

1K-Silikon-Dichtstoff auf Oxim-Basis neutral vernetzend - MEKO-frei

Für Innen & Außen

S 18

Eigenschaften

- ▶ Extrem beständig gegen Dauernassbelastung
- ▶ Beständig gegen Chlor- und Salzwasser
- ▶ Stark fungizid ausgerüstet - Hoher Widerstand gegen Schimmelbefall
- ▶ Sehr gute Haftung auf vielen Untergründen auch ohne Primer (siehe Grundierungstabelle)
- ▶ Nicht korrosiv gegenüber ungeschützten Metalloberflächen
- ▶ Hohe Kerb- und Reißfestigkeit - Widerstandsfähig gegen hohe mechanische Beanspruchungen
- ▶ Sehr gute Witterungs-, Alterungs- und UV-Beständigkeit

Anwendungsgebiete

- ▶ Abdichten von Schwimmbecken und -bädern und elastische Ver fugungen am Beckenkopf

Normen und Prüfungen

- ▶ Entspricht den Anforderungen des Brandverhaltens nach EN 13501: Klasse E
- ▶ Französische VOC-Emissionsklasse A+
- ▶ Für Anwendungen gemäß IVD-Merkblatt Nr. 14+17+31+35 geeignet

Technische Daten

Hautbildungszeit bei 23 °C/50 % rLf [min]	~ 6
Aushärtung in 24 Std. bei 23 °C/50 % rLf [mm]	~ 2 - 3
Verarbeitungstemperatur von/bis [°C]	+ 5 / + 35
Viskosität bei 23 °C	pastös, standfest
Dichte bei 23 °C nach ISO 1183-1 [g/cm³]	~ 1,0
Shore-A-Härte nach ISO 868	~ 20
Zulässige Gesamtverformung [%]	25
Dehnspannungswert bei 100 % nach ISO 37, Typ 3 [N/mm²]	~ 0,3
Reißdehnung nach ISO 37, Typ 3 [%]	~ 700
Zugfestigkeit nach ISO 37, Typ 3 [N/mm²]	~ 1,4
Temperaturbeständigkeit von/bis [°C]	- 40 / + 180
Lagerstabilität bei 23 °C/50 % rLf [Monate]	12 ¹

1) ab Herstellung

Diese Werte sind nicht zur Erstellung von Spezifikationen bestimmt. Bitte wenden Sie sich vor der Erstellung von Spezifikationen an OTTO-CHEMIE.

Vorbehandlung

Die Haftflächen müssen gereinigt und jegliche Verunreinigungen, wie Trennmittel, Konservierungsmittel, Fett, Öl, Staub, Wasser,



alte Kleb-/Dichtstoffe sowie andere die Haftung beeinträchtigende Stoffe entfernt werden. Reinigen von nicht-porösen Untergründen: Reinigung mit OTTO Cleaner T (keine Ablüftezeit erforderlich) und sauberem, flusenfreiem Tuch. Reinigen von porösen Untergründen: Oberflächen mechanisch, z.B. mit einer Stahlbürste oder einer Schleifscheibe, von losen Partikeln säubern.

Die Haftflächen müssen sauber, fettfrei, trocken und tragfähig sein.

Grundierungstabelle

Die Anforderungen an elastische Abdichtungen und Klebungen sind abhängig von den jeweiligen äußeren Einflüssen. Extreme Temperaturschwankungen, Dehn- und Scherkräfte, wiederholter Kontakt mit Wasser etc. stellen hohe Ansprüche an eine Haftverbindung. In solchen Fällen ist bei Empfehlungen (z.B. +/OTTO Primer 1216) die Verwendung des genannten Primers ratsam, um eine möglichst belastbare Verbindung zu erzielen.

Acrylglas/PMMA	T
Aluminium blank	1216
Aluminium eloxiert	1216
Beton	1105 / 1218
Beton (Dauernass- bzw. Unterwasserbereich)	1218
Chrom	1216
Edelstahl	1216
Keramik, glasiert (Dauernass- bzw. Unterwasserbereich)	1218
Keramik, unglasiert (Dauernass- bzw. Unterwasserbereich)	1218
Keramik, glasiert	+ / 1215
Keramik, unglasiert	+ / 1215
Naturstein (Marmor, Granit etc.)	OTTOSEAL® S 70 / S 140
Naturstein (Marmor, Granit etc.) (im Dauernass- bzw. Unterwasserbereich)	OTTOSEAL® S 70 / S 140
Polycarbonat	T
Polyester	1217
PVC-weich / Schwimmbadfolie	1101 / 1217

+ = ohne Grundierung gute Haftung

- = nicht geeignet

T = Test/Vorversuch empfohlen

Besondere Hinweise

Vor dem Einsatz des Produktes hat der Anwender sicherzustellen, dass die Werkstoffe/Materialien in dem Kontaktbereich mit diesem und miteinander verträglich sind und sich nicht schädigen oder verändern (z. B. verfärben). Bei Werkstoffen/Materialien, die in der Folge im Bereich des Produktes verarbeitet werden, hat der Anwender im Vorfeld abzuklären, dass deren Inhaltsstoffe bzw. Ausdünstungen zu keiner Beeinträchtigung oder Veränderung (z. B. Verfärbung) des Produktes führen können.

Gegebenenfalls hat der Anwender Rücksprache mit dem jeweiligen Hersteller der Werkstoffe/Materialien zu nehmen.

Bei der Aushärtung werden allmählich geringe Mengen einer Oximverbindung freigesetzt.

Während der Verarbeitung und Aushärtung für gute Belüftung sorgen.

Die Dichtstoffdicke in den Fugen ist mit OTTOCORD PE-B2 Rundschnur auf maximal 10 mm zu begrenzen. Wenn die Fugentiefe zu gering ist, kann zur Verhinderung einer Dreiflankenhaftung des Dichtstoffes eine PE-Folie im Fugengrund eingelegt werden.

Die Vulkanisationszeit verlängert sich mit zunehmender Schichtstärke des Silikons. Einkomponentige Silikone sind nicht für flächige Klebungen geeignet, es sei denn, die speziellen konstruktiven Voraussetzungen dafür sind gegeben. Sollte der Silikon-Dichtstoff in Schichtstärken von mehr als 10 mm eingesetzt werden, wenden Sie sich bitte vorher an die Anwendungstechnik.

Wir empfehlen, den ausgehärteten Dichtstoff vor der Befüllung des Schwimmbeckens mit klarem Wasser zu reinigen, um Glättmittlrückstände von der Oberfläche zu entfernen. Glättmittlrückstände können die Ansiedlung von Mikroorganismen fördern und einen Schimmelpilzbefall hervorrufen.

Der Dichtstoff ist stark fungizid ausgerüstet sowie gegenüber Salzwasser und Chlor in den üblichen Konzentrationen im Schwimmbecken beständig. Um die Gefahr einer Schimmelpilzbildung auf dem Dichtstoff zu minimieren, müssen die folgenden Hinweise beim Schwimmbadbetrieb beachtet werden: Die Desinfektion des Schwimmbadwassers mit Chlor ist unverzichtbar.

Es können zusätzlich alternative Verfahren eingesetzt werden. Eine ausreichende Chlordesinfektion muss jedoch zwingend vorhanden sein, um einen Schimmelpilzbefall wirksam vorzubeugen. Die alternativen Verfahren, wie beispielsweise UV-Strahlung oder Ozonisierung haben keine desinfizierende Depotwirkung. Diese ist aber unabdingbar, um einer Schimmelpilzbildung vorzubeugen.

Dabei gelten folgende Wasserbeschaffenheiten: Schwimmbecken 0,3 - 0,6 mg/Liter freies Chlor, Warmsprudelbecken 0,7 - 1,0 mg/Liter freies Chlor. Gegenwärtig ist es Stand der Technik, dass eine Konzentration an freiem Chlor bis 1,2 mg/Liter erlaubt ist. Der pH-Wert des Badewassers ist optimal bei einem Wert von 7,0 eingestellt. Abweichungen nach oben und unten zwischen 6,5 und 7,6 sind für Süßwasser dabei erlaubt. Beachtet werden sollte jedoch folgendes: Macht sich ein zu starker reizender Geruch nach Chlor bemerkbar, kann die Ursache möglicherweise in einem falschen pH-Wert des Schwimmbadwassers liegen. Diesen bitte überprüfen und auf den optimalen Wert einstellen.

Unverzichtbar ist eine regelmäßige Wassenumwälzung. Diese muss immer in Betrieb sein und darf auch nicht zeitweise unterbrochen werden. Durch Unterbrechungen können partiell sehr unterschiedliche Chlorkonzentrationen auftreten, wobei die Mindestkonzentration von 0,3 mg/Liter stellenweise unterschritten werden kann. Derartige Unterschreitungen führen zum Knospen der überall vorhandenen Sporen und zur Schimmelpilzbildung. Bei richtiger Wassenumwälzung soll das Beckenwasser ständig über die Überlaufkante am Beckenrand laufen.

Zur Reinigung sollten vorzugsweise neutrale oder alkalische Reinigungsmittel verwendet werden, da sich Schimmelpilze im sauren Milieu stärker vermehren.

Berührungskontakt mit bitumenhaltigen und weichmacherabgebenden Materialien wie z.B. Butyl, EPDM, Neopren, Isolier- und Schwarzanstrichen vermeiden.

Bei der Sanierung von mit Schimmelpilz kontaminierten Fugen muss der vorhandene elastische Dichtstoff vollständig entfernt werden. Vor der Neuverfugung sind die betroffenen Fugenbereiche mit einem geeigneten Anti-Schimmelspray zu behandeln, um evtl. vorhandene Pilzsporen zu entfernen. Ansonsten kann es trotz fungizider Ausrüstung des Dichtstoffes sehr schnell wieder zu einem Schimmelpilzbefall der Fuge kommen.

Anwendungshinweise

OTTOSEAL® S 18 ist nicht geeignet für Aquarien. Hierfür empfehlen wir OTTOSEAL® S 28

OTTOSEAL® S 18 ist nicht geeignet für Trinkwasserbehälter. Hierfür empfehlen wir OTTOSEAL® S 27

OTTOSEAL® S 18 ist nicht geeignet für Marmor-/Naturstein-Schwimmbäder. Hierfür empfehlen wir OTTOSEAL® S 70

Mit OTTOSEAL® S 140 bieten wir ein Schwimmbad-Silikon mit verlängertem Schimmelschutz.

Fugen mit geschlossenzelliger PE-Rundschnur hinterfüllen.

Aushärtezeit je nach Dichtstoffstärke, Umgebungstemperatur und Luftfeuchtigkeit mind. 4 Tage, vorzugsweise 2 Wochen, bevor das Schwimmbecken mit Wasser befüllt wird.

Wegen der Vielzahl möglicher Einflüsse bei der Verarbeitung und der Anwendung ist vom Verarbeiter stets eine Probeverarbeitung und -anwendung vorzunehmen.

Das konkrete Aufbrauchdatum ist dem Gebindeaufdruck zu entnehmen und zu beachten.

Wir empfehlen, unsere Produkte in den ungeöffneten Originalgebinden trocken (< 60 % rLF) im Temperaturbereich von + 15° C bis + 25° C zu lagern. Werden die Produkte über längere Zeiträume (mehrere Wochen) bei höherer Temperatur/ Luftfeuchtigkeit gelagert und / oder transportiert, kann eine Verringerung der Haltbarkeit bzw. eine Veränderung der Materialeigenschaften nicht ausgeschlossen werden.

Lieferform

Glänzende Farben

310 ml Kartusche	
 grau	S18-04-C02
 seidengrau	S18-04-C77
 transparent	S18-04-C00
 weiß	S18-04-C01
Stück pro Verpackungseinheit	20
Stück pro Palette	1200

Aus darstellungstechnischen Gründen können die abgebildeten Farben von den Originalfarben der Produkte abweichen.

Sicherheitshinweise

Bitte das Sicherheitsdatenblatt beachten.

Nach erfolgter Aushärtung ist das Produkt geruchlos.

Entsorgung

Hinweise zur Entsorgung siehe Sicherheitsdatenblatt.

Mängelhaftung

Die vorstehenden Informationen und unsere anwendungstechnische Beratung in Wort, Schrift und durch Versuche erfolgen nach bestem Wissen, gelten jedoch nur als unverbindliche Hinweise, auch in Bezug auf etwaige Schutzrechte Dritter. Die Angaben in dieser Druckschrift befreien den Verarbeiter nicht von einer eigenen Prüfung unserer Produkte im Hinblick auf ihre Eignung für die beabsichtigten Verfahren und Zwecke. Anwendung, Verwendung und Verarbeitung unserer Produkte und der auf Grund unserer anwendungstechnischen Beratung hergestellten Produkte erfolgen außerhalb unserer Kontrollmöglichkeiten und liegen daher ausschließlich in der Verantwortung des Verarbeiters. Unterliegt die Anwendung, für die unsere Produkte herangezogen werden, einer behördlichen Genehmigungspflicht, so ist der Anwender für die Erlangung dieser Genehmigungen verantwortlich. Wir behalten uns das Recht zur Anpassung des Produktes an den technischen Fortschritt und an neue Entwicklungen vor. Im Übrigen verweisen wir auf unsere Allgemeinen Geschäftsbedingungen, insbesondere auch bezüglich

einer etwaigen Mängelhaftung. Sie finden unsere AGB unter www.otto-chemie.de.

Declaration of conformity for products with Model EPDs

The Association of Deutsche Bauchemie e.V., of which Hermann Otto GmbH is a member, has developed so-called Model Environmental Product Declarations (Model EPDs) and had them independently verified by the Institut Bauen und Umwelt e.V. (IBU).

These IBU verified Model EPDs have been made publicly available by Deutsch Bauchemie and IBU.

Based on the product formulations it was checked if our products were covered by the Model EPDs.

This Declaration confirms that the product

is covered by the attached Model EPD

This means that the Life Cycle Assessment data and the remaining content of the attached Model EPD apply to the above mentioned product and may thus be used for the evaluation of the sustainability of buildings where the product is applied.

Hermann Otto GmbH

Fridolfing,

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-DBC-20220180-IBF1-EN
Issue date	31.08.2022
Valid to	30.08.2027

Silicone-based products, group 2

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.

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



 **DEUTSCHE
BAUCHEMIE**

 **EFCC**

 **FEICA®**

 **Industrieverband
Klebstoffe e.V.**



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.

Programme holder

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

Declaration number

EPD-DBC-20220180-IBF1-EN

This declaration is based on the product category rules:

Building sealants, 07.2014
(PCR checked and approved by the SVR)

Issue date

31.08.2022

Valid to

30.08.2027



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



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

Silicone-based products, group 2

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

Declared product / declared unit

1 kg silicone-based product, group 2; density 1.0 - 1.5 g/cm³

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 their respective websites.

The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

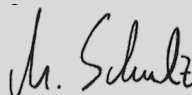
The EPD was created according to the specifications of *EN 15804+A2*. In the following, the standard will be simplified as *EN 15804*.

Verification

The standard *EN 15804* serves as the core PCR

Independent verification of the declaration and data according to *ISO 14025:2011*

☐ internally ☒ externally



Matthias Schulz
(Independent verifier)

2. Product

2.1 Product description/Product definition

Silicone-based products, group 2 with a Volatile Organic Compound (VOC) content ≤2 % (VOC definition according to *Decopaint Directive*) are manufactured from reactive siloxane and so-called silicone oil, optionally by using fillers, extenders, colour pigments, cross-linkers, bonding agents and catalysts. For most of the applications the products are formulated as moisture-reactive one-component systems; for industrial applications there are also two-component systems available. They permanently and elastically seal joints planned for the building. Silicone-

based products fulfil key functions. Ingress of moisture into the structure via the joints is prevented by joint sealants. With the use of silicone-based products, the fitness for use of the building and the service life are decisively extended. 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 the Regulation (EU) No 305/2011 (*CPR*) need a

Declaration of Performance taking into consideration either the relevant harmonised European standard or the European Technical Assessment and the CE marking. For the application and use of the products the respective national provisions apply.

2.2 Application

Module 1: Façade sealants

Silicone-based products are used for the elastic sealing of joints. The areas of application for façade sealants include expansion joints (movement joints) and/or connection joints already existing in exterior walls and on window and door frames (including the inside section). All these sealants fulfil key functions of the building.

Module 2: Sealants for glazing

Silicone-based products are used for the elastic sealing of joints which may be subject to movement. Sealants for glazing are used in the following areas: (i)Glass to glass (ii)Glass to frame (iii)Glass to porous substrates

Module 3: Sanitary sealants

The areas of application for silicone-based sanitary sealants are joints in sanitary areas and kitchens. Joints sealed using sanitary sealants comprise connection joints between sanitary furnishings and the wall, connection joints between the floor and wall or movement joints across surfaces, for example.

Module 4: Sealants for pedestrian walkways

The areas of application for silicone-based sealants for pedestrian walkways are floor joints designed for pedestrian walkways, public areas, movement joints between concrete slabs, areas with pedestrian load, areas used with trolleys, walkable floors, balconies, terraces, warehouses.

Module 5: Bonded glazing sealants

One- and two-component structural sealants are to be used in a structural sealant glazing system (SSGK) to bond glazing products to metallic structural seal support frames and/or as the second barrier of the structural hermetic seal in insulating glass units.

2.3 Technical Data

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

Module 1: Façade sealants

The minimum requirements on water and airtightness as per Table ZA.1 of EN 15651-1 apply: see table

Module 2: Sealants for glazing

The minimum requirements on water and airtightness as per Table ZA.1 of EN 15651- 2 apply: see table

Module 3: Sanitary sealants

The minimum requirements on water and airtightness as per Table ZA.1 of EN 15651-3 apply: see table

Module 4: Sealants for pedestrian walkways

The minimum requirements on water and airtightness as per Table ZA.1 of EN 15651-4 apply: see table

Module 5: Bonded glazing sealants

Structural Sealants must comply with ETAG 002-1 used as EAD.

Constructional data

Name	Value	Unit
Elastic recovery EN ISO 7389	only for module 2: ≥25 or ≥100	%
Loss of volume EN ISO 10563	value to be declared by the manufacturer	%
Resistance to flow EN ISO 7390	only for module 1,2 and 3; value to be declared by the manufacturer	mm
Tensile properties EN ISO 8339	only for module 1, 3 and 4: ≤0,9	
Adhesion/cohesion properties at maintained extension after immersion in water EN ISO 10590	only for module 1 and 4: NF*	
Adhesion/cohesion properties after immersion in water plastic sealants EN ISO 10591	only for module 1: ≥25 or ≥100	%
Adhesion/cohesion properties after exposure to heat, water and artificial light EN ISO 11431	only for module 2:NF*	
Adhesion/cohesion properties at maintained extension after immersion in water for sealants in class XS and/or adhesion/cohesion properties after immersion in water for sealants in class S EN ISO 10590	only for module 3 and 4: NF*	
Adhesion/cohesion properties at maintained extension after 28 days salt water immersion	only for module 4** NF*	

* NF: Passed-Failed criteria. The sealant class must also be indicated for the declared product.

** not required for interior use

valid for all modules: Other performance characteristics in accordance with the manufacturer's technical documentation/declaration of performance

2.4 Delivery status

Pasty in containers made of plastic, foil or metal. Typical container sizes contain 50 ml to 1000 ml of product. A combination of HDPE (high-density polyethylene) cartridges, cardboard and pallets was modelled for the LCA. For one and two component bonded glazing sealants (Module 5) 200 l metal drums and plastic or metal 20 l pails are used as containers.

2.5 Base materials/Ancillary materials

Silicone-based products, group 2 are manufactured from reactive siloxane and silanes, sometimes using fillers. The cross-linking reaction occurs through the effects of humidity in the air when installed. **Typically**, the products covered by this EPD contain the following range of base materials and auxiliaries (% by mass):

Siloxanes: 45-90
 Silanes: 2-10
 Silicone plasticizers: 0-30
 Mineral fillers: 0-50
 Fumed silica: 0-20
 Mineral oil/Solvent: 0-30
 Pigments: 0-20
 Water: 0-20
 Additives: <5
 VOC according to *Decopaint Directive*: ≤2 %
(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

Silicone-based products are generally manufactured by mixing the ingredients and then filling them into the delivery containers.

2.7 Environment and health during manufacturing

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

2.8 Product processing/Installation

One-component silicone-based products are usually processed manually on site using suitable tools. In most cases, the products are inserted into joints using cartridge guns, whereby health and safety measures (gloves and goggles, ventilation) are to be taken and

consistently adhered to in accordance with the information on the safety data sheet and conditions on site. VOC emissions may occur. Two-component silicone products are processed on the job site by using mix cartridges with static mixers. On the shop floor, two-component dosing & mixing equipment is used (static or dynamic mixers) and the mixed product can be applied manually or fully automatically by a sealing robot.

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, silicone-based products are fully cross-linked and hardened. They are durable products which protect buildings and significantly contribute towards their appearance, 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, silicone-based products lose their reactive capacity and are 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. No further influences on the environment and health by emanating substances are known.

2.12 Reference service life

Sealants fulfil key functions in buildings. They decisively improve the usability of building structures and significantly extend their original service lives. Information supplied by the manufacturer on maintenance and care must be observed.

2.13 Extraordinary effects

Fire

Even without any special fire safety features, joint sealants comply with at least the requirements of *EN 13501-1* for fire class E. In terms of volumes used, sealants generally have no or only a minor influence on the fire characteristics (e.g. smoke gas development) of the building in which they are applied.

Water

Silicone-based products are insoluble in water. They are often used to protect building structures from harmful water ingress or the effects of flooding.

Mechanical destruction

The mechanical destruction of silicone-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 of components to which hardened silicone sealants adhere.

2.15 Disposal

Silicone-based products which cannot be recycled can be hardened. Empty containers are directed to the recycling process. Only a low volume of silicone sealants is incurred in the disposal of components in which they are used. Low levels of adhesion do not play any role in terms of disposal. They do not impair the disposal/recycling of other components/building materials. Hardened residual product mechanically removed from substrates must be disposed of as

commercial/site waste. The following waste codes according to the European List of Waste (EWC) (2000/532/EC) can apply:

Product residue: EWC 08 04 09

EWC 08 04 10 with the exception of those covered by EWC 08 04 09

2.16 Further information

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

3. LCA: Calculation rules

3.1 Declared Unit

This EPD refers to the declared unit of 1 kg of silicone-based product, group 2; applied into the building with a density of 1.0 - 1.5 g/cm³ in accordance with the IBU *PCR part B* for construction sealant.

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	1-1.5	g/cm ³
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 contain substances in(to) the formulation that directly emit as VOC. VOCs are even generated by a chemical reaction that is occurring during this phase. The end of life for the packaging material considered is described below:

-Incineration, for materials like plastic, paper and wood.

-C1-C2-C3-D

The building deconstruction (demolition process) takes place in the C1 module which considers energy generation and consumption 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 for recovered thermal energy (recovered electricity is looped back within module A1-A1).

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 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 contain biogenic carbon 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	0.024	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 (0.024 kg C * 3.67 = 0.088 kg CO₂-eq.) of the packaging bound in module A1-A3 is mathematically booked out.

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	0.225	kg
Material loss	0.01	kg

Material loss considers the amount of product not used during the application phase into the building. This amount is 1 % of the product and, impacts related to the production of this part are assigned 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-C4)

Name	Value	Unit
Collected as mixed construction waste	0.98	kg
Incineration	0.98	kg

5. LCA: Results

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

DETERMINED; MNR - MODEL 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 silicone-based product, group 2

Core Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	D
GWP-total	[kg CO ₂ -Eq.]	6.82E+0	5.87E-2	6.91E-1	2.73E-4	1.21E-2	4.55E-1	-6.18E-1
GWP-fossil	[kg CO ₂ -Eq.]	6.91E+0	5.81E-2	5.77E-1	2.61E-4	1.16E-2	4.21E-1	-6.17E-1
GWP-biogenic	[kg CO ₂ -Eq.]	-9.86E-2	1.70E-4	1.15E-1	1.21E-5	5.31E-4	3.46E-2	-1.42E-3
GWP-luluc	[kg CO ₂ -Eq.]	6.96E-3	4.70E-4	7.39E-5	6.27E-9	2.74E-7	3.43E-5	-4.07E-4
ODP	[kg CFC11-Eq.]	2.08E-13	6.98E-18	2.14E-15	2.78E-20	1.21E-18	2.96E-16	-6.05E-15
AP	[mol H ⁺ -Eq.]	2.96E-2	1.74E-4	3.70E-4	3.53E-6	3.66E-5	5.15E-4	-8.36E-4
EP-freshwater	[kg P-Eq.]	1.16E-5	1.77E-7	1.25E-7	5.64E-11	2.46E-9	1.02E-7	-7.49E-7
EP-marine	[kg N-Eq.]	4.76E-3	7.75E-5	6.65E-5	1.60E-6	1.68E-5	1.97E-4	-2.19E-4
EP-terrestrial	[mol N-Eq.]	5.19E-2	8.68E-4	8.67E-4	1.75E-5	1.85E-4	2.47E-3	-2.35E-3
POCP	[kg NMVOC-Eq.]	1.91E-2	1.53E-4	2.97E-2	4.81E-6	3.32E-5	5.11E-4	-6.32E-4
ADPE	[kg Sb-Eq.]	2.17E-4	4.16E-9	2.17E-6	7.90E-12	3.45E-10	4.52E-9	-9.70E-8
ADPF	[MJ]	1.25E+2	7.73E-1	1.34E+0	3.73E-3	1.63E-1	5.41E-1	-1.04E+1
WDP	[m ³ world-Eq deprived]	2.24E+0	5.19E-4	8.22E-2	5.16E-7	2.25E-5	1.54E-1	-6.01E-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 silicone-based product, group 2

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	D
PERE	[MJ]	5.03E+1	4.35E-2	1.43E+0	1.18E-5	5.14E-4	9.18E-2	-2.15E+0
PERM	[MJ]	9.05E-1	0.00E+0	-9.05E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PERT	[MJ]	5.12E+1	4.35E-2	5.30E-1	1.18E-5	5.14E-4	9.18E-2	-2.15E+0
PENRE	[MJ]	1.05E+2	7.74E-1	8.96E+0	3.74E-3	1.63E-1	1.34E+1	-1.04E+1
PENRM	[MJ]	2.04E+1	0.00E+0	-7.62E+0	0.00E+0	0.00E+0	-1.28E+1	0.00E+0
PENRT	[MJ]	1.25E+2	7.74E-1	1.34E+0	3.74E-3	1.63E-1	5.41E-1	-1.04E+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]	6.92E-2	5.03E-5	2.09E-3	2.11E-8	9.22E-7	3.63E-3	-2.49E-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 silicone-based product, group 2

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	D
HWD	[kg]	9.98E-7	3.60E-8	1.01E-8	3.63E-13	1.58E-11	1.73E-9	-4.15E-9
NHWD	[kg]	1.72E+0	1.18E-4	2.19E-2	3.82E-7	1.67E-5	1.34E-1	-4.68E-3
RWD	[kg]	5.16E-3	9.58E-7	5.69E-5	4.01E-9	1.75E-7	2.46E-5	-7.33E-4
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	1.24E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EET	[MJ]	0.00E+0	0.00E+0	2.22E+0	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 silicone-based product, group 2

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 nor 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 a 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 a high 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 the overall 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 Photochemical ozone formation indicator, due to the emission of VOC during the operations. These emissions are not only 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 thermal treatment process of the silicon-based products occurring in the C3 module.

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 to the product in question.

Evidence pertaining to VOC emissions shall show

- either an attestation of compliance with,

- or documentation of test data that are required in any of the existing regulations or in any of the existing voluntary labelling programs for low-emitting products, as far as these

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

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

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

8. References

ETAG 002-1

ETAG 002-1:2012 (used as EAD)
Structural Sealant Glazing Kits (SSGK) – Part 1:
Supported and unsupported Systems

RAL UZ 123

RAL UZ 123:2019 Basis for awarding the "Low-
emission sealants for interiors" environmental
certificate

EN ISO 7389

EN ISO 7389:2003 Building construction – Jointing products – Determination of elastic recovery of sealants

EN ISO 7390

EN ISO 7390:2003 Building construction – Jointing products – Determination of resistance to flow of sealants

EN ISO 8339

EN ISO 8339: 2005 Building construction – Sealants – Determination of tensile properties (Extension to break)

EN 10563

EN ISO 10563:2017 Building construction – Sealants – Determination of change in mass and volume

EN ISO 10590

EN ISO 10590:2005 Building construction – Sealants – Determination of tensile properties of sealants at maintained extension after immersion in water

EN ISO 10591

EN ISO 10591:2005 Building construction – Sealants – Determination of adhesion/cohesion properties of sealants after immersion in water

EN ISO 11431

EN ISO 11431:2002 Building construction – Jointing products – Determination of adhesion/cohesion properties of sealants after exposure to heat, water and artificial light through glass

EN 13501-1

EN 13501-1:2018 Fire classification of construction products and building elements – Part 1: Classification using data from reaction to fire tests

ISO 14025

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

EN 15651-1

EN 15651-1:2012 Sealants for non-structural use in joints in buildings and pedestrian walkways – Part 1: Sealants for façade elements

EN 15651-2

EN 15651-2:2012 Sealants for non-structural use in joints in buildings and pedestrian walkways– Part 2: Sealants for glazing

EN 15651-3

EN 15651-3:2012 Sealants for non-structural use in joints in buildings and pedestrian walkways – Part 3: Sealants for sanitary joints

EN 15651-4

EN 15651-4:2012 Sealants for non-structural use in joints in buildings and pedestrian walkways – Part 4: Sealants for pedestrian walkways

EN 15804

EN 15804+A2:2019+AC:2021, 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

2000/532/EC

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

Belgian Royal Decree C-2014/24239

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

Blue Angel

Environmental label organised by the federal government of Germany www.blauer-engel.de

Candidate list

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

CPR

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

Decopaint Directive

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

EMICODE

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

GaBi 10

GaBi 10: Software and database for comprehensive analysis. LBP, University of Stuttgart and Sphera, 2020

GaBi 10 documentation

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

German AgBB

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

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

IBU 2021

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

Indoor Air Comfort

Product certification by Eurofins, Hamburg, Germany
www.eurofins.com

PCR Part A

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

PCR Part B

Product Category Rules for Construction Products, Part B: Building sealants, 2019-04

REACH

Directive (EG) No. 1907/2006 of the European Parliament and of the Council dated 18 December 2006 on the registration, evaluation, approval and restriction of chemical substances (REACH), for establishing a European Agency for chemical substances, for amending Directive 1999/45/EC and for annulment of Directive (EEC) No. 793/93 of the Council, Directive (EC) No. 1488/94 of the Commission, Guideline 76/769/EEC of the Council and Guidelines 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC of the Commission.

**Publisher**

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

Tel +49 (0)30 3087748- 0
Fax +49 (0)30 3087748- 29
Mail info@ibu-epd.com
Web www.ibu-epd.com

**Programme holder**

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

Tel +49 (0)30 - 3087748- 0
Fax +49 (0)30 - 3087748 - 29
Mail info@ibu-epd.com
Web www.ibu-epd.com

**Author of the Life Cycle Assessment**

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

Tel +49 711 341817-0
Fax +49 711 341817-25
Mail info@sphera.com
Web www.sphera.com

**Owner of the Declaration**

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

Tel +32 (0)267 673 20
Fax +32 (0)267 673 99
Mail info@feica.eu
Web www.feica.eu

Industrieverband Klebstoffe e.V
Völklinger Straße 4
40219 Düsseldorf
Germany

Tel +49 (0)211 67931-10
Fax +49 (0)211 67931-33
Mail info@klebstoffe.com
Web www.klebstoffe.com

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

Tel +49 (0)69 2556-1318
Fax +49 (0)69 2556-1319
Mail info@deutsche-bauchemie.de
Web www.deutsche-bauchemie.de

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

Tel +32289720-39
Fax +32289720-37
Mail info@efcc.be
Web www.efcc.eu

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 08.02.2023

Version 3 (replaces version 2)

Revision: 08.02.2023

SECTION 1: Identification of the substance/mixture and of the company/undertaking

- **1.1 Product identifier**
- **Trade name:** **OTTOSEAL S 18**
- **Application of the substance / the mixture** Silicone sealant
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Hermann Otto GmbH
Krankenhausstraße 14
D-83413 Fridolfing
Tel.: 0049/(0)8684/908-0
Fax.: 0049/(0)8684/908-1840
- **Further information obtainable from:**
Tel.: 0049- (0)8684- 908- 2363 (-4300)
E-Mail: alois.parzinger@otto-chemie.de
- **1.4 Emergency telephone number:**
Tel.: 0049- (0) 89- 192 40 (emergency telephone no.)
+44 1865 407333 (Carechem 24)

SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**
The product is not classified, according to the GB CLP regulation.
- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008** Void
- **Hazard pictograms** Void
- **Signal word** Void
- **Hazard statements** Void
- **Additional information:**
Ensure good ventilation during application and curing.
Contains the active agent biocide 2-octyl-2H-isothiazol-3-one to protect against mould infestation.
Keep out of the reach of children.
Avoid contact with skin.
Contains 3-aminopropyltriethoxysilane, 2-octyl-2H-isothiazol-3-one. May produce an allergic reaction.
Safety data sheet available on request.
- **2.3 Other hazards**
During the application and curing process of the material chemicals are released as vapour (see item 11). Therefore ensure good ventilation or exhaustion if necessary.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

- **3.2 Mixtures**
 - **Description:** Polydimethylsiloxane, filler, auxiliaries and oximosilane crosslinker
 - **Dangerous components:**
- | | | |
|--------------------------------|---|-------|
| CAS: 37859-55-5 | 2-Pentanone, O,O',O''-(methylsilyldiyl)trioxime | <5% |
| ELINCS: 484-460-1 | ⚠ Acute Tox. 4, H302; Eye Irrit. 2, H319 | |
| Reg.nr.: 01-2120004323-76-xxxx | | |
| | | |
| CAS: 128446-60-6 | Silsesquioxanes, 3-aminopropyl Me, ethoxy-terminated | <2.5% |
| EC number: 603-274-5 | ⚠ Flam. Liq. 3, H226; ⚠ Skin Irrit. 2, H315; Eye Irrit. 2, H319 | |
| Reg.nr.: Polymer (REACH) | | |

(Contd. on page 2)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 08.02.2023

Version 3 (replaces version 2)

Revision: 08.02.2023

Trade name: OTTOSEAL S 18

(Contd. of page 1)

CAS: 870-08-6	dioctyltin oxide	<1%
EINECS: 212-791-1	☠ STOT SE 2, H371	
CAS: 919-30-2	3-aminopropyltriethoxysilane	<1%
EINECS: 213-048-4	☠ Skin Corr. 1B, H314; ⚠ Acute Tox. 4, H302; Skin Sens. 1B, H317	
Reg.nr.: 01-2119480479-24-XX	Specific concentration limit: Skin Sens. 1B; H317: C ≥ 3 %	
CAS: 26530-20-1	2-octyl-2H-isothiazol-3-one	<0.1%
EINECS: 247-761-7	☠ Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 2, H330; ☠ Skin Corr. 1, H314; Eye Dam. 1, H318;	
	☠ Aquatic Acute 1, H400 (M=100); Aquatic Chronic 1, H410 (M=100); ⚠ Skin Sens. 1A, H317, EUH071	
	ATE: LD50 oral: 125 mg/kg	
	LD50 dermal: 311 mg/kg	
	LC50/4 h inhalative: 0.27 mg/l	
	Specific concentration limit: Skin Sens. 1A; H317: C ≥ 0.0015 %	

· **Additional information** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

- **4.1 Description of first aid measures**
- **General information** Take affected persons out into the fresh air.
- **After inhalation**
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
- **After skin contact**
Immediately wash with water and soap and rinse thoroughly.
If skin irritation continues, consult a doctor.
- **After eye contact**
Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing**
Do not induce vomiting; call for medical help immediately. Show container or label.
- **Information for doctor**
Symptomatic treatment (decontamination, vital functions), no specific antidote known.

SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents**
CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **5.2 Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
- **5.3 Advice for firefighters**
- **Protective equipment:**
Mount respiratory protective device.
Do not inhale explosion gases or combustion gases.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Ensure adequate ventilation
- **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**
Dispose contaminated material as waste according to item 13.

(Contd. on page 3)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 08.02.2023

Version 3 (replaces version 2)

Revision: 08.02.2023

Trade name: OTTOSEAL S 18

(Contd. of page 2)

- **6.4 Reference to other sections** See Section 8 for information on personal protection equipment.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
see item 8: Personal protective equipment
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:** Prevent any seepage into the ground.
- **Information about storage in one common storage facility:** Store away from foodstuffs.
- **Further information about storage conditions:**
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.

SECTION 8: Exposure controls/personal protection

- **8.1 Control parameters**
- **Ingredients with limit values that require monitoring at the workplace:**
- **Additional information:**
The lists valid during the making were used as basis.
Reaction product 2-Pentanoneoxime CAS: 623-40-5
DNEL (Data for WORKERS)
INHALATION Exposure
Systemic Effects
Long-term: (DNEL) 8,3 mg/m³
Acute/ short term: (DNEL) 24,9 mg/m³
Source: ECHA
- **8.2 Exposure controls**
- **Appropriate engineering controls** No further data; see item 7.
- **Individual protection measures, such as personal protective equipment**
- **General protective and hygienic measures**
The usual precautionary measures are to be adhered to when handling chemicals.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
- **Respiratory protection:**
This product should not be used under conditions of poor ventilation unless a protective mask with an appropriate gas filter (i.e.type ABEK according to standard EN 14387) is used.
- **Hand protection** Protective gloves.
- **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
Recommended glove types: nitrile rubber
Recommended thickness of the material: >0,4 mm
- **Penetration time of glove material** Breakthrough time: 10 - 30 min
- **Eye/face protection** Safety glasses
- **Body protection:** Protective work clothing.

SECTION 9: Physical and chemical properties

- **9.1 Information on basic physical and chemical properties**
- **General Information**
- **Physical state** Solid.
- **Colour:** According to product specification
- **Odour:** Characteristic

(Contd. on page 4)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 08.02.2023

Version 3 (replaces version 2)

Revision: 08.02.2023

Trade name: OTTOSEAL S 18

(Contd. of page 3)

- **Melting point/freezing point:** undetermined
- **Boiling point or initial boiling point and boiling range** undetermined
- **Lower and upper explosion limit**
- **Lower:** not applicable
- **Upper:** not applicable
- **Flash point:** Not applicable
- **Decomposition temperature:** Not determined.
- **pH** Not determined.
- **Viscosity:** Not determined.
- **Solubility**
- **Water:** Insoluble
- **Partition coefficient n-octanol/water (log value)** Not determined.
- **Vapour pressure:** Not determined.
- **Density and/or relative density**
- **Density:** see technical datasheet
- **Relative density** Not determined.
- **Vapour density** Not applicable.
- **9.2 Other information**
- **Form:** pasty
- **Auto-ignition temperature:** Product is not selfigniting.
- **Explosive properties:** Product does not present an explosion hazard.
- **Information with regard to physical hazard classes**
- **Aerosols** Void
- **Flammable liquids** Void

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
Avoid strong heating.
- **10.6 Hazardous decomposition products:**
Tests on representative products have shown that above temperatures of 150° C small quantities of formaldehyde are split off.
see item 5.2

SECTION 11: Toxicological information

- **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**
 - **Acute toxicity** Based on available data, the classification criteria are not met.
 - **LD/LC50 values relevant for classification:**
-
- 37859-55-5 2-Pentanone, O,O',O''-(methylsilyldiylne)trioxime**
Oral LD50 1,234 mg/kg (rat)
- 870-08-6 dioctyltin oxide**
Oral LD50 2,500 mg/kg (rat)
- 919-30-2 3-aminopropyltriethoxysilane**
Oral LD50 1,570 mg/kg (rat)
Dermal LD50 4,290 mg/kg (rab)

(Contd. on page 5)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 08.02.2023

Version 3 (replaces version 2)

Revision: 08.02.2023

Trade name: OTTOSEAL S 18

(Contd. of page 4)

26530-20-1 2-octyl-2H-isothiazol-3-one

Oral LD50 125 mg/kg (ATE)

Dermal LD50 311 mg/kg (ATE)

Inhalative LC50/4 h 0.27 mg/l (ATE)

- **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
- **Serious eye damage/irritation** Based on available data, the classification criteria are not met.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.
- **Other information (about experimental toxicology):**
During the application of the product 2-Pentanonoxim (CAS: 623-40-5) is released. 2-Pentanonoxim is harmful if swallowed, causes serious eye irritation, may cause damage to organs through prolonged or repeated exposure and is harmful to aquatic life with long lasting effects.

Additional toxicological information:

26530-20-1 2-octyl-2H-isothiazol-3-one

Oral Acute toxicity estimate (ATE mix) 125 mg/kg (rat)

Dermal Acute toxicity estimate (ATE mix) 311 mg/kg (rat)

- **11.2 Information on other hazards**
 - **Endocrine disrupting properties**
-

870-08-6 dioctyltin oxide: List II

SECTION 12: Ecological information

- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Endocrine disrupting properties**
For information on endocrine disrupting properties see section 11.
- **12.7 Other adverse effects**
- **Additional ecological information:**
- **General notes:**
Do not allow product to reach ground water, water course or sewage system.
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water.

SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**
Observe local by-laws.
Already cured material can be disposed of with the domestic or commercial waste. Unconsumed material (fluid, paste-like) is to dispose of as hazardous waste.
- **Uncleaned packaging:**
- **Recommendation:**
Empty contaminated packagings thoroughly. They may be recycled after thorough and proper cleaning.
Packagings that may not be cleansed are to be disposed of in the same manner as the product.

GB

(Contd. on page 6)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 08.02.2023

Version 3 (replaces version 2)

Revision: 08.02.2023

Trade name: OTTOSEAL S 18

(Contd. of page 5)

SECTION 14: Transport information

- **14.1 UN number or ID number**
- **ADR, ADN, IMDG, IATA** Void
- **14.2 UN proper shipping name**
- **ADR, ADN, IMDG, IATA** Void
- **14.3 Transport hazard class(es)**
- **ADR, ADN, IMDG, IATA**
- **Class** Void
- **14.4 Packing group**
- **ADR, IMDG, IATA** Void
- **14.5 Environmental hazards:**
- **Marine pollutant:** No
- **14.6 Special precautions for user** Not applicable.
- **14.7 Maritime transport in bulk according to IMO instruments** Not applicable.
- **Transport/Additional information:** Not dangerous according to the above specifications.
- **UN "Model Regulation":** Void

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **National regulations**
- **Waterhazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.
- **Details of international registration status:**
- **Listed on or in accordance with the following inventories:**
 - TCSI - Taiwan not listed
 - UK REACH - Europe listed
 - AICS - Australia not listed
 - DSL - Canada not listed
 - IECSC - China not listed
 - ENCS - Japan not listed
 - NZIoC - New Zealand not listed
 - PICCS - Philippines not listed
 - ECL - Korea not listed
 - TSCA - USA not listed
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Relevant phrases**
- H226 Flammable liquid and vapour.
- H301 Toxic if swallowed.
- H302 Harmful if swallowed.
- H311 Toxic in contact with skin.
- H314 Causes severe skin burns and eye damage.
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H318 Causes serious eye damage.
- H319 Causes serious eye irritation.
- H330 Fatal if inhaled.

(Contd. on page 7)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 08.02.2023

Version 3 (replaces version 2)

Revision: 08.02.2023

Trade name: OTTOSEAL S 18

(Contd. of page 6)

H371 May cause damage to organs.
 H400 Very toxic to aquatic life.
 H410 Very toxic to aquatic life with long lasting effects.
 EUH071 Corrosive to the respiratory tract.

· **Department issuing SDS:** Tel.: 0049- (0)8684- 908- 2363

· **Contact:** Tel.: 0049- (0)8684- 908- 2363 (-4300)

· **Abbreviations and acronyms:**

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 3: Flammable liquids – Category 3

Acute Tox. 3: Acute toxicity – Category 3

Acute Tox. 4: Acute toxicity – Category 4

Acute Tox. 2: Acute toxicity – Category 2

Skin Corr. 1: Skin corrosion/irritation – Category 1

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

Skin Sens. 1A: Skin sensitisation – Category 1A

Skin Sens. 1B: Skin sensitisation – Category 1B

STOT SE 2: Specific target organ toxicity (single exposure) – Category 2

Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1

Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1

· *** Data compared to the previous version altered.**

GB