12E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EET	[MJ]	0.00E+0	0.00E+0	3.86E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0

Caption	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; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 kg of product based on polyurethane or silane modified polymer, group 1

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	D
PM	[Disease Incidence]	ND	ND	ND	ND	ND	ND	ND
IRP	[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	[-]	ND	ND	ND	ND	ND	ND	ND

Caption	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 substantial contributor in the production phase, in the category of Abiotic depletion potential for nonfossil resources (ADPminerals& metals), is the steel sheet used as a packaging material. Emissions associated with the manufacturing of products also have some influence on the Formation potential of tropospheric ozone (POCP) in the production phase. In all EPDs, CO_2 is the most important contributor to Global Warming Potential (GWP). For the Acidification Potential (AP), NOx and SO_2 contribute the largest share. In some cases, HCl in water also impacts AP due to the use of TiO_2 as a pigment.
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.
The installation phase influences mainly the Photochemical ozone formation indicator, due to the emission of VOC during the operations. These emissions are not directly related to the pre-products in the resins, but they are related to the reaction products between pre-products and air components (water and oxygen).
The end-of-life phases influence climate change indicators, due to the incineration processes occurring in the C3 module, the process used for modelling the thermal treatment process of the resin.

7. Requisite evidence

VOC
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 for 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;
(2) base their test methods on *EN 16516*;
(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;
(4) express the test results as air concentrations in the European Reference Room, as specified in *EN 16516*.

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*.

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:
- TVOC: 1000 µg/m³
- TSVOC: 100 µg/m³
- Each carcinogen: 1 µg/m³
- Formaldehyde: 100 µg/m³
- LCI: different per substance involved
- R value: 1 (meaning that, in total, 100 % of the combined LCI values must not be exceeded).

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.
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/m³	Sum of carcinogens. C1A,CA2 µg/m³	Formaldehyde µg/m³	Acetaldehyde µg/m³	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/m³	TSVOC µg/m³	Each carcinogen C1A,CA2 µg/m³	Formalde-hyde µg/m³	Acetalde-hyde µg/m³	LCI	R value	Specials	Sum of non-LCI & non-identified µg/m³
Belgian regulation	1000	100	1	100	200	Belgian list	1	Toluene 300 µg/m³	-/-
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/m²h	-/-	5 µg/m²h	50 µg/m²h	300	EU LCI list	-/-	Ammonia, odour	-/-

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