General information about PERI DK Concrete Cones and PERI Sealing Compound

DK Concrete Cones

Exposition classes according DIN-EN 206 / DIN 1045
Strength of cone mortar
Safety data sheet of cone mortar

PERI Sealing Compound

Technical information
Instructions of use
Safety data sheet component A
Safety data sheet component B
List of chemical resistance

DK Concrete Cones

Exposition classes according DIN-EN 206 / DIN 1045
Strength of cone mortar
Safety data sheet of cone mortar

PERI Concrete Cones – made of the pre-mixed dry mortar Betec 148
Correlation to Exposition Classes

The PERI Concrete Cones, made of the pre-mixed dry mortar Betec 148, meet following criteria of exposition classes mentioned in DIN-EN 206 / DIN 1045 as follows:

Exposition Class	Meets requirements of exposition class
XC1	Yes
XC2	Yes
XC3	Yes
XC4	Yes
XD1	Yes
XD2	Yes
XD3	Yes
XS1	Yes
XS2	Yes
XS3	Yes
XF1	Yes
XF2	Yes
XF3	Yes
XF4	Yes
XA1	Yes
XA2	For the evaluation the sulfate content of the attacking chemicals has to be known
XA3	
XM1	Yes
XM2	Yes

Weissenhorn, 28.06.2007
Heiner Lorenz

Grace Bauprodukte GmbH
BETEC Mörtelsysteme
D-45356 Essen Alte Bottroper Str. 64
Telefon: 0201-86147-0 Telefax: 0201-86147-59
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E-Mail: info.betec@grace.com

Productname	**BETEC 148 (Labor)**						**Tester**	Bayram		**SAP-Nr.**		
Productionline	LABOR	**Productiondate**	Tuesday, 29th Jan. 2008				**water/solid-ratio**	0,1200		**Fresh mortar density [kgdm^{-3}]**		
Weight of sample [g]	3500	**Addition of Water [g]**	420							**Air content [Vol.-%]**		
Consistency test method	Flow [mm]									**Expansion [Vol.-%]**	0,00	
	5 Min.	**10 Min.**	**15 Min.**	**30 Min.**	**50 Min.**					**Start of setting [Min.]**	37	
Test result	675									**End of setting [Min.]**	43	
FM temperature [°C]	22,9											
Dimension of specimen	40*40*160 [mm]		**Storage**	Under water at 20°C			**Specimen for**	2h-24h-7d-28				

Test age	0,5 h	1 h	2 h	3 h	4 h	6 h	8 h	1 d	7 d	28 d	56 d	90 d
Test date	29.01.08	29.01.08	29.01.08	29.01.08	29.01.08	29.01.08	29.01.08	30.01.08	05.02.08	26.02.08	25.03.08	28.04.08
Day	Tues	Tues	Tues	Tues	Tues	Tues	Tues	Wed	Tues	Tues	Tues	Mon
Flexural stength [N/mm²]			3,82					5,29	5,31	10,08		
			3,51					5,50	5,17	11,31		
			4,23					4,90	5,55	12,11		
Mean N/mm²]			**3,85**					**5,23**	**5,34**	**11,17**		
			25,00					36,35	47,00	100,90		
			24,10					39,13	45,30	94,40		
Comp. strength [N/mm²]			24,70					40,15	48,20	98,30		
			25,10					39,96	46,60	98,00		
			24,70					41,03	45,00	100,70		
			24,50					39,13	45,50	100,10		
Mean [N/mm²]			**24,68**					**39,29**	**46,27**	**98,73**		
Standard deviation [N/mm²]			0,33					1,47	1,12	2,23		

Note

Safety data sheet
According to 1907/2006/EC, Article 31

Printing Date: 27.02.2012 Version Number: 1.0 Revision Date: 23.02.2012

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

1.1 Product identifier:

Trade name: *BETEC 148*

1.2 Relevant identified uses of the substance or mixture and uses advised against:

Application of the substance/the preparation: Grouting Materials.

1.3 Details of the supplier of the safety data sheet:

Manufacturer/supplier:

Grace Bauprodukte GmbH
Alte Bottroper Straße 64
DE - 45356 Essen

Tel: ++49 201/86147-0
Fax: ++49 201/86147-59

Further information obtainable from: msds.gcp@grace.com

1.4 Emergency telephone number:

+44 (0)1235 239 670 (Multi-lingual – 24 Hours)
+44 (0)1235 239 671 (Dedicated phone line for Arabic speaking countries - 24 Hours)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture:

This product does not meet the criteria for classification and hazardous as defined in the (EC) No 1272/2008 and 67/584/EC. Depending on the type of handling and use, airborne respirable crystalline silica may be generated. Prolonged and/or massive inhalation of respirable silica dust may cause silicosis. Occupational exposure to respirable crystalline silica should be monitored and controlled.

This product should be handled with care to avoid dust generation.

Information concerning particular hazards for human and environment:

The product has to be labelled in accordance with applicable regulations.

2.2 Label elements:

Labelling according to EU guidelines:

Observe the general safety regulations when handling chemicals.

The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials.

Code letter and hazard designation of product:

Xi Irritant

Risk phrases:

37/38 Irritating to respiratory system and skin.
41 Risk of serious damage to eyes.

(Contd. on page 2)

Safety data sheet
According to 1907/2006/EC, Article 31

Printing Date: 27.02.2012 **Version Number: 1.0** **Revision Date: 23.02.2012**

Trade name: *BETEC 148*

(Contd. of page 1)

Safety phrases:

2 Keep out of the reach of children.
22 Do not breathe dust.
24/25 Avoid contact with skin and eyes.
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
37/39 Wear suitable gloves and eye/face protection.
46 If swallowed, seek medical advice immediately and show this container or label.
56 Dispose of this material and its container to hazardous or special waste collection point.
60 This material and its container must be disposed of as hazardous waste.
64 If swallowed, rinse mouth with water (only if the person is conscious).

2.3 Other hazards:

Results of PBT and vPvB assessment:

PBT: Not applicable.
vPvB: Not applicable.

SECTION 3: Composition/information on ingredients

3.2 Chemical characterization: Mixtures:

Description:

Mixture of substances listed below with non-hazardous additions.

For further information, please refer to the product technical data sheet.

Dangerous components:		
CAS: 14808-60-7 EINECS: 238-878-4	Quartz (SiO_2) substance with a Community workplace exposure limit	50-100%
CAS: 65997-15-1 EINECS: 266-043-4	Portland cement Xi R37/38-41	30-50%
CAS: 7778-18-9 EINECS: 231-900-3	Calcium sulfate Xn R20 Xi R36/37/38	1.0-2.0%

Additional information: For the wording of the listed risk phrases refer to section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures:

After inhalation:

Take affected persons into fresh air and keep quiet.

Seek immediate medical advice.

After skin contact:

Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

After eye contact: Rinse opened eye for several minutes under running water.

After swallowing:

Wash out mouth with water.

(Contd. on page 3)

Safety data sheet
According to 1907/2006/EC, Article 31

Printing Date: 27.02.2012 **Version Number: 1.0** **Revision Date: 23.02.2012**

Trade name: *BETEC 148*

(Contd. of page 2)

Do not induce vomiting; call for medical help immediately.

Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed:
No further relevant information available.

4.3 Indication of any immediate medical attention and special treatment needed:
No further relevant information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media:
Suitable extinguishing agents: CO2, powder or water spray. Fight larger fires with water spray.

5.2 Special hazards arising from the substance or mixture: No further relevant information available.

5.3 Advice for firefighters:
Protective equipment: Wear self-contained respiratory protective device.

Additional information: Collect contaminated fire fighting water separately. It must not enter the sewage system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:
Wear protective equipment. Keep unprotected persons away.

6.2 Environmental precautions:
Inform respective authorities in case of seepage into water course or sewage system.

6.3 Methods and material for containment and cleaning up:
Send for recovery or disposal in suitable receptacles.

Dispose contaminated material as waste according to item 13.

6.4 Reference to other sections
See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling:
Open and handle receptacle with care.

Prevent formation of dust.

Ensure good interior ventilation.

Store in original containers.

Information about fire - and explosion protection: No special measures required.

(Contd. on page 4)

Safety data sheet
According to 1907/2006/EC, Article 31

(Contd. of page 3)

7.2 Conditions for safe storage, including any incompatibilities:

STORAGE

Information about storage in one common storage facility: No special measures required.

Further information about storage conditions:

Protect from frost.

Store in cool, dry conditions in well sealed receptacles.

7.3 Specific end use(s): No further relevant information available.

SECTION 8: Exposure controls/personal protection

Additional information about design of technical facilities: No further data; see item 7.

8.1 Control parameters:

Ingredients with limit values that require monitoring at the workplace:	
14808-60-7 Quartz (SiO2)	
WEL	Long-term value: 0.3 mg/m³ Silica, respirable crystalline
65997-15-1 Portland cement	
WEL	Long-term value: 10* 4** mg/m³ *inhalable dust **respirable dust

Additional information: Based on the lists valid at the date of MSDS creation.

8.2 Exposure controls:

Minimise airborne dust generation. Use process enclosures, local exhaust ventilation or other engineering controls to keep airborne levels below specified exposure limits. If user operations generate dust, or mist, use ventilation to keep exposure to airborne particles below the exposure limit. Apply organisational measures, eg. by isolating personnel from dusty areas. Remove and wash soiled clothing.

PERSONAL PROTECTIVE EQUIPMENT

General protective and hygienic measures: Avoid contact with the eyes and skin.

Respiratory protection:

In case of brief exposure or low pollution use respiratory filter device.

In case of prolonged exposure to airborne dust concentrations, wear a respiratory protective equipment that complies with the requirements of European and national legislation.

Protection of hands: Protective gloves.

Material of gloves: PVC gloves.

Penetration time of glove material:

The exact breakthrough time has to be determined by the manufacturer of the protective gloves and has to be observed.

(Contd. on page 5)

Safety data sheet
According to 1907/2006/EC, Article 31

Printing Date: 27.02.2012 **Version Number: 1.0** **Revision Date: 23.02.2012**

Trade name: *BETEC 148*

(Contd. of page 4)

Eye protection:

Safety glasses with side shield protection.

Body protection: Protective work clothing.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties:

GENERAL INFORMATION	
Appearance:	
Form:	Solid.
Colour:	According to product specification.
Odour:	Characteristic.
Odour threshold:	Not determined.
pH-value at 20°C:	~12
Change in conditions:-	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Not determined.
Flash point:	Not applicable.
Flammability (solid, gaseous):	Not determined.
Ignition temperature:	Not determined.
Decomposition temperature:	Not determined.
Self-igniting:	Product is not self-igniting.
Danger of explosion:	Product does not present an explosion hazard.
EXPLOSION LIMITS	
Lower:	Not determined.
Upper:	Not determined.
VOC Content:	Not determined.
Vapour pressure:	Not applicable.
Density at 20°C:	~1.2 g/cm³
Relative density:	Not determined.
Vapour density:	Not applicable.
Evaporation rate:	Not applicable.
Solubility in/Miscibility with:-	
Water:	Not miscible or difficult to mix.
Segregation coefficient (n-octanol/water):	Not determined.
VISCOSITY	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
9.2 Other information:	No further relevant information available.

(Contd. on page 6)

Safety data sheet
According to 1907/2006/EC, Article 31

Printing Date: 27.02.2012 **Version Number: 1.0** **Revision Date: 23.02.2012**

Trade name: *BETEC 148*

(Contd. of page 5)

SECTION 10: Stability and reactivity

10.1 Reactivity:

10.2 Chemical stability:

Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

10.4 Conditions to avoid: No further relevant information available.

10.5 Incompatible materials: No further relevant information available.

10.6 Hazardous decomposition products: Carbon monoxide and carbon dioxide.

SECTION 11: Toxicological information

11.1 Information on toxicological effects:

ACUTE TOXICITY

Primary irritant effect:-

on the skin: Irritating to skin.

on the eye: Risk of serious damage to eyes.

Inhalation: Irritating to respiratory system.

SECTION 12: Ecological information

12.1 Toxicity:

AQUATIC TOXICITY No further relevant information available.

12.2 Persistence and degradability: No further relevant information available.

12.3 Bioaccumulative potential: No further relevant information available.

12.4 Mobility in soil: No further relevant information available.

ADDITIONAL ECOLOGICAL INFORMATION

General notes:

Rinse off of bigger amounts into drains or the aquatic environment may lead to increased pH-values. A high pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably reduced, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.

Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water.

12.5 Results of PBT and vPvB assessment:

PBT: Not applicable.
vPvB: Not applicable.

12.6 Other adverse effects: No further relevant information available.

(Contd. on page 7)

Safety data sheet
According to 1907/2006/EC, Article 31

Printing Date: 27.02.2012 **Version Number: 1.0** **Revision Date: 23.02.2012**

Trade name: *BETEC 148*

(Contd. of page 6)

SECTION 13: Disposal considerations

13.1 Waste treatment methods:

Recommendation:

Must not be disposed together with household garbage. Do not allow product to reach sewage system.

Dust formation from residues in packaging should be avoided and suitable worker protection assured. Store used packaging in enclosed receptacles.

European waste catalogue:	
17 00 00	CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)
17 01 00	concrete, bricks, tiles and ceramics
17 01 01	concrete

UNCLEANED PACKAGING

Recommendation: Disposal must be made according to official regulations.

SECTION 14: Transport information

14.1 UN-Number **ADR, ADN, IMDG, IATA**	Not applicable.
14.2 UN proper shipping name **ADR, ADN, IMDG, IATA**	Not applicable.
14.3 Transport hazard class(es) **ADR, ADN, IMDG, IATA** **Class**	Not applicable.
14.4 Packing group **ADR, IMDG, IATA**	Not applicable.
14.5 Environmental hazards: **Marine pollutant:**	No.
14.6 Special precautions for user:	Not applicable.
14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:	Not applicable.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

See Section 2 for hazard identification.

National regulations:

Waterhazard class: WGK 1 (VwVwS Anhang 4 vom 19.05.1999): slightly hazardous for water.

(Contd. on page 8)

Safety data sheet
According to 1907/2006/EC, Article 31

Printing Date: 27.02.2012 **Version Number: 1.0** **Revision Date: 23.02.2012**

Trade name: *BETEC 148*

(Contd. of page 7)

Other regulations, limitations and prohibitive regulations: All components EINECS listed or exempt.

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:

R20 Harmful by inhalation.
R36/37/38 Irritating to eyes, respiratory system and skin.
R37/38 Irritating to respiratory system and skin.
R41 Risk of serious damage to eyes.

Department issuing MSDS:

EHS Department, EMEA Region - Grace Construction Products, 580-581 Ipswich Road, Slough, Berks. SL1 4EQ

Tel: ++44 (0)1753 490 000 Fax: ++44(0)1753 490 051

Other Information:

In June 2003, SCOEL, the EU Scientific Committee on Occupational Exposure Limits concluded that the main effect in humans of the inhalation of respirable crystalline silica dust is silicosis.

There is sufficient information to conclude that the relative risk of lung cancer is increased in persons with silicosis. Therefore preventing the onset of silicosis will also reduce the cancer risk.

PERI Sealing Compound

Technical information
Instructions of use
Safety data sheet component A
Safety data sheet component B
List of chemical resistance

DELO

Technical Information

DELO-DUOPOX® MF8997

Multi-purpose 2c epoxy resin, cures at room temperature, high-viscous, filled

Base

- epoxy resin
- two-component, thixotropic

Use

- for bonding and sealing
- multi-purpose for different metal and non-metal materials, e. g., steel, aluminum, stainless steel, concrete and wood
- suitable for large gaps
- contains fillers adjusting a gap of at least 1.8 mm when positioning the components accordingly
- pasty and run-resistant but easy to mix
- the cured product is normally used in a temperature range of -40 °C to +120 °C; depending on the application, other limits may be more reasonable
- meets requirements of hygiene examinations for use in drinking water systems: microbiological test according to DVGW W270 and chemical test according to KTW guideline
- compliant with RoHS directive 2011/65/EU

Processing

- components A and B must be mixed well or homogenized in the mixing ratio stated below until the preparation is free of streaks
- supplied ready for use and can be processed well from the original container
- the surfaces to be bonded must be dry as well as free of dust, grease and other contaminations
- use DELOTHEN cleaners for the cleaning of bonding surfaces

Curing

- at room temperature (approx. 23 °C)
- air and substrate temperature +5 °C to +30 °C, however at least 3 °C above the dew point
- increased temperatures accelerate curing
- applying heat could change physical characteristics

Technical data

Color	grey
Filler	minerals
Mixing ratio (A : B) *according to weight* (A : B) according to volume	 1.29 : 1 1.35 : 1
Density of component A [g/cm³] DELO Standard 13 at room temperature (approx. 23 °C)	1.64

DELO Industrial Adhesives
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info@DELO.de · www.DELO.de

Density of component B [g/cm³] DELO Standard 13 at room temperature (approx. 23 °C)	1.72
Viscosity of component A at 23 °C	pasty
Viscosity of component B at 23 °C	pasty
Processing time in 917g preparation [min] each one bag of component A and B; at room temperature (approx. 23 °C)	60
Compression shear strength Al/Al [MPa] DELO-Norm 5 Curing: 7 d at room temperature (ca. 23 °C)	34
Curing time until final strength [h] at room temperature (approx. 23 °C)	72
Tensile strength [MPa] DIN EN ISO 527	30
Elongation at tear [%] DIN EN ISO 527	1
Young's modulus [MPa] DIN EN ISO 527	4000
Water absorption [weight %] DIN EN ISO 62, 24 h at room temperature (approx. 23 °C)	0.22
Storage life at room temperature (max. 25 °C) in unopened original container (volume per component < 1l)	12 months

Instructions and advice

General

The data and information provided are based on tests performed under laboratory conditions. Reliable information about the behavior of the product under practical conditions and its suitability for a specific purpose cannot be concluded from this. It is the customer's responsibility to test the suitability of the product for the intended purpose by considering all specific requirements. Type and physical and chemical properties of the materials to be processed with the product, as well as all actual influences occurring during transport, storage, processing and use, may cause deviations in the behavior of the product compared to its behavior under laboratory conditions. The data and information provided are therefore no guarantee for specific product properties or the suitability of the product for the intended purpose.

Nothing contained herein shall be construed to indicate the non-existence of any relevant patents or to constitute a permission, encouragement or recommendation to practice any development covered by any patents, without permission of the owner of this patent.

All products provided by DELO are subject to DELOs' General Terms of Business. Verbal side agreements are not permitted. This document is subject to change.

Instructions for use

The instructions for use of DELO-DUOPOX are available on: www.DELO.de. We will be pleased to send them to you on demand.

Occupational health and safety

see material safety data sheet

Specification

The properties in italics are part of the specification. Ranges with clear limits are defined for them and others, where applicable. In the course of the QA test, each batch is tested for these properties and the maintenance of the limits is ensured. The measuring methods used can deviate from those specified in the data sheet. Details can be found in the QA test report.

DELO

Instructions for Use &
General Information
on the Product Group

DELO-DUOPOX

Two-component epoxy resins,
casting resins and trowelling compounds

Application areas

DELO-DUOPOX adhesives, casting resins and trowelling compounds are two-component epoxy resins that usually cure at room temperature after mixing the two components. They are predominantly used as adhesives and casting compounds in electronics, electrical engineering, mechanical engineering and tool construction.

Many DELO-DUOPOX products are filled in DELO-AUTOMIX double chamber cartridges and can be easily mixed and dispensed by means of a dispensing gun and static mixing tubes. These products are suitable for the use in the entire industry. DELO supplies suitable mixing tubes we also use in internal development and testing.

The mixing tube B050 is only conditionally suitable for our DELODUOPOX rapid adhesives. You can find further information in the DELO-AUTOMIX selection chart and instructions for use (see page 3).

Preparation of the components to be bonded

The contact surfaces must be free of oil, grease and other contaminations in order to achieve optimal bond strength. We provide our DELOTHEN cleaners. You can find more details in the "DELOTHEN Cleaners" technical information.

After cleaning, adhesion to the component can be further improved by surface pretreatment. You can find further information in the written information on surface pretreatment.

The suitability and strength of the adhesive are to be verified on original components under application-specific conditions.

Preparation of the adhesive

The adhesives are usually supplied ready for use. In case of cool storage, the containers must be conditioned to room temperature before use. The containers are conditioned at room temperature (max. +25 °C). Head addition is not permitted. The conditioning time of a tube is approx. 0.5 h. The conditioning time depends on the container size and the storage temperature. You can find detailed information in the specific Technical Data Sheet. Condensation water on the substrate must be prevented. Special DELO-DUOPOX adhesives must be homogenized by tumbling before use (see Technical Data Sheets or information provided on the containers).

Processing from DELO-AUTOMIX cartridges

The adhesives are applied by means of manual or pneumatic dispensing guns. Depending on adhesive, container and viscosity, a minimum dispensing pressure is required to completely empty the cartridge.

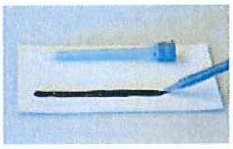
Direct pressurization of the cartridge is not recommended. Air may penetrate the adhesive past the piston. This can result in imprecise dispensing results and even air bubbles in the dispensed adhesive.

1. Insert double chamber cartridge in dispensing gun
   - Push the securing lever of the dispensing gun upwards
   - Insert the cograil from ahead to the end stop (cogging down)
   - Open the dispensing gun by flipping the cartridge retainer upwards
   - Insert double chamber cartridge
   - Close the cartridge retainer for cartridge arrangement

2. Equalize fill level deviations
   - Remove the closing cap from the cartridge top by turning
   - Equalize fill level deviations by operating the trigger lever (disposal according to MSDS)
   - The double chamber cartridges are overfilled beyond the adhesive amount specified so that no loss occurs while equalizing the fill level deviations

3. Attach mixing tube
   - Attach the mixing tube and lock it by a quarter turn, or lock swivel nut by a quarter turn

4. Avoid mixing errors
   - Before use, abandon one content of the mixing tube in order to prevent mixing errors and ensure perfect adhesive curing (disposal according to material safety data sheet)



5. Adhesive application
   - Apply the homogeneously mixed adhesive to the component

After work finish or during breaks, the mixing tube can remain on the cartridge as closure instead of the original closure cap.

If the processing pauses are shorter than the processing time of the 3 g preparation of the specific product, the same mixing tube can be used again.

Before processing continues, the previous mixing tube is removed, the outlet at the cartridge is ridded of possibly cured adhesive, and a new mixing tube is attached. When replacing the cartridge, we recommend that a new mixing tube is used in any case.

Processing from open containers/hobbocks

Preparation of the adhesive

Before mixing, the components of some adhesives that contain fillers must be homogenized. Details can be found in the Technical Data Sheets.

Processing

2-component products consist of the components A and B producing the ready-made adhesive only after proper, homogeneous mixing in the correct ratio. Therefore, the 2-component products are offered as a set of both components with matched fill quantity and one single batch number. The values of the Data Sheet and the Specification were determined with components of the same batch and therefore are only applicable to this combination.

Consequently, 2-component products are offered as sets of both components with adapted fill volumes and one single batch number.

Due to the exothermal curing reaction, large preparations should be mixed in several portions or flat vessels for a better heat dissipation.

Weigh out the components A and B in the mixing ratio indicated. Mix the mixture properly, that means free of streaks, in a suitable vessel. It must be ensured that no air is stirred in and all weighed ingredients are mixed homogeneously. Processing, mixing and dispensing must be completed within the processing time specified. Scrapers or notched trowels are suitable for application. In case of lathing or milling, the depth of cut and the processing speed should be possibly low in order to achieve a high dimensional stability.

Procedure

Per component:

1. Remove cover
2. When using in-liners: Open aluminum bottom bag
   a) Turn it and cut a cross of approx. 10 cm. Afterwards, insert the feeding pipe through the cross cut or
   b) Cut open the product foil and put it around the hobbock
3. Insert follower plate

Opened containers with DELO-DUOPOX must be used up within a maximum of 4 weeks (surroundings: 23 °C, max. 50 % rel. humidity). It must be ensured that the stored adhesive is hermetically closed (e. g. by the barrel follower plate on the supplied container) to prevent entering of air and humidity. Reclosing and later reuse is not intended.

Products containing a filler that might sediment, must be homogenized through appropriate measures before use (e. g. tumbling in the supplied container) and kept homogeneous within the above processing time (e. g. storage tank with stirring element). Details can be found in the Technical Data Sheets.

During maintenance work, product exchange, etc. on dispensing systems, we recommend exchanging the product-guiding lines instead of cleaning or rinsing them.

Please check the product-guiding parts, such as dispensing valves and product tubes, for compatibility with the adhesive or the components.

When using cleaners, please note our indications for substances compatible with the specific adhesive.

Curing

The adhesives usually cure at room temperature. After mixing the components, the period of time available for processing the product starts. During curing, exothermic reaction heat is generated. This temperature depends on the product and on the product quantity. After exceeding the processing time, the viscosity increases fast until complete curing resp. hardening. Temperatures below room temperature decelerate curing. In extreme cases, the product cures incompletely or not at all. Curing conditions deviating from room temperature can influence the product properties.

Certain products require an additional tempering process or heat curing (see the respective Technical Data Sheet).

Complete curing of most products is achieved at room temperature after 24 hours to 7 days. The curing time can be reduced by increasing the temperature to a maximum of +120 °C.

You can find the detailed, product-specific information on the processing of each product in the specific Technical Data Sheet.

Additional processing recommendations for heat-curing encapsulants

DELO-DUOPOX HC VE 7xxxx and DELO-DUOPOX CR7xx

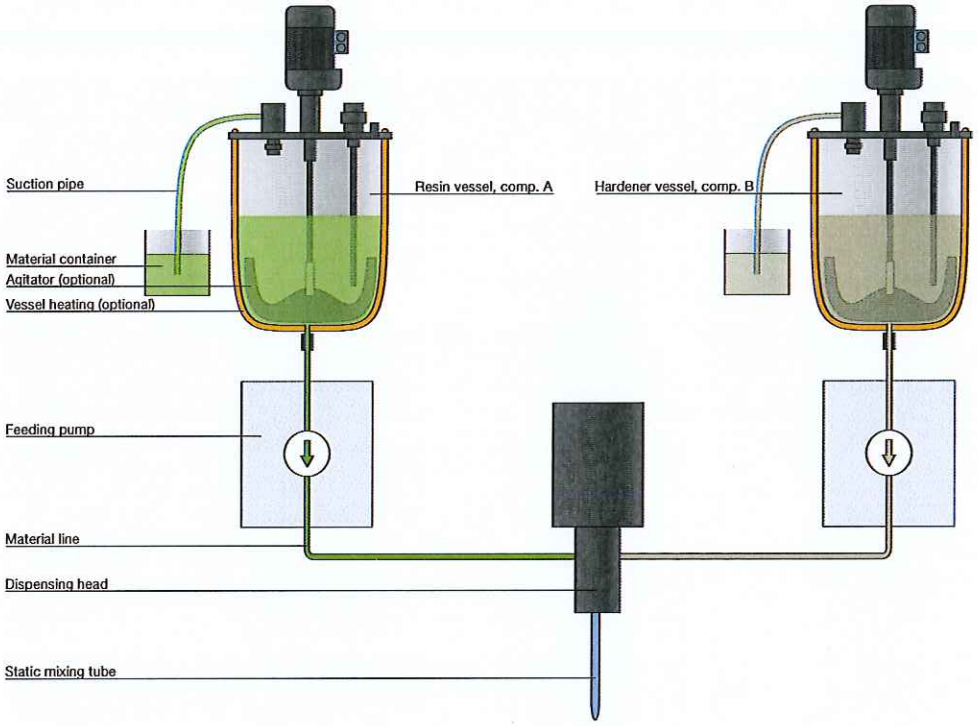
Product details and application areas

These products are heat-curing, filled, two-component epoxy casting resins suitable as multi-purpose encapsulants or potting materials.

Application areas include casting applications in mechanical engineering, apparatus engineering, electrical engineering and electronics.

The products are characterized by excellent media and temperature resistance, normally in a temperature range from -60 °C to +180 °C. Depending on the application, other limits may be applicable.

The encapsulants show a low exothermic reaction. Therefore, they are suitable for large preparation quantities or casting volumes per component. They were specifically developed for being processed on 2C dispensing systems (see figure below).



Schematic illustration of a 2C dispensing system

Preparation of the components to be bonded

The surfaces to be bonded must be dry, free of dust and grease, and free of other contaminations.

In order to prevent damage to the seals, we recommend that a suitable cleaner is selected in consultation with the system manufacturer.

Additional information on processing

Preparation of the adhesive

Component A and B must homogeneously be mixed according to the mixing ratio specified in the Technical Data Sheet.

Filler sedimentation is possible. Therefore, it is reasonable to stir the single components before use and circulate them if necessary.

Not every application requires preheating of the single components. Depending on the flow behavior, these can however be heated to +50 °C.

Possible bubble formation during homogenization or mixing can clearly be reduced by using a processing system with vacuum unit (during preparation and/or dispensing).

Adhesive application/joining

When the adhesive has been applied, processing should continue quickly as adhesives on the basis of anhydrides are sensitive to hydrolysis in uncured condition due to their chemical nature.

Too long exposure to humidity may influence the properties that can be achieved, such as adhesion or glass transition temperature.

Larger areas and thick layers are particularly critical. Due to the large surface/volume ratio, much humidity can be absorbed within a short period of time.

System configuration

The system configuration must be checked for the individual application.

Curing

- Curing proceeds after homogeneous mixing of component A and B at a temperature of +150 °C in 20 minutes plus heating time of the components.
- The heating time depends on the component size and the oven type.
- The minimum curing temperature is +130 °C.
- The maximum curing temperature is +180 °C.
- The actual curing times at the specific temperatures depend on the heating time of the components, which must be added to the curing time of the adhesive.

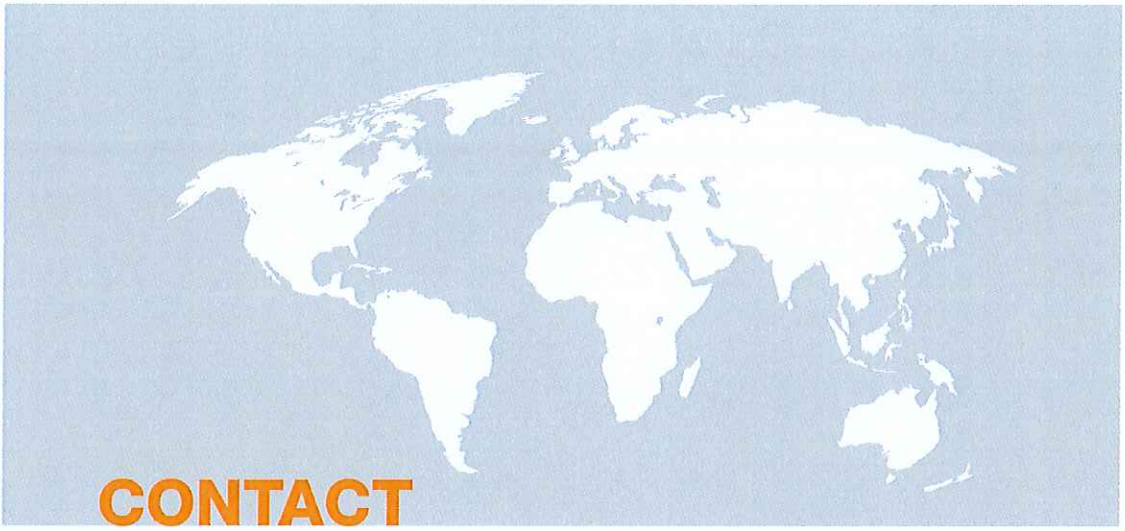
Instructions and advice for occupational health and safety

See Material Safety Data Sheet

Storage

In unopened original container

Storage life: see Technical Data Sheet



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08 / 15

SAFETY DATA SHEET

DELO

DELO-DUOPOX® MF8997 Component A

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

1.1 Product identifier

Product name : DELO-DUOPOX® MF8997 Component A

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses
Use of the substance/mixture: Adhesive. Process categories [PROC]: PROC01: Use in closed process, no likelihood of exposure. PROC02: Use in closed, continuous process with occasional controlled exposure. PROC03: Use in closed batch process (synthesis or formulation). PROC04: Use in batch and other process (synthesis) where opportunity for exposure arises. PROC05: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). PROC09: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). PROC10: Roller application or brushing of adhesive and other coating. Environmental release categories [ERC]: ERC02: Formulation of preparations. ERC05: Industrial use resulting in inclusion into or onto a matrix. Product categories [PC]: PC01: Adhesives, sealants. Sector of uses [SU]: SU03: Industrial uses. SU10: Formulation [mixing] of preparations and/or re-packaging (excluding alloys). SU16: Manufacture of computer, electronic and optical products, electrical equipment. SU17: General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment. *: Mixture.

Use of the substance/ mixture : Industrial/Professional use

1.3 Details of the supplier of the safety data sheet

Supplier's details : **DELO** Industrie Klebstoffe GmbH & Co. KGaA
DELO-Allee 1
86949 Windach
Germany
Telephone no.: +49 8193 9900-0

Information contact : msds@DELO.de
Department Chemistry - Compliance

1.4 Emergency telephone number

General

National advisory body/Poison Centre

Transport

Telephone number : GlobalChem24: +44 (0) 1235 239 670

Hours of operation : 24-hour telephone and/or website

Information limitations : In case of emergency [Transport]

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Skin Irrit. 2, H315
Eye Irrit. 2, H319
Skin Sens. 1, H317
Aquatic Chronic 2, H411

Ingredients of unknown toxicity : 52 percent of the mixture consists of component(s) of unknown toxicity

Ingredients of unknown ecotoxicity : Contains 55 % of components with unknown hazards to the aquatic environment

Classification according to Directive 1999/45/EC [DPD]

The product is classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification : Xi; R36/38
R43
N; R51/53

Human health hazards : Irritating to eyes and skin. May cause sensitisation by skin contact.

Environmental hazards : Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

See Section 16 for the full text of the R phrases or H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms :

Signal word : Warning

Hazard statements : Causes serious eye irritation.
Causes skin irritation.
May cause an allergic skin reaction.
Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention : Wear protective gloves. Wear eye or face protection. Avoid release to the environment.

Response : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage : Not applicable.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazardous ingredients : reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)
1,4-bis(2,3 epoxypropoxy)butane
3-aminomethyl-3,5,5-trimethylcyclohexylamine

Supplemental label elements : Contains epoxy constituents. May produce an allergic reaction.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Not applicable.

2.3 Other hazards

SECTION 2: Hazards identification

Other hazards which do not result in classification : None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

Product/ingredient name	Identifiers	%	Classification 67/548/EEC	Classification Regulation (EC) No. 1272/2008 [CLP]	Type
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	EC: 500-033-5 CAS: 25068-38-6 Index: 603-074-00-8	>=35 - <50	Xi; R36/38 R43 N; R51/53	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 Aquatic Chronic 2, H411	[1]
1,4-bis(2,3 epoxypropoxy)butane	EC: 219-371-7 CAS: 2425-79-8 Index: 603-072-00-7	>=7 - <10	Xn; R20/21 Xi; R36/38 R43	Acute Tox. 4, H302 Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317	[1]
titanium dioxide	EC: 236-675-5 CAS: 13463-67-7	>=1 - <5	Not classified.	Aquatic Chronic 2, H411	[1]
			See Section 16 for the full text of the R-phrases declared above.	**See Section 16 for the full text of the H statements declared above.**	

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

[1] Substance classified with a health or environmental hazard
[2] Substance with a workplace exposure limit
[3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
[4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
[5] Substance of equivalent concern

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

SECTION 4: First aid measures

Ingestion : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : Causes skin irritation. May cause an allergic skin reaction.

Ingestion : Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
irritation
redness

Ingestion : No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture : In a fire or if heated, a pressure increase will occur and the container may burst. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
metal oxide/oxides

SECTION 5: Firefighting measures

5.3 Advice for firefighters

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

6.3 Methods and material for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product.

6.4 Reference to other sections : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapour or mist. Avoid release to the environment. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

SECTION 7: Handling and storage

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Storage temperature: Observe technical data sheet/instructions for use.

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

Seveso II Directive - Reporting thresholds (in tonnes)

Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
E2: Hazardous to the aquatic environment - Chronic 2	200	500
C9ii: Toxic for the environment	200	500

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

No exposure limit value known.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Derived effect levels

No DELs available.

Predicted effect concentrations

No PECs available.

8.2 Exposure controls

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Individual protection measures

SECTION 8: Exposure controls/personal protection

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Splash goggles.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Wear suitable gloves tested to EN374. Recommended: Viton® fluor rubber 1 - 4 hours (breakthrough time) / Short Term Exposure < 15 min. Nitrile gloves.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: organic vapour filter (Type A)

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	: Liquid.
Colour	: Not available.
Odour	: Not available.
Flash point	: Not available.
Upper/lower flammability or explosive limits	: Not available.
Vapour pressure	: Not available.
Vapour density	: Not available.
Relative density	: Not available.
Solubility(ies)	: Not available.
Partition coefficient: n-octanol/ water	: Not available.
Auto-ignition temperature	: Not available.
Decomposition temperature	: Not available.
Viscosity	: Not available.
Explosive properties	: Not available.
Oxidising properties	: Not available.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity : No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability : The product is stable.

10.3 Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid : No specific data.

10.5 Incompatible materials : No specific data.

10.6 Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	LD50 Oral	Rat	11.4 g/kg	-
1,4-bis(2,3 epoxypropoxy) butane	LD50 Dermal	Rabbit	1130 mg/kg	-
	LD50 Oral	Rat	1134 mg/kg	-

Conclusion/Summary : Not available.

Acute toxicity estimates

Route	ATE value
Oral	16200 mg/kg
Dermal	16142.9 mg/kg
Inhalation (vapours)	157.1 mg/l

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	Eyes - Mild irritant	Rabbit	-	100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Eyes - Severe irritant	Rabbit	-	24 hours 5 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 500 microliters	-
	Skin - Severe irritant	Rabbit	-	24 hours 2 milligrams	-
1,4-bis(2,3 epoxypropoxy) butane	Eyes - Moderate irritant	Rabbit	-	100 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 10 milligrams	-
titanium dioxide	Skin - Mild irritant	Human	-	72 hours 300 Micrograms Intermittent	-

Conclusion/Summary : Not available.

SECTION 11: Toxicological information

Sensitisation

Conclusion/Summary : Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : Causes skin irritation. May cause an allergic skin reaction.

Ingestion : Irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
irritation
redness

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

Conclusion/Summary : Not available.

General : Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

SECTION 11: Toxicological information

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Other information : Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
titanium dioxide	Acute EC50 5.83 mg/l Fresh water	Algae - Pseudokirchneriella subcapitata - Exponential growth phase	72 hours
	Acute LC50 5.5 ppm Fresh water	Daphnia - Daphnia magna - Juvenile (Fledgling, Hatchling, Weanling)	48 hours
	Acute LC50 >1000000 µg/l Marine water	Fish - Fundulus heteroclitus	96 hours
	Chronic NOEC 0.984 mg/l Fresh water	Algae - Pseudokirchneriella subcapitata - Exponential growth phase	72 hours

Conclusion/Summary : Not available.

12.2 Persistence and degradability

Conclusion/Summary : Not available.

12.3 Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
1,4-bis(2,3 epoxypropoxy) butane	-0.15	-	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

PBT : Not applicable.

vPvB : Not applicable.

12.6 Other adverse effects : No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

SECTION 13: Disposal considerations

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste : Yes.

European waste catalogue (EWC)

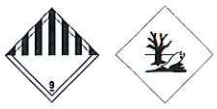
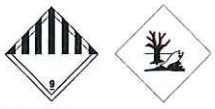
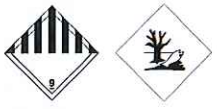
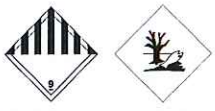
Waste code	Waste designation
08 04 09*	waste adhesives and sealants containing organic solvents or other dangerous substances

Packaging

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	UN3082	UN3082	UN3082	UN3082
14.2 UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (reaction product: bisphenol-A-(epichlorhydrin); epoxy resin, titanium dioxide)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (reaction product: bisphenol-A-(epichlorhydrin); epoxy resin, titanium dioxide)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (reaction product: bisphenol-A-(epichlorhydrin); epoxy resin, titanium dioxide). Marine pollutant (reaction product: bisphenol-A-(epichlorhydrin); epoxy resin, titanium dioxide)	Environmentally hazardous substance, liquid, n.o.s. (reaction product: bisphenol-A-(epichlorhydrin); epoxy resin, titanium dioxide)
14.3 Transport hazard class(es)	9 	9 	9 	9 
14.4 Packing group	III	III	III	III
14.5 Environmental hazards	Yes.	Yes.	Yes.	Yes.

SECTION 14: Transport information

Additional information	The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg. **Hazard identification number** 90 **Limited quantity** 5 L **Special provisions** 274, 335, 601 **Tunnel code** (E)	The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg. **Special provisions** 274, 601, 335	The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg. **Emergency schedules (EmS)** F-A, S-F **Special provisions** 274, 335	The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg. **Passenger and Cargo Aircraft** Quantity limitation: 450 L Packaging instructions: 964 **Cargo Aircraft Only** Quantity limitation: 450 L Packaging instructions: 964 **Limited Quantities - Passenger Aircraft** Quantity limitation: 30 kg Packaging instructions: Y964 **Special provisions** A97, A158

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Not applicable.

Other EU regulations

Seveso II Directive

This product is controlled under the Seveso II Directive.

Danger criteria

SECTION 15: Regulatory information

Category
E2: Hazardous to the aquatic environment - Chronic 2 C9ii: Toxic for the environment

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Inform Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

International lists

National inventory

Australia	:	Not determined.
Canada	:	Not determined.
China	:	Not determined.
Japan	:	Not determined.
Malaysia	:	Not determined.
New Zealand	:	Not determined.
Philippines	:	Not determined.
Republic of Korea	:	Not determined.
Taiwan	:	Not determined.
United States	:	Not determined.

15.2 Chemical Safety Assessment : This product contains substances for which Chemical Safety Assessments are still required.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Skin Irrit. 2, H315	Calculation method
Eye Irrit. 2, H319	Calculation method
Skin Sens. 1, H317	Calculation method
Aquatic Chronic 2, H411	Calculation method

SECTION 16: Other information

Full text of abbreviated H statements :

H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H411	Toxic to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS] :

Acute Tox. 4, H302	ACUTE TOXICITY (oral) - Category 4
Acute Tox. 4, H312	ACUTE TOXICITY (dermal) - Category 4
Acute Tox. 4, H332	ACUTE TOXICITY (inhalation) - Category 4
Aquatic Chronic 2, H411	LONG-TERM AQUATIC HAZARD - Category 2
Eye Irrit. 2, H319	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
Skin Irrit. 2, H315	SKIN CORROSION/IRRITATION - Category 2
Skin Sens. 1, H317	SKIN SENSITIZATION - Category 1

Full text of abbreviated R phrases : R20/21- Harmful by inhalation and in contact with skin.
R36/38- Irritating to eyes and skin.
R43- May cause sensitisation by skin contact.
R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Full text of classifications [DSD/DPD] : Xn - Harmful
Xi - Irritant
N - Dangerous for the environment

Date of printing : 2014-11-12.

Date of issue/ Date of revision : 2014-11-12.

Date of previous issue : 2014-06-06.

Version : 2

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

SAFETY DATA SHEET

DELO

DELO-DUOPOX® MF8997 Component B

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

1.1 Product identifier

Product name : DELO-DUOPOX® MF8997 Component B

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses
Use of the substance/mixture: Adhesive. Process categories [PROC]: PROC01: Use in closed process, no likelihood of exposure. PROC02: Use in closed, continuous process with occasional controlled exposure. PROC03: Use in closed batch process (synthesis or formulation). PROC04: Use in batch and other process (synthesis) where opportunity for exposure arises. PROC05: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). PROC09: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). PROC10: Roller application or brushing of adhesive and other coating. Environmental release categories [ERC]: ERC02: Formulation of preparations. ERC05: Industrial use resulting in inclusion into or onto a matrix. Product categories [PC]: PC01: Adhesives, sealants. Sector of uses [SU]: SU03: Industrial uses. SU10: Formulation [mixing] of preparations and/or re-packaging (excluding alloys). SU16: Manufacture of computer, electronic and optical products, electrical equipment. SU17: General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment. *: Mixture.

Use of the substance/ mixture : Industrial/Professional use

1.3 Details of the supplier of the safety data sheet

Supplier's details : **DELO** Industrie Klebstoffe GmbH & Co. KGaA
DELO-Allee 1
86949 Windach
Germany
Telephone no.: +49 8193 9900-0

Information contact : msds@DELO.de
Department Chemistry - Compliance

1.4 Emergency telephone number

General

National advisory body/Poison Centre

Transport

Telephone number : GlobalChem24: +44 (0) 1235 239 670

Hours of operation : 24-hour telephone and/or website

Information limitations : In case of emergency [Transport]

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Not classified.

Ingredients of unknown toxicity : 17.7 percent of the mixture consists of component(s) of unknown toxicity

Ingredients of unknown ecotoxicity : Contains 17.7 % of components with unknown hazards to the aquatic environment

Classification according to Directive 1999/45/EC [DPD]

The product is not classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification : Not classified.

See Section 16 for the full text of the R phrases or H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms :

Signal word : No signal word.

Hazard statements : No known significant effects or critical hazards.

Precautionary statements

Prevention : Not applicable.

Response : Not applicable.

Storage : Not applicable.

Disposal : Not applicable.

Supplemental label elements : Contains ethylenediamine. May produce an allergic reaction. Safety data sheet available on request.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Not applicable.

2.3 Other hazards

Other hazards which do not result in classification : None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

SECTION 4: First aid measures

Ingestion : Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture : In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
metal oxide/oxides

5.3 Advice for firefighters

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

: Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and material for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor.

6.4 Reference to other sections

: See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Storage temperature: Observe technical data sheet/instructions for use.

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

No exposure limit value known.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Derived effect levels

No DELs available.

Predicted effect concentrations

No PECs available.

8.2 Exposure controls

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Splash goggles.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Wear suitable gloves tested to EN374. Recommended: Viton® fluor rubber 1 - 4 hours (breakthrough time) / Short Term Exposure < 15 min. Nitrile gloves.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: organic vapour filter (Type A)

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	:	Liquid.
Colour	:	Not available.
Odour	:	Not available.
Flash point	:	Not available.
Upper/lower flammability or explosive limits	:	Not available.
Vapour pressure	:	Not available.
Vapour density	:	Not available.
Relative density	:	Not available.
Solubility(ies)	:	Not available.
Partition coefficient: n-octanol/ water	:	Not available.
Auto-ignition temperature	:	Not available.
Decomposition temperature	:	Not available.
Viscosity	:	Not available.
Explosive properties	:	Not available.
Oxidising properties	:	Not available.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity	:	No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	:	The product is stable.
10.3 Possibility of hazardous reactions	:	Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	:	No specific data.
10.5 Incompatible materials	:	No specific data.
10.6 Hazardous decomposition products	:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Conclusion/Summary : Not available.

Acute toxicity estimates

Not available.

Irritation/Corrosion

Conclusion/Summary : Not available.

Sensitisation

Conclusion/Summary : Not available.

SECTION 11: Toxicological information

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

Conclusion/Summary : Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

SECTION 11: Toxicological information

Other information : Not available.

SECTION 12: Ecological information

12.1 Toxicity

Conclusion/Summary : Not available.

12.2 Persistence and degradability

Conclusion/Summary : Not available.

12.3 Bioaccumulative potential

Not available.

12.4 Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

PBT : Not applicable.

vPvB : Not applicable.

12.6 Other adverse effects

: No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste : Yes.

European waste catalogue (EWC)

Waste code	Waste designation
08 04 09*	waste adhesives and sealants containing organic solvents or other dangerous substances

Packaging

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions : This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
14.2 UN proper shipping name	-	-	-	-
14.3 Transport hazard class(es)	-	-	-	-
14.4 Packing group	-	-	-	-
14.5 Environmental hazards	No.	No.	No.	No.
Additional information	-	-	-	-

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Not applicable.

Other EU regulations

Seveso II Directive

This product is not controlled under the Seveso II Directive.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

SECTION 15: Regulatory information

Not listed.

Rotterdam Convention on Prior Inform Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

International lists

National inventory

Australia	:	All components are listed or exempted.
Canada	:	At least one component is not listed in DSL but all such components are listed in NDSL.
China	:	All components are listed or exempted.
Japan	:	Not determined.
Malaysia	:	Not determined.
New Zealand	:	All components are listed or exempted.
Philippines	:	All components are listed or exempted.
Republic of Korea	:	All components are listed or exempted.
Taiwan	:	Not determined.
United States	:	All components are listed or exempted.

15.2 Chemical Safety Assessment : This product contains substances for which Chemical Safety Assessments are still required.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Not classified.	

Full text of abbreviated H statements	:	Not applicable.
Full text of classifications [CLP/GHS]	:	Not applicable.
Full text of abbreviated R phrases	:	Not applicable.
Full text of classifications [DSD/DPD]	:	Not applicable.
Date of printing	:	2014-11-12.
Date of issue/ Date of revision	:	2014-11-12.
Date of previous issue	:	2014-06-06.
Version	:	2

Notice to reader

SECTION 16: Other information

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

DELO-DUOPOX MF8997
PERI sealant
List of chemical resistance

DELO-DUOPOX MF8997 is especially designed for anchor area sealing in combination with PERI formwork systems, e.g. for drinking water systems, seawater systems, pools and sewage treatment plants.

If properly and correctly used according to the technical data sheet and the instructions for use, the adhesive is resistant to the following substances after complete curing

- Drinking water
- Groudwater and surface water
- Seawater
- Water in pools and substances usually used in pools for disinfection
- Water in sewage treatment plants according to the generally applicable values for the key condition criteria in public sewage treatment plants

The following list is supposed to give the user some clue as to which fluid media and chemicals the product is most probably resistant at room temperature.

To assess the chemical resistance, the cured adhesive and the strength achieved under the influence of a medium must to be considered.

The bond strength is influenced by the material of the components to be bonded. Good adhesion between adhesive and component hinders sub-surface migration in the boundary layer. Exposure time and temperature as well as test method and parameters are further criteria directly influencing the resistance.

Even if the adhesive is resistant to the medium used according to the list, its suitability must be tested in practical tests under the prevailing conditions of use, such as temperature, pressure, climate and time.

Explanation:

+	=	The products are resistant according to our experience.
o	=	The products are resistant under special circumstances, that means they are conditionally resistant.
–	=	The products are not resistant.

DELO-DUOPOX MF8997

List of chemical resistance

Acetaldehyde	+	Formaldehyde	o	Nitric acid (10 %)	o
Acetic acid (10 %)	o	Formalin (30 %)	+	Nitric acid (conc.)	–
Acetic acid (conc.)	–	Formic acid	–	Nitrobenzene	o
Acetone	–	Frigen	+	Oils	+
Alcohols (as of 3C atoms)	+	Fuel oil	+	Ozone	–
Ammonia (10 %)	+	Glycol	+	Paraffins	+
Ammonia (conc.)	+	Glycolic acid	+	Perchloric acid	–
Battery acid (10 %)	+	Heptane	+	Petroleum	+
Benzene	–	Hexane	+	Phenol solution	–
Benzoic acid	+	Hydrochloric acid (10 %)	+	Phosphoric acid (conc).	+
Bromine	–	Hydrochloric acid (conc.)	o	Phosphoric acid (10 %)	–
Butanol	+	Hydrofluoric acid	–	Pools	+
Caustic potash (10 %)	+	Hydrogen bromide	o	Saline solution	+
Caustic soda (10 %)	+	Hydrogen fluoride	–	Seawater	+
Caustic soda (conc.)	o	Hydrogen peroxide (10 %)	+	Sewage water	+
Chlorine	–	Hydrogen peroxide (30 %)	–	Soap solution	+
Chlorine concentrations in pools	+	Hydroxylamine	+	Soda solution	+
		Iodine	–	Styrene	o
Chloroform	–	Iodine starch solution	+	Sulfuric acid (10 %)	+
Chrome sulfuric acid	–	Isobutanol	+	Sulfuric acid (conc.)	–
Citric acid	+	Isooctane	+	Sulfurous acid (10 %)	+
Diesel oil	+	Isopropanol	+	Tap water	+
Dimethylformamide	o	Isopropylether	+	Toluene	–
Ethanol	o	Methanol	–	Trichloroethane	–
Ethyl acetate	o	Methylene chloride	–	Trichloroethylene	–
Ethylene glycol	+	Methylethylketone	–	Turpentine	o
Fats	+	Nicotinic acid	–	Water	+
Fatty acids	+	Nitration acid	–		