

SAFETY DATA SHEET

CALDOFIX-2 RESIN

Section 1. Identification

GHS 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 Inc.
24766 Detroit Rd. Westlake
Cleveland, OH 44145
United States
Telephone: +1 (440) 871 0071

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

Emergency telephone number (with hours of operation) : National Capital Poison Center: 1-800-222-1222
Infotrac: 1-800-535-5053
Struers US:
1-440-871-0071

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

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

GHS label elements

Hazard pictograms :



Signal word : Danger



Section 2. Hazards identification

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)
Precautionary statements	
Prevention	: P201 - Obtain special instructions before use. P202 - Do not handle until all safety precautions have been read and understood. P280 - Wear protective gloves, protective clothing and eye or face protection. P271 - Use only outdoors or in a well-ventilated area. P261 - Avoid breathing vapor. P264 - Wash thoroughly after handling. P272 - Contaminated work clothing must not be allowed out of the workplace.
Response	:  P308 + P313 - IF exposed or concerned: Get medical advice or attention. P304 + P340, P312 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. 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	: P405 - Store locked up. 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.
Hazards not otherwise classified	: None known.
Hazards identified when used	:  No known significant effects or critical hazards.

Section 3. Composition/information on ingredients

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

Ingredient name	Synonyms	%	Identifiers
 Bis-[4-(2,3-epoxipropoxy)phenyl]propane	-	≥65 - ≤85	CAS: 1675-54-3
2,3-epoxypropyl neodecanoate	-	≥30 - ≤60	CAS: 26761-45-5
2-Propenoic acid, reaction products with pentaerythritol	-	≥1 - ≤5	CAS: 1245638-61-2
hexamethylene diacrylate	-	≥1 - ≤5	CAS: 13048-33-4

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.



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

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



Section 4. First aid measures

- 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. Fire-fighting 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.

- 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 spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

- For emergency responders** : If specialized 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".

- Environmental precautions** : Avoid dispersal of spilled 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).

Methods and materials 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.



Section 6. Accidental release measures

- Large spill** : Stop leak if without risk. Move containers from spill area. Approach 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 spilled 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 vapor or mist. Do not ingest. 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 unlabeled 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

Ingredient name	Exposure limits
 bis-[4-(2,3-epoxipropoxy)phenyl]propane 2,3-epoxypropyl neodecanoate 2-Propenoic acid, reaction products with pentaerythritol hexamethylene diacrylate	None. None. None. OARS WEEL (United States, 9/2024) Skin sensitizer. TWA 8 hours: 1 mg/m ³ .

Biological exposure indices

No exposure indices known.

- Appropriate engineering controls** : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor 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.



Section 8. Exposure controls/personal protection

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.

Section 9. Physical and chemical properties

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

Appearance

Physical state : Liquid.
Color : Clear. Yellowish.
Odor : Slight
Odor threshold : Not available.
pH : Not applicable.
Melting point/freezing point : Not available.
Boiling point or initial boiling point and boiling range : Not available.



Section 9. Physical and chemical properties

Flash point : Closed cup: 110°C (230°F)

Evaporation rate : Not available.

Flammability : Not available.

Lower and upper explosion limit/flammability limit : Not available.

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

Relative vapor density : Not available.

Relative density : 1.13

Density : Not available.

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.

SADT : 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.

Additional 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 polymerization will not occur.

Conditions to avoid : No specific data.



Section 10. Stability and reactivity

Incompatible materials : Reactive or incompatible with the following materials: oxidizing materials and alkalis.

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

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.

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	
2,3-epoxypropyl neodecanoate	Rabbit - Skin - Erythema/Eschar Irritation score: 1.5 to 2 Rabbit - Skin - Edema 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-Propenoic acid, reaction products	Rabbit - Skin - Irritant	OECD 404 [Acute Dermal Irritation/Corrosion]



Section 11. Toxicological information

with pentaerythritol
hexamethylene diacrylate

Rabbit - Skin - Severe irritant

Duration of treatment/exposure: 24
hours

Amount/concentration applied: 500 mg

Corrosion]

Conclusion/Summary [Product]

: Not available.

Serious eye damage/eye irritation

Product/ingredient name

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

Result

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

Observation period: 72 hours
OECD 405 [Acute Eye Irritation/
Corrosion]

2,3-epoxypropyl neodecanoate

2-Propenoic acid, reaction products
with pentaerythritol
hexamethylene diacrylate

Rabbit - Eyes - Irritant

OECD 405 [Acute Eye Irritation/
Corrosion]

Conclusion/Summary [Product]

: Not available.

Respiratory corrosion/irritation

Conclusion/Summary [Product]

: Not available.

Respiratory or skin sensitization

Product/ingredient name

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

Result

Guinea pig - skin

Result: Sensitizing

OECD 406 [Skin Sensitization]

Mouse - skin

Result: Sensitizing

OECD 429 [Skin Sensitization: Local
Lymph Node Assay]

2,3-epoxypropyl neodecanoate

Guinea pig - skin

Result: Sensitizing

OECD 406 [Skin Sensitization]

hexamethylene diacrylate

Guinea pig - skin

Result: Sensitizing

OECD 406 [Skin Sensitization]

Skin

Conclusion/Summary [Product]

: Not available.

Respiratory

Conclusion/Summary [Product]

: Not available.

Germ cell mutagenicity

Product/ingredient name

Result



Section 11. Toxicological information

bis-[4-(2,3-epoxipropoxy)phenyl]propane	Mammalian-Animal >3000 mg/kg [5 days] <u>Result</u> : Negative	
2,3-epoxypropyl neodecanoate	In vivo - Mammalian-Animal <u>Result</u> : Positive	
2-Propenoic acid, reaction products with pentaerythritol	In vitro - Mammalian-Animal <u>Result</u> : Negative In vitro - Bacteria <u>Result</u> : Negative In vivo - Mammalian-Animal <u>Result</u> : Negative In vitro - Bacteria <u>Result</u> : Negative In vitro - Mammalian-Animal <u>Result</u> : Negative In vivo - Mammalian-Animal <u>Result</u> : 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	In vitro - Bacteria <u>Result</u> : Negative In vitro - Mammalian-Animal <u>Result</u> : Negative In vivo - Mammalian-Animal <u>Result</u> : Negative	

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] <u>Result</u> : Negative Mouse - Male - Dermal - TC 100 mg/kg [24 hours] <u>Result</u> : Negative Rat - Female - Dermal - TC 1000 mg/kg [24 hours] <u>Result</u> : 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.

Classification

Product/ingredient name	OSHA	IARC	NTP
bis-[4-(2,3-epoxipropoxy)phenyl]propane	-	3	-

Reproductive toxicity

Product/ingredient name	Result	
bis-[4-(2,3-epoxipropoxy)phenyl]propane	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	OECD 422 [Combined Repeated Dose Toxicity Study with the Reproduction/ Developmental Toxicity Screening Test] OECD 414 [Prenatal Developmental Toxicity Study]
2-Propenoic acid, reaction products with pentaerythritol		
hexamethylene diacrylate	Rat - Oral	OECD 422 [Combined Repeated Dose



Section 11. Toxicological information

750 mg/kg - NOAEL
Fertility effects: Negative
Rat - Oral
 <750 mg/kg - NOAEL
Maternal toxicity: Negative
Developmental: Negative

Toxicity Study with the Reproduction/
 Developmental Toxicity Screening Test]
 OECD 414 [Prenatal Developmental
 Toxicity Study]

Conclusion/Summary [Product] : Not available.

Specific target organ toxicity (single exposure)

Product/ingredient name

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

2,3-epoxypropyl neodecanoate

2-Propenoic acid, reaction products with
 pentaerythritol
 hexamethylene diacrylate

Result

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 the 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

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 11. Toxicological information

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

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.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
CALDOFIX-2 RESIN	14970.0	5881.4	N/A	N/A	N/A
bis-[4-(2,3-epoxipropoxy)phenyl]propane	11400	20000	N/A	N/A	N/A
2,3-epoxypropyl neodecanoate	N/A	2500	N/A	N/A	N/A
2-Propenoic acid, reaction products with pentaerythritol	540	2500	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	OECD 203 [Fish, Acute Toxicity Test]
	Fish	
	1.3 mg/l [96 hours]	
	Acute - EC50	OECD 202 [Daphnia sp. Acute Immobilization Test and Reproduction Test]
	Daphnia - <i>water Flea</i>	
2,3-epoxypropyl neodecanoate	2.1 mg/l [48 hours]	
	Acute - EC50	
	Algae	
	>11 mg/l [72 hours]	
	Chronic - NOEC	OECD 211 [Daphnia Magna Reproduction Test]
2-Propenoic acid, reaction products with pentaerythritol	Daphnia - <i>water Flea</i>	
	0.3 mg/l [21 days]	
	Acute - EC50 - Fresh water	OECD [Daphnia sp. Acute Immobilization Test and Reproduction Test]
	Daphnia - <i>Daphnia magna</i>	
	4.8 mg/l [48 hours]	
2-Propenoic acid, reaction products with pentaerythritol	Acute - LC50	OECD 203 [Fish, Acute Toxicity Test]
	Fish - <i>Rainbow trout</i>	
	9.6 mg/l [96 hours]	
	Acute - EC50	OECD 201 [Alga, Growth Inhibition Test]
	Algae	
2-Propenoic acid, reaction products with pentaerythritol	3.5 mg/l [96 hours]	
	Acute - LC50 - Fresh water	OECD 203 [Fish, Acute Toxicity Test]
	Fish - <i>Cyprinus carpio</i>	
	3.2 mg/l [96 hours]	
	Acute - EC50	OECD 201 [Alga, Growth Inhibition Test]
hexamethylene diacrylate	Algae - <i>Pseudokirchneriella subcapitata</i>	
	12 mg/l [96 hours]	
	Acute - EC50	OECD 209 [Activated Sludge, Respiration Inhibition Test]
	Micro-organism	
	>100 mg/l [3 hours]	
hexamethylene diacrylate	Acute - NOEC	OECD 201 [Alga, Growth Inhibition Test]
	Algae - <i>Pseudokirchneriella subcapitata</i>	
	0.31 mg/l [96 hours]	
	Acute - EC50 - Fresh water	OECD [Daphnia sp. Acute Immobilization Test and Reproduction Test]
	Daphnia - <i>Daphnia magna</i>	
hexamethylene diacrylate	2.7 mg/l [48 hours]	
	Acute - NOEC - Fresh water	OECD [Daphnia sp. Acute Immobilization Test and Reproduction Test]
	Daphnia - <i>Daphnia magna</i>	
	1.8 mg/l [48 hours]	
	Acute - EC50	OECD 209 [Activated Sludge, Respiration Inhibition Test]
hexamethylene diacrylate	Micro-organism	
	270 mg/l [30 minutes]	
	Acute - LC50	OECD 203 [Fish, Acute Toxicity Test]
	Fish - <i>Oryzias latipes</i>	
	0.38 mg/l [96 hours]	
hexamethylene diacrylate	Acute - NOEC	
	Algae	
	0.9 mg/l [72 hours]	
	Chronic - NOEC	OECD 210 [Fish, Early-Life Stage Toxicity Test]
	Fish - <i>Oryzias latipes</i>	
hexamethylene diacrylate	0.072 mg/l [39 days]	
	Acute - EC50	OECD 201 [Alga, Growth Inhibition Test]
	Algae - <i>Pseudokirchneriella subcapitata</i>	



Section 12. Ecological information

2.33 mg/l [72 hours]

Conclusion/Summary [Product] : Not available.

Persistence and degradability

Product/ingredient name	Result	
bis-[4-(2,3-epoxipropoxy)phenyl]propane	6 to 12% [28 days] - Not readily	OECD 301F [Ready Biodegradability - Manometric Respirometry Test]
2,3-epoxypropyl neodecanoate	Aerobic 7 to 8% [28 days] - Not readily	OECD 301D [Ready Biodegradability - Closed Bottle Test]
2-Propenoic acid, reaction products with pentaerythritol	Aerobic - 21 mg/l 14% [28 days] - Not readily 50% [28 days]	OECD 301B [Ready Biodegradability - CO ₂ Evolution Test] OECD 301D [Ready Biodegradability - Closed Bottle Test]
	72% [60 days]	OECD 301D [Ready Biodegradability - Closed Bottle Test]
hexamethylene diacrylate	Aerobic 60 to 70% [28 days] - Readily	OECD 310 [Ready Biodegradability - CO ₂ 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

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 minimized 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 spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	IMDG	IATA
UN number	UN3082	UN3082	UN3082	UN3082	UN3082
UN proper shipping name	Environmentally hazardous substance, liquid, n.o.s. (2,3-epoxypropyl neodecanoate)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis-[4- (2,3-epoxipropoxi) phenyl]propane, 2,3-epoxypropyl neodecanoate)	SUBSTANCIA LÍQUIDA PELIGROSA PARA EL MEDIO AMBIENTE, N.E. P. (bis-[4- (2,3-epoxipropoxi) phenyl]propane, 2,3-epoxypropyl neodecanoate)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis-[4- (2,3-epoxipropoxi) phenyl]propane, 2,3-epoxypropyl neodecanoate)	Environmentally hazardous substance, liquid, n.o.s. (bis-[4- (2,3-epoxipropoxi) phenyl]propane, 2,3-epoxypropyl neodecanoate)
Transport hazard class(es)	9  	9  	9  	9  	9  
Packing group	III	III	III	III	III
Environmental hazards	Yes.	Yes.	Yes.	Yes.	Yes.

Additional information

DOT Classification

: Non-bulk packages of this product are not regulated as hazardous materials unless transported by inland waterway. This product is not regulated as a hazardous material when transported in sizes of ≤5 L or ≤5 kg, provided the packaging meets the general provisions of §§ 173.24 and 173.24a.

Limited quantity Yes.

Packaging instruction Exceptions: 155. Non-bulk: 203. Bulk: 241.

Special provisions 8, 146, 173, 335, 441, IB3, T4, TP1, TP29

TDG Classification

: Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.43-2.45 (Class 9), 2.7 (Marine pollutant mark). Non-bulk packages of this product are not regulated as dangerous goods when transported by road or rail.

Explosive Limit and Limited Quantity Index 5

Special provisions 16, 99



Section 14. Transport information

- Mexico Classification** : 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
- 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

- U.S. Federal regulations** : **TSCA 4(a) proposed test rules:** 2,3-epoxypropyl neodecanoate
TSCA 8(a) CDR Exempt/Partial exemption: Not determined
United States inventory (TSCA 8b): All components are active or exempted.

TSCA 12(b) - Chemical export notification

Not applicable.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312



Section 15. Regulatory information

Classification : SKIN IRRITATION - Category 2
 SERIOUS EYE DAMAGE - Category 1
 SKIN SENSITIZATION - Category 1
 GERM CELL MUTAGENICITY - Category 2
 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

Composition/information on ingredients

Name	%	Classification
Bis-[4-(2,3-epoxipropoxy)phenyl] propane	≥65 - ≤85	SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SKIN SENSITIZATION - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
2,3-epoxypropyl neodecanoate	≥30 - ≤60	SKIN SENSITIZATION - Category 1A GERM CELL MUTAGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
2-Propenoic acid, reaction products with pentaerythritol	≥1 - ≤5	ACUTE TOXICITY (oral) - Category 4 SKIN IRRITATION - Category 2 SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
hexamethylene diacrylate	≥1 - ≤5	SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SKIN SENSITIZATION - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

SARA 313

Not applicable.

State regulations

Massachusetts : None of the components are listed.

New York : None of the components are listed.

New Jersey : None of the components are listed.

Pennsylvania : None of the components are listed.

California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

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



Section 15. Regulatory information

Not listed.

Section 16. Other information

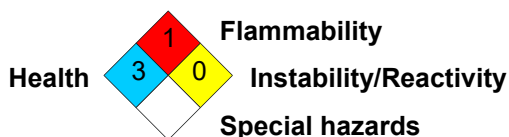
Hazardous Material Information System (U.S.A.)

Health	*	3
Flammability		1
Physical hazards		0

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National Fire Protection Association (U.S.A.)



Procedure used to derive the classification

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

History

Date of issue/Date of revision	: 03/20/2026
Date of previous issue	: 01/13/2025
Version	: 2
Prepared by	: Sphera Solutions
Key to abbreviations	: 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 SGG = Segregation Group TDG = Transportation of Dangerous Goods UN = United Nations



Section 16. Other information

References : HCS (U.S.A.)- Hazard Communication Standard
International transport regulations

 Indicates information that has changed from previously issued version.

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