

SAFETY DATA SHEET

CALDOFIX-2 RESIN

Section 1. Identification

Product identifier : CALDOFIX-2 RESIN
Cat. No. : 40200085, 50209126
Container size : 1 l
Other means of identification : Not available.
Product type : Liquid.

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

Product use : For embedding and impregnation of materialographic specimens
Area of application : Professional applications.

Supplier's details : Struers ApS Singapore Branch
1008 Toa Payoh North
#05-07/08
Singapore 318996
Singapore
Telephone: +65 () 3165 0200

e-mail address of person responsible for this SDS : sdsquestions@struers.dk

Emergency telephone number (with hours of operation) : 24-hour Emergency Medical Service (EMS): 995.

Section 2. Hazards identification

Classification of the substance or mixture : H315 SKIN IRRITATION - Category 2
H318 SERIOUS EYE DAMAGE - Category 1
H317 SKIN SENSITISATION - Category 1
H341 GERM CELL MUTAGENICITY - Category 2
H335 SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract irritation) - Category 3
H411 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H318 - Causes serious eye damage.
H335 - May cause respiratory irritation.
H341 - Suspected of causing genetic defects. (oral)
H411 - Toxic to aquatic life with long lasting effects.

Version : 2

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Section 2. Hazards identification

Precautionary statements

- Prevention** : P201 - Obtain special instructions before use.
P280 - Wear protective gloves, protective clothing, eye protection, face protection, or hearing protection.
P273 - Avoid release to the environment.
P261 - Avoid breathing vapour.
P264 - Wash thoroughly after handling.
- Response** : P391 - Collect spillage.
P308 + P313 - IF exposed or concerned: Get medical advice or attention.
P304 + P312 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell.
P302 + P352 - IF ON SKIN: Wash with plenty of water.
P333 + P313 - If skin irritation or rash occurs: Get medical advice or attention.
P362 + P364 - Take off contaminated clothing and wash it before reuse.
P305 + P351 + P338, P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER or doctor.
- Storage** : P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.
- Disposal** : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

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

Section 3. Composition/information on ingredients

Substance/mixture : Mixture
Other means of identification : Not available.

Ingredient name	%	Identifiers
bis-[4-(2,3-epoxipropoxy)phenyl]propane	≥60 - ≤75	CAS: 1675-54-3
2,3-epoxypropyl neodecanoate	≥30 - ≤60	CAS: 26761-45-5
2-Propenoic acid, reaction products with pentaerythritol	≤5	CAS: 1245638-61-2
hexamethylene diacrylate	≤3	CAS: 13048-33-4

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 and hence require reporting in this section.

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

Chemical formula : Not applicable.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Get medical attention immediately. Call a poison center or physician. 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. Chemical burns must be treated promptly by a physician.
- Inhalation** : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. 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. 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** : Get medical attention immediately. Call a poison center or physician. 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. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. 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. Chemical burns must be treated promptly by a physician. 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.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : May cause respiratory irritation.
- Skin contact** : Causes skin irritation. May cause an allergic skin reaction.
- Ingestion** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain
watering
redness
- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
- Skin contact** : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
- Ingestion** : Adverse symptoms may include the following:
stomach pains

Section 4. First aid measures

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. 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.

See toxicological information (Section 11)

Section 5. Firefighting measures

Extinguishing media

- Suitable extinguishing media** : In case of fire, use water spray (fog), foam, dry chemical or CO₂. Cool closed containers exposed to fire with water.
- Unsuitable extinguishing media** : Do not use water jet.
- Specific hazards arising from the chemical** : 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
- 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.

Section 6. Accidental release measures

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. Do not breathe 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".

Section 6. Accidental release measures

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.

Methods and material for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dispose of via a licensed waste disposal contractor. Absorb spill with inert material (e.g. dry sand or earth) and place in a chemical waste container.

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. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. 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.

Section 7. Handling and storage

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. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. 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.

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.

Conditions for safe storage, including any incompatibilities : 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. Store locked up. 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. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

None.

Biological exposure indices

No exposure indices known.

- Appropriate engineering controls** : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- 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.

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. 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 : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

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. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
Recommended: Butyl rubber gloves. The breakthrough time must be greater than the end use time of the product.

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 : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Thermal hazards : Not available.

Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state	: Liquid.
Colour	: Clear. Yellowish.
Odour	: Slight
Odour threshold	: Not available.
pH	: Not applicable.
Melting point/freezing point	: Not available.
Boiling point or initial boiling point and boiling range	: Not available.
Flash point	: Closed cup: 110°C (230°F)
Evaporation rate	: Not available.
Flammability	: Not available.
Lower and upper explosion limit/flammability limit	: Not available.
Vapour pressure	:

Ingredient name	Vapour Pressure at 20°C			Vapour pressure at 50°C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
2,3-epoxypropyl neodecanoate	0.11251	0.015				

Relative vapour density : Not available.

Relative density : 1.13

Media	Result
water	Not soluble

Miscible with water : No.

Partition coefficient: n-octanol/water : Not applicable.

Ingredient name	°C	°F	Method
2,3-epoxypropyl neodecanoate	276	528.8	EU A.15

Decomposition temperature : Not available.

Viscosity : Dynamic (room temperature): Not available.
Kinematic (room temperature): 628 to 673 mm²/s (628 to 673 cSt)
Kinematic (40°C (104°F)): Not available.

Flow time (ISO 2431) : Not available.

Particle characteristics

Median particle size : Not applicable.

Other information

Physical/chemical properties comments : No additional information.

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous polymerisation will not occur.
Conditions to avoid	: No specific data.
Incompatible materials	: Reactive or incompatible with the following materials: oxidising materials and alkalis.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
SADT	: Not available.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	
 bis-[4-(2,3-epoxipropoxy)phenyl] propane	Rabbit - Dermal - LD50 20 g/kg	<u>Toxic effects:</u> Behavioral - Somnolence (general depressed activity) Gastrointestinal - Hypermotility, diarrhea Gross Metabolite Changes - Weight loss or decreased weight gain
2,3-epoxypropyl neodecanoate	Rat - Oral - LD50 11400 mg/kg Rat - Male, Female - Oral - LD50 >9700 mg/kg Rat - Dermal - LD50 >3900 mg/kg	
2-Propenoic acid, reaction products with pentaerythritol	Rat - Oral - LD50 540 mg/kg Rabbit - Dermal - LD50 >2000 mg/kg	OECD 401 [Acute Oral Toxicity] OECD 402 [Acute Dermal Toxicity]
hexamethylene diacrylate	Rabbit - Dermal - LD50 3650 mg/kg Rat - Oral - LD50 >5000 mg/kg Rat - Inhalation - LC50 Dusts and mists 0.41 mg/l [7 hours]	OECD 402 [Acute Dermal Toxicity] OECD 401 [Acute Oral Toxicity]
Conclusion/Summary[Product]	: Not available.	

Section 11. Toxicological information

Skin corrosion/irritation

Product/ingredient name	Result
 bis-[4-(2,3-epoxipropoxy)phenyl] propane	Rabbit - Skin - Moderate irritant Duration of treatment/exposure: 24 hours Rabbit - Skin - Severe irritant Duration of treatment/exposure: 24 hours Rabbit - Skin - Erythema/Eschar Irritation score: 1.5 to 2 Rabbit - Skin - Oedema Irritation score: 1 to 1.5 Rabbit - Skin - Primary dermal irritation index (PDII) Duration of treatment/exposure: 4 hours Irritation score: 0.7 OECD 404 [Acute Dermal Irritation/Corrosion] OECD 404 [Acute Dermal Irritation/Corrosion] Observation period: 72 hours OECD 404 [Acute Dermal Irritation/Corrosion]
2,3-epoxypropyl neodecanoate	
2-Propenoic acid, reaction products with pentaerythritol hexamethylene diacrylate	Rabbit - Skin - Irritant OECD 404 [Acute Dermal Irritation/Corrosion] Rabbit - Skin - Severe irritant Duration of treatment/exposure: 24 hours Amount/concentration applied: 500 mg

Conclusion/Summary[Product] : Not available.

Serious eye damage/eye irritation

Product/ingredient name	Result
 bis-[4-(2,3-epoxipropoxy)phenyl] propane	Rabbit - Eyes - Irritant OECD 405 [Acute Eye Irritation/Corrosion] Rabbit - Eyes - Redness of the conjunctivae Irritation score: 0.7 Rabbit - Eyes - Redness of the conjunctivae Irritation score: 0.7 Rabbit - Eyes - Severe irritant Rabbit - Eyes - Irritant Observation period: 72 hours OECD 405 [Acute Eye Irritation/Corrosion] OECD 405 [Acute Eye Irritation/Corrosion] OECD 405 [Acute Eye Irritation/Corrosion]
2,3-epoxypropyl neodecanoate	
2-Propenoic acid, reaction products with pentaerythritol hexamethylene diacrylate	

Conclusion/Summary[Product] : Not available.

Respiratory corrosion/irritation

Conclusion/Summary[Product] : Not available.

Respiratory or skin sensitization

Product/ingredient name	Result
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Section 11. Toxicological information

 bis-[4-(2,3-epoxipropoxy)phenyl]
propane

Guinea pig - skin

Result: Sensitising

Mouse - skin

Result: Sensitising

Guinea pig - skin

Result: Sensitising

Guinea pig - skin

Result: Sensitising

OECD 406 [Skin Sensitization]

OECD 429 [Skin Sensitization: Local
Lymph Node Assay]

OECD 406 [Skin Sensitization]

OECD 406 [Skin Sensitization]

2,3-epoxypropyl neodecanoate

hexamethylene diacrylate

Skin

Conclusion/Summary[Product] : Not available.

Respiratory

Conclusion/Summary[Product] : Not available.

Germ cell mutagenicity

Product/ingredient name

Result

 bis-[4-(2,3-epoxipropoxy)phenyl]
propane

Mammalian-Animal

>3000 mg/kg [5 days]

Result: Negative

2,3-epoxypropyl neodecanoate

In vivo - Mammalian-Animal

Result: Positive

2-Propenoic acid, reaction products
with pentaerythritol

In vitro - Mammalian-Animal

Result: Negative

In vitro - Bacteria

Result: Negative

In vivo - Mammalian-Animal

Result: Negative

In vitro - Bacteria

Result: Negative

In vitro - Mammalian-Animal

Result: Negative

In vivo - Mammalian-Animal

Result: Negative

OECD 476 [In vitro Mammalian Cell
Gene Mutation Test]

OECD 471 [Bacterial Reverse
Mutation Test]

OECD 474 [Mammalian Erythrocyte
Micronucleus Test]

OECD 471 [Bacterial Reverse
Mutation Test]

OECD 476 [In vitro Mammalian Cell
Gene Mutation Test]

OECD 474 [Mammalian Erythrocyte
Micronucleus Test]

hexamethylene diacrylate

Conclusion/Summary[Product] : Not available.

Carcinogenicity

Product/ingredient name

Result

 bis-[4-(2,3-epoxipropoxy)phenyl]
propane

Rat - Oral - TC

100 mg/kg [24 hours]

Result: Negative

Mouse - Male - Dermal - TC

100 mg/kg [24 hours]

Result: Negative

Rat - Female - Dermal - TC

1000 mg/kg [24 hours]

Result: Negative

OECD 453 [Combined Chronic
Toxicity/Carcinogenicity Studies]

OECD 453 [Combined Chronic
Toxicity/Carcinogenicity Studies]

OECD 453 [Combined Chronic
Toxicity/Carcinogenicity Studies]

Conclusion/Summary[Product] : Not available.

Reproductive toxicity

Section 11. Toxicological information

Product/ingredient name	Result	
bis-[4-(2,3-epoxipropoxy)phenyl]propane 2-Propenoic acid, reaction products with pentaerythritol	Rabbit - Oral <u>Developmental</u> : Negative Rat - Oral 200 mg/kg - NOAEL <u>Fertility effects</u> : Negative Rabbit - Oral 75 mg/kg - NOAEL <u>Maternal toxicity</u> : Negative <u>Developmental</u> : Negative Rat - Oral 750 mg/kg - NOAEL <u>Fertility effects</u> : Negative Rat - Oral <750 mg/kg - NOAEL <u>Maternal toxicity</u> : Negative <u>Developmental</u> : Negative	OECD 422 [Combined Repeated Dose Toxicity Study with the Reproduction/Developmental Toxicity Screening Test] OECD 414 [Prenatal Developmental Toxicity Study] OECD 422 [Combined Repeated Dose Toxicity Study with the Reproduction/Developmental Toxicity Screening Test] OECD 414 [Prenatal Developmental Toxicity Study]
hexamethylene diacrylate		

Conclusion/Summary[Product] : Not available.

Specific target organ toxicity (single exposure)

Product/ingredient name	Result
bis-[4-(2,3-epoxipropoxy)phenyl]propane 2,3-epoxypropyl neodecanoate 2-Propenoic acid, reaction products with pentaerythritol hexamethylene diacrylate	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract irritation) - Category 3

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure

Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

Potential acute health effects

Eye contact	: Causes serious eye damage.
Inhalation	: May cause respiratory irritation.
Skin contact	: Causes skin irritation. May cause an allergic skin reaction.
Ingestion	: No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Section 11. Toxicological information

Eye contact	: Adverse symptoms may include the following: pain watering redness
Inhalation	: Adverse symptoms may include the following: respiratory tract irritation coughing
Skin contact	: Adverse symptoms may include the following: pain or irritation redness blistering may occur
Ingestion	: Adverse symptoms may include the following: stomach pains

Delayed and immediate effects as well as 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

Product/ingredient name	Result	
2,3-epoxypropyl neodecanoate	Chronic - Rat - Oral - NOAEL 100 mg/kg [7 days per week] [90 days]	OECD 408 [Repeated Dose 90-Day Oral Toxicity Study in Rodents]
2-Propenoic acid, reaction products with pentaerythritol	Chronic - Rat - Oral - NOAEL 75 mg/kg [4 weeks]	OECD 422 [Combined Repeated Dose Toxicity Study with the Reproduction/Developmental Toxicity Screening Test]
	Chronic - Rat - Oral - LOAEL 200 mg/kg [4 weeks]	OECD 422 [Combined Repeated Dose Toxicity Study with the Reproduction/Developmental Toxicity Screening Test]
	Chronic - Rabbit - Dermal - NOAEL 12 mg/kg [3 months]	OECD 411 [Subchronic Dermal Toxicity: 90-day Study]
hexamethylene diacrylate	Chronic - Rat - Oral - NOAEL 250 mg/kg [7 weeks]	Toxic effects: liver OECD 422 [Combined Repeated Dose Toxicity Study with the Reproduction/Developmental Toxicity Screening Test]

Conclusion/Summary[Product] : Not available.

General	: Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: Suspected of causing genetic defects if swallowed.
Reproductive toxicity	: No known significant effects or critical hazards.

Section 11. Toxicological information

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
CALDOFIX-2 RESIN	14970.0	N/A	N/A	N/A	N/A
bis-[4-(2,3-epoxipropoxy)phenyl]propane	11400	20000	N/A	N/A	N/A
2-Propenoic acid, reaction products with pentaerythritol	540	N/A	N/A	N/A	N/A
hexamethylene diacrylate	N/A	3650	N/A	N/A	N/A

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	
bis-[4-(2,3-epoxipropoxy)phenyl]propane	Acute - LC50 Fish 1.3 mg/l [96 hours]	OECD 203 [Fish, Acute Toxicity Test]
	Acute - EC50 Daphnia - <i>water Flea</i> 2.1 mg/l [48 hours]	OECD 202 [Daphnia sp. Acute Immobilization Test and Reproduction Test]
	Acute - EC50 Algae >11 mg/l [72 hours]	
	Chronic - NOEC Daphnia - <i>water Flea</i> 0.3 mg/l [21 days]	OECD 211 [Daphnia Magna Reproduction Test]
2,3-epoxypropyl neodecanoate	Acute - EC50 - Fresh water Daphnia - <i>Daphnia magna</i> 4.8 mg/l [48 hours]	OECD [Daphnia sp. Acute Immobilization Test and Reproduction Test]
	Acute - LC50 Fish - <i>Rainbow trout</i> 9.6 mg/l [96 hours]	OECD 203 [Fish, Acute Toxicity Test]
	Acute - EC50 Algae 3.5 mg/l [96 hours]	OECD 201 [Alga, Growth Inhibition Test]
2-Propenoic acid, reaction products with pentaerythritol	Acute - LC50 - Fresh water Fish - <i>Cyprinus carpio</i> 3.2 mg/l [96 hours]	OECD 203 [Fish, Acute Toxicity Test]
	Acute - EC50 Algae - <i>Pseudokirchneriella subcapitata</i> 12 mg/l [96 hours]	OECD 201 [Alga, Growth Inhibition Test]
	Acute - EC50 Micro-organism >100 mg/l [3 hours]	OECD 209 [Activated Sludge, Respiration Inhibition Test]
	Acute - NOEC Algae - <i>Pseudokirchneriella subcapitata</i> 0.31 mg/l [96 hours]	OECD 201 [Alga, Growth Inhibition Test]

Section 12. Ecological information

hexamethylene diacrylate

Acute - EC50 - Fresh water

Daphnia - *Daphnia magna*
2.7 mg/l [48 hours]

Acute - NOEC - Fresh water

Daphnia - *Daphnia magna*
1.8 mg/l [48 hours]

Acute - EC50

Micro-organism
270 mg/l [30 minutes]

Acute - LC50

Fish - *Oryzias latipes*
0.38 mg/l [96 hours]

Acute - NOEC

Algae
0.9 mg/l [72 hours]

Chronic - NOEC

Fish - *Oryzias latipes*
0.072 mg/l [39 days]

Acute - EC50

Algae - *Pseudokirchneriella subcapitata*
2.33 mg/l [72 hours]

OECD [Daphnia sp. Acute Immobilization Test and Reproduction Test]

OECD [Daphnia sp. Acute Immobilization Test and Reproduction Test]

OECD 209 [Activated Sludge, Respiration Inhibition Test]

OECD 203 [Fish, Acute Toxicity Test]

OECD 210 [Fish, Early-Life Stage Toxicity Test]

OECD 201 [Alga, Growth Inhibition Test]

Conclusion/Summary[Product] : Not available.

Persistence and degradability

Product/ingredient name

bis-[4-(2,3-epoxipropoxy)phenyl]propane
2,3-epoxypropyl neodecanoate

2-Propenoic acid, reaction products with pentaerythritol

hexamethylene diacrylate

Result

6 to 12% [28 days] - Not readily

Aerobic

7 to 8% [28 days] - Not readily

Aerobic - 21 mg/l

14% [28 days] - Not readily
50% [28 days]

72% [60 days]

Aerobic

60 to 70% [28 days] - Readily

OECD 301F [Ready Biodegradability - Manometric Respirometry Test]

OECD 301D [Ready Biodegradability - Closed Bottle Test]

OECD 301B [Ready Biodegradability - CO2 Evolution Test]

OECD 301D [Ready Biodegradability - Closed Bottle Test]

OECD 301D [Ready Biodegradability - Closed Bottle Test]

OECD 310 [Ready Biodegradability - CO2 in Sealed Vessels (Headspace Test)]

Conclusion/Summary[Product] : Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
bis-[4-(2,3-epoxipropoxy)phenyl]propane	-	-	Not readily
2,3-epoxypropyl neodecanoate	-	-	Not readily
2-Propenoic acid, reaction products with pentaerythritol	-	-	Not readily
hexamethylene diacrylate	-	-	Readily

Bioaccumulative potential

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Section 12. Ecological information

Product/ingredient name	LogP _{ow}	BCF	Potential
bis-[4-(2,3-epoxipropoxy)phenyl]propane	2.64 to 3.78	3 to 31	Low
2,3-epoxypropyl neodecanoate	4.4	-	High
2-Propenoic acid, reaction products with pentaerythritol	1.45	-	Low
hexamethylene diacrylate	2.81	-	Low

Mobility in soil

Soil/water partition coefficient : Not available.

Other adverse effects

No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : 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. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. 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

	UN	IMDG	IATA	ADR/RID	ADN
UN number	UN3082	UN3082	UN3082	UN3082	UN3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis-[4-(2,3-epoxipropoxy)phenyl]propane, 2,3-epoxypropyl neodecanoate)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis-[4-(2,3-epoxipropoxy)phenyl]propane, 2,3-epoxypropyl neodecanoate)	Environmentally hazardous substance, liquid, n.o.s. (bis-[4-(2,3-epoxipropoxy)phenyl]propane, 2,3-epoxypropyl neodecanoate)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis-[4-(2,3-epoxipropoxy)phenyl]propane, 2,3-epoxypropyl neodecanoate)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis-[4-(2,3-epoxipropoxy)phenyl]propane, 2,3-epoxypropyl neodecanoate)
Transport hazard class (es)	9	9	9	9	9

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Date of issue/Date of revision : 3/20/2026



Section 14. Transport information

					
					
Packing group	III	III	III	III	III
Environmental hazards	Yes.	Yes.	Yes.	Yes.	Yes.

Additional information

UN	: This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8. Special provisions 274, 331, 335, 375
IMDG	: This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8. Emergency schedules F-A, S-F Special provisions 274, 335, 375, 969
IATA	: This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 5.0.2.4.1, 5.0.2.6.1.1 and 5.0.2.8. Quantity limitation Passenger and Cargo Aircraft: 450 L. Packaging instructions: 964. Cargo Aircraft Only: 450 L. Packaging instructions: 964. Limited Quantities - Passenger Aircraft: 30 kg. Packaging instructions: Y964. Special provisions A97, A158, A197, A215
ADR/RID	: This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8. Hazard identification number 90 Limited quantity 5 L Special provisions 274, 335, 601, 375, 650 Tunnel code (-)
ADN	: This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8. Special provisions 274, 335, 375, 601, 650
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.
Transport in bulk according to IMO instruments	: Not available.

Section 15. Regulatory information

Singapore - hazardous chemicals under government control

None.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Section 16. Other information

History

Date of issue/Date of revision	: 3/20/2026
Date of previous issue	: 1/13/2025
Version	: 2
Prepared by	: Sphera Solutions
Key to abbreviations	: ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods IMO = International Maritime Organization LogPow = logarithm of the octanol/water partition coefficient MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) N/A = Not available RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail SGG = Segregation Group UN = United Nations

Procedure used to derive the classification

Section 16. Other information

Classification	Justification
SKIN IRRITATION - Category 2	Calculation method
SERIOUS EYE DAMAGE - Category 1	Calculation method
SKIN SENSITISATION - Category 1	Calculation method
GERM CELL MUTAGENICITY - Category 2	Calculation method
SPECIFIC TARGET ORGAN TOXICITY - SINGLE	Calculation method
EXPOSURE (Respiratory tract irritation) - Category 3	Calculation method
LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2	Calculation method

References : GHS - Globally Harmonised System of Classification and Labelling of Chemicals
International transport regulations

▢ Indicates information that has changed from previously issued version.

Notice to reader

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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.