SAFETY DATA SHEET

SPECIFIX RESIN

Section 1. Identification

Product identifier : SPECIFIX RESIN

Cat. No. : 40200051, 50209042

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
H319 EYE IRRITATION - Category 2A
H317 SKIN SENSITISATION - Category 1
H360 REPRODUCTIVE TOXICITY - Category 1B
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.
H319 - Causes serious eye irritation.
H335 - May cause respiratory irritation.
H360 - May damage fertility or the unborn child.
H411 - Toxic to aquatic life with long lasting effects.

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 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313 - If eye irritation persists: Get medical advice or attention.

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-epoxipropoxi)phenyl]propane	≥60 - ≤75	CAS: 1675-54-3
Bisphenol F diglycidyl ether, reaction mass of isomers	≥30 - ≤60	-
1,6-Hexanediol, reaction products with epichlorohydrin	≥10 - ≤30	CAS: 933999-84-9
3-trimethoxysilylpropane-1-thiol	≤3	CAS: 4420-74-0

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 : 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 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. Get medical attention. If necessary, call a poison center or physician. 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.

Ingestion : 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. Get medical attention. 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 irritation.

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 or irritation
watering
redness

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing
reduced foetal weight
increase in foetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
irritation
redness
reduced foetal weight
increase in foetal deaths
skeletal malformations

Section 4. First aid measures

Ingestion : Adverse symptoms may include the following:
reduced foetal weight
increase in foetal deaths
skeletal malformations

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 CO_2.

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
sulfur oxides
metal oxide/oxides

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. 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".

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. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapour or mist. 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.

Section 7. Handling and storage

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.

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.

Section 8. Exposure controls/personal protection

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 : Colourless to light yellow.

Odour : 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: 149°C (300.2°F)

Evaporation rate : Not available.

Flammability : Not available.

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

Vapour pressure : <0.00001 kPa (<0.000075006 mm Hg)

Relative vapour density : Not available.

Relative density : 1.15

Solubility(ies) :

Media	Result
water	Not soluble

Miscible with water : No.

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

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

Viscosity : Dynamic (room temperature): Not available.
Kinematic (room temperature): 896.4 mm^2/s (896.4 cSt)
Kinematic (40°C (104°F)): Not available.

Flow time (ISO 2431) : Not available.

Particle characteristics

Median particle size : Not applicable.

Other information

Section 9. Physical and chemical properties and safety characteristics

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 under normal conditions.
Curing time:
SPECIFIX-20: 8 hours
SPECIFIX-40: 3.5 hours (40-60 °C)

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 : No specific data.

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-epoxipropoxi)phenyl] propane	**Rabbit - Dermal - LD50** 20 g/kg	Toxic effects: Behavioral - Somnolence (general depressed activity) Gastrointestinal - Hypermotility, diarrhea Gross Metabolite Changes - Weight loss or decreased weight gain
	Rat - Oral - LD50 11400 mg/kg	
Bisphenol F diglycidyl ether, reaction mass of isomers	**Rat - Male, Female - Oral - LD50** >2000 mg/kg	OECD 401 [Acute Oral Toxicity]
	Rabbit - Male, Female - Dermal - LD50 >2000 mg/kg	OECD 402 [Acute Dermal Toxicity]
1,6-Hexanediol, reaction products with epichlorohydrin	**Rat - Oral - LD50** 2900 mg/kg	OECD 401 [Acute Oral Toxicity]
	Rat - Dermal - LD50 >2000 mg/kg	OECD 402 [Acute Dermal Toxicity]
3-trimethoxysilylpropane-1-thiol	**Rat - Oral - LD50** 730 mg/kg	

Section 11. Toxicological information

	Rabbit - Dermal - LD50 2140 mg/kg **Rat - Oral - LD50** 1701 mg/kg **Rat - Male, Female - Oral - LD50** 850 mg/kg **Rat - Dermal - LD50** 2247 mg/kg **Rat - Dermal - LD50** 2583 mg/kg	

Conclusion/Summary[Product] : Not available.

Skin corrosion/irritation

Product/ingredient name	Result	
bis-[4-(2,3-epoxipropoxi)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	OECD 404 [Acute Dermal Irritation/ Corrosion]
	Rabbit - Skin - Oedema Irritation score: 1 to 1.5	OECD 404 [Acute Dermal Irritation/ Corrosion]
Bisphenol F diglycidyl ether, reaction mass of isomers	**Rabbit - Skin - Erythema/Eschar** Duration of treatment/exposure: 4 hours Irritation score: 0.7	Observation period: 72 hours OECD 404 [Acute Dermal Irritation/ Corrosion]
	Rabbit - Skin - Oedema Duration of treatment/exposure: 4 hours Irritation score: 0 **Rabbit - Skin - Mild irritant** Duration of treatment/exposure: 24 hours	Observation period: 4 to 504 hours OECD 404 [Acute Dermal Irritation/ Corrosion]
1,6-Hexanediol, reaction products with epichlorohydrin	**Rabbit - Skin - Primary dermal irritation index (PDII)** Irritation score: 6.2	
3-trimethoxysilylpropane-1-thiol	**Rabbit - Skin - Mild irritant** Amount/concentration applied: 500 milligrams	

Conclusion/Summary[Product] : Not available.

Serious eye damage/eye irritation

Product/ingredient name	Result

Section 11. Toxicological information

bis-[4-(2,3-epoxipropoxi)phenyl] propane	**Rabbit - Eyes - Irritant**	OECD 405 [Acute Eye Irritation/ Corrosion]
	Rabbit - Eyes - Redness of the conjunctivae Irritation score: 0.7	
Bisphenol F diglycidyl ether, reaction mass of isomers	**Rabbit - Eyes - Cornea opacity** Irritation score: 0	Observation period: 1 to 168 hours OECD 405 [Acute Eye Irritation/ Corrosion]
	Rabbit - Eyes - Iris lesion Irritation score: 0	Observation period: 1 to 168 hours OECD 405 [Acute Eye Irritation/ Corrosion]
	Rabbit - Eyes - Oedema of the conjunctivae Irritation score: 0	Observation period: 1 to 168 hours OECD 405 [Acute Eye Irritation/ Corrosion]
1,6-Hexanediol, reaction products with epichlorohydrin	**Rabbit - Eyes - Redness of the conjunctivae** Irritation score: 3.3	

Conclusion/Summary[Product] : Not available.

Respiratory corrosion/irritation

Conclusion/Summary[Product] : Not available.

Respiratory or skin sensitization

Product/ingredient name	Result	
bis-[4-(2,3-epoxipropoxi)phenyl] propane	**Guinea pig - skin** Result: Sensitising	OECD 406 [Skin Sensitization]
	Mouse - skin Result: Sensitising	OECD 429 [Skin Sensitization: Local Lymph Node Assay]
Bisphenol F diglycidyl ether, reaction mass of isomers	**Guinea pig - skin** Result: Sensitising	
1,6-Hexanediol, reaction products with epichlorohydrin	**Mouse - skin** Result: Sensitising	OECD 429 [Skin Sensitization: Local Lymph Node Assay]
3-trimethoxysilylpropane-1-thiol	**Guinea pig - skin** Result: Sensitising	OECD 406 [Skin Sensitization]

Skin

Conclusion/Summary[Product] : Not available.

Respiratory

Conclusion/Summary[Product] : Not available.

Germ cell mutagenicity

Product/ingredient name	Result
bis-[4-(2,3-epoxipropoxi)phenyl] propane	**Mammalian-Animal** >3000 mg/kg [5 days] Result: Negative
Bisphenol F diglycidyl ether, reaction mass of isomers	**In vitro - Bacteria** Result: Positive **In vivo - Mammalian-Animal** Result: Negative

Section 11. Toxicological information

1,6-Hexanediol, reaction products with epichlorohydrin	**In vivo - Mammalian-Animal** 2000 mg/kg Result: Negative	OECD 486 [486 Unscheduled DNA Synthesis (UDS) Test with Mammalian Liver Cells in vivo]

Conclusion/Summary[Product] : Not available.

Carcinogenicity

Product/ingredient name	Result	
bis-[4-(2,3-epoxipropoxi)phenyl] propane	**Rat - Oral - TC** 100 mg/kg [24 hours] Result: Negative	OECD 453 [Combined Chronic Toxicity/Carcinogenicity Studies]
	Mouse - Male - Dermal - TC 100 mg/kg [24 hours] Result: Negative	OECD 453 [Combined Chronic Toxicity/Carcinogenicity Studies]
	Rat - Female - Dermal - TC 1000 mg/kg [24 hours] Result: Negative	OECD 453 [Combined Chronic Toxicity/Carcinogenicity Studies]

Conclusion/Summary[Product] : Not available.

Reproductive toxicity

Product/ingredient name	Result	
bis-[4-(2,3-epoxipropoxi)phenyl] propane	**Rabbit - Oral** Developmental: Negative	
Bisphenol F diglycidyl ether, reaction mass of isomers	**Rabbit - Dermal** 300 mg/kg - NOAEL Maternal toxicity: Negative Developmental: Negative	
1,6-Hexanediol, reaction products with epichlorohydrin	**Rat - Oral** 55 mg/kg [7 days per week] Fertility effects: Positive	OECD 443 [Extended One-Generation Reproductive Toxicity Study]
	Rat - Female - Oral Developmental: Negative	OECD 414 [Prenatal Developmental Toxicity Study]

Conclusion/Summary[Product] : Not available.

Specific target organ toxicity (single exposure)

Product/ingredient name	Result
bis-[4-(2,3-epoxipropoxi)phenyl]propane	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract irritation) - Category 3
1,6-Hexanediol, reaction products with epichlorohydrin	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

Not available.

Section 11. Toxicological information

Potential acute health effects

Eye contact : Causes serious eye irritation.

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 or irritation
watering
redness

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing
reduced foetal weight
increase in foetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
irritation
redness
reduced foetal weight
increase in foetal deaths
skeletal malformations

Ingestion : Adverse symptoms may include the following:
reduced foetal weight
increase in foetal deaths
skeletal malformations

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	
1,6-Hexanediol, reaction products with epichlorohydrin	**Chronic - Rat - Oral - NOAEL** 300 mg/kg [90 days]	OECD 408 [Repeated Dose 90-Day Oral Toxicity Study in Rodents]

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 : No known significant effects or critical hazards.

Reproductive toxicity : May damage fertility or the unborn child.

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)
SPECIFIX RESIN	85647.2	129057.5	N/A	N/A	N/A
bis-[4-(2,3-epoxipropoxi)phenyl]propane	11400	20000	N/A	N/A	N/A
1,6-Hexanediol, reaction products with epichlorohydrin	2900	N/A	N/A	N/A	N/A
3-trimethoxysilylpropane-1-thiol	730	1100	N/A	N/A	N/A

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	
bis-[4-(2,3-epoxipropoxi)phenyl] propane	**Acute - LC50** Fish 1.3 mg/l [96 hours]	OECD 203 [Fish, Acute Toxicity Test]
	Acute - EC50 Daphnia - *water Flea* 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 - *water Flea* 0.3 mg/l [21 days]	OECD 211 [Daphnia Magna Reproduction Test]
Bisphenol F diglycidyl ether, reaction mass of isomers	**Acute - LC50** Fish 2.54 mg/l [96 hours]	
	Acute - EC50 Algae >1000 mg/l [72 hours]	OECD 201 [Alga, Growth Inhibition Test]
	Acute - EC50 Daphnia 2.55 mg/l [48 hours]	OECD 202 [Daphnia sp. Acute Immobilization Test and Reproduction Test]
1,6-Hexanediol, reaction products with epichlorohydrin	**Acute - LC50 - Fresh water** Fish - *Oncorynchus mykiss* 30 mg/l [96 hours]	OECD 203 [Fish, Acute Toxicity Test]
	Acute - EC50 - Fresh water Daphnia - *Daphnia magna* 47 mg/l [48 hours]	OECD 202 [Daphnia sp. Acute Immobilization Test and Reproduction Test]
	Acute - IC50 Micro-organism - *Soil organisms* >100 mg/l [28 days]	
	Chronic - NOEC Daphnia 10 mg/l [21 days]	OECD 211 [Daphnia Magna Reproduction Test]

Section 12. Ecological information

	Chronic - EC10 Fish 1.24 mg/l [35 days]	OECD 210 [Fish, Early-Life Stage Toxicity Test]
3-trimethoxysilylpropane-1-thiol	**Acute - LC50 - Fresh water** Fish - *Danio rerio* 439 mg/l [96 hours]	EU
	Acute - NOEC - Fresh water Fish - *Danio rerio* 350 mg/l [96 hours]	EU
	Acute - EC50 - Fresh water Daphnia - *Daphnia magna* 6.7 mg/l [48 hours]	EU
	Acute - EC50 - Fresh water Algae - *Desmodesmus subspicatus* 267 mg/l [72 hours]	EU
	Acute - NOEC - Fresh water Algae - *Desmodesmus subspicatus* 40 mg/l [72 hours]	EU

Conclusion/Summary[Product] : Not available.

Persistence and degradability

Product/ingredient name	Result	
bis-[4-(2,3-epoxipropoxi)phenyl] propane	6 to 12% [28 days] - Not readily	OECD 301F [Ready Biodegradability - Manometric Respirometry Test]
Bisphenol F diglycidyl ether, reaction mass of isomers	**10 mg/l** 16% [28 days] - Not readily	OECD 301B [Ready Biodegradability - CO2 Evolution Test]
1,6-Hexanediol, reaction products with epichlorohydrin	**Aerobic - 2 mg/l** 47% [28 days] - Inherent	OECD 301D [Ready Biodegradability - Closed Bottle Test]
3-trimethoxysilylpropane-1-thiol	**Aerobic - 16.1 mg/l** 51% [28 days] - Not readily	EU

Conclusion/Summary[Product] : Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
SPECIFIX RESIN	-	-	Readily
bis-[4-(2,3-epoxipropoxi) phenyl]propane	-	-	Not readily
Bisphenol F diglycidyl ether, reaction mass of isomers	-	-	Not readily
1,6-Hexanediol, reaction products with epichlorohydrin	-	-	Inherent
3-trimethoxysilylpropane-1-thiol	-	-	Not readily

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
bis-[4-(2,3-epoxipropoxi) phenyl]propane	2.64 to 3.78	3 to 31	Low
Bisphenol F diglycidyl ether, reaction mass of isomers	3.3	150	Low
1,6-Hexanediol, reaction products with epichlorohydrin	0.822	3.57	Low

Section 12. Ecological information

Mobility in soil

Soil/water partition coefficient : Not available.

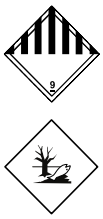
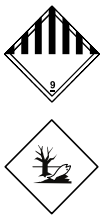
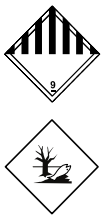
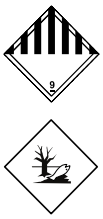
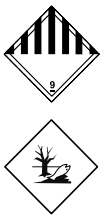
Other adverse effects

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-epoxipropoxi) phenyl]propane, Bisphenol F diglycidyl ether, reaction mass of isomers)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis-[4-(2,3-epoxipropoxi) phenyl]propane, Bisphenol F diglycidyl ether, reaction mass of isomers)	Environmentally hazardous substance, liquid, n.o.s. (bis-[4-(2,3-epoxipropoxi) phenyl]propane, Bisphenol F diglycidyl ether, reaction mass of isomers)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis-[4-(2,3-epoxipropoxi) phenyl]propane, Bisphenol F diglycidyl ether, reaction mass of isomers)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis-[4-(2,3-epoxipropoxi) phenyl]propane, Bisphenol F diglycidyl ether, reaction mass of isomers)
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

Section 14. Transport 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

Section 15. Regulatory information

Not listed.

Section 16. Other information

History

Date of issue/Date of revision	:	3/20/2026
Date of previous issue	:	No previous validation
Version	:	1
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

Classification	Justification
SKIN IRRITATION - Category 2	Calculation method
EYE IRRITATION - Category 2A	Calculation method
SKIN SENSITISATION - Category 1	Calculation method
REPRODUCTIVE TOXICITY - Category 1B	Calculation method
SPECIFIC TARGET ORGAN TOXICITY - SINGLE 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

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.