SUPRASEC® 9704 (STI-03-0.30-9A H2OSTOP A)

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SECTION 1. IDENTIFICATION

Product name : SUPRASEC® 9704 (STI-03-0.30-9A H2OSTOP A)

Manufacturer or supplier's details

Company name of supplier : Huntsman Polyurethanes

Address : P.O. Box 4980
The Woodlands,
TX 77387
United States of America (USA)

Telephone : Tech Info:(800) 257-5547

E-mail address of person responsible for the SDS : Global_Product_EHS_HPU@huntsman.com

Emergency telephone number : Chemtrec: (800) 424-9300 or (703) 527-3887

Recommended use of the chemical and restrictions on use

Recommended use : Component of a Polyurethane System.

Restrictions on use : For industrial use only.

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200

Acute toxicity (Inhalation) : Category 4

Skin irritation : Category 2

Eye irritation : Category 2B

Respiratory sensitisation : Category 1

Skin sensitisation : Category 1

Specific target organ toxicity - single exposure : Category 3 (Respiratory system)

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : H315 + H320 Causes skin and eye irritation.
H317 May cause an allergic skin reaction.

H332 Harmful if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.

Precautionary statements : **Prevention:**
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves.
P285 In case of inadequate ventilation wear respiratory protection.
Response:
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
P362 Take off contaminated clothing and wash before reuse.
Storage:
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
Disposal:
P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
Diphenylmethanediisocyanate	9016-87-9	50 - 70
4,4'-methylenediphenyl diisocyanate	101-68-8	30 - 50

The specific chemical identity and/or exact percentage (concentration) of composition may be withheld as a trade secret.

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Do not leave the victim unattended.
Get medical attention immediately if symptoms occur.
Show this safety data sheet to the doctor in attendance.

If inhaled : If breathed in, move person into fresh air.
Call a physician or poison control centre immediately.
Keep patient warm and at rest.
Keep respiratory tract clear.
If breathing is difficult, give oxygen.
If breathing is irregular or stopped, administer artificial respiration.
If unconscious, place in recovery position and seek medical advice.
Consult a physician immediately if symptoms such as shortness of breath or asthma are observed.
A hyper-reactive response to even minimal concentrations of diisocyanates may develop in sensitised persons.
The exposed person may need to be kept under medical surveillance for 48 hours.
LC50 (rat) : ca. 490 mg/m³ (4 hours) : using experimentally produced respirable aerosol having aerodynamic diameter <5microns.

Methods used to generate the exposure concentrations in the animal studies use extreme laboratory conditions and does not represent actual exposure conditions of the material in the workplace, storage, transportation or expected use on the market due to the very low vapor pressure. Therefore, these test results cannot be used to for hazard classification of the material. Rather, an acute toxicity estimate is calculated based on weight of evidence and expert judgement and is used to justify a modified classification for acute inhalation toxicity.

In case of skin contact : In case of contact, immediately flush skin with soap and plenty of water.
Take off contaminated clothing and shoes immediately.
Wash contaminated clothing before reuse.
Thoroughly clean shoes before reuse.
Call a physician if irritation develops or persists.
An MDI study has demonstrated that a polyglycol-based skin cleanser (such as D-Tam™, PEG-400) or corn oil may be more effective than soap and water.

In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
If easy to do, remove contact lens, if worn.
Protect unharmed eye.
Keep eye wide open while rinsing.
Seek medical advice.

If swallowed	:	Gently wipe or rinse the inside of the mouth with water. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Keep respiratory tract clear. Keep at rest. If a person vomits when lying on his back, place him in the recovery position. Never give anything by mouth to an unconscious person. Take victim immediately to hospital. If symptoms persist, call a physician.
Most important symptoms and effects, both acute and delayed	:	Severe allergic skin reactions, bronchiospasm and anaphylactic shock This product is a respiratory irritant and potential respiratory sensitiser: repeated inhalation of vapour or aerosol at levels above the occupational exposure limit could cause respiratory sensitisation. Symptoms may include irritation to the eyes, nose, throat and lungs, possibly combined with dryness of the throat, tightness of chest and difficulty in breathing. The onset of the respiratory symptoms may be delayed for several hours after exposure. A hyper-reactive response to even minimal concentrations of MDI may develop in sensitised persons.
Protection of first-aiders	:	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If potential for exposure exists refer to Section 8 for specific personal protective equipment. First Aid responders should pay attention to self-protection and use the recommended protective clothing
Notes to physician	:	Symptomatic and supportive therapy as needed. Following severe exposure medical follow-up should be monitored for at least 48 hours. The first aid procedure should be established in consultation with the doctor responsible for industrial medicine.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Foam Carbon dioxide (CO2) Dry powder
Unsuitable extinguishing media	:	Water may be used if no other available and then in copious quantities. Reaction between water and hot isocyanate may be vigorous.

Specific hazards during firefighting	:	Do not allow run-off from fire fighting to enter drains or water courses. The pressure in sealed containers can increase under the influence of heat. Exposure to decomposition products may be a hazard to health.
Hazardous combustion products	:	Combustion products may include: carbon monoxide, carbon dioxide, nitrogen oxides, hydrocarbons and HCN. In the event of extreme heat (>500 degrees C), aniline is suspected of being formed.
Specific extinguishing methods	:	Cool containers/tanks with water spray.
Further information	:	Standard procedure for chemical fires. Due to reaction with water producing CO2-gas, a hazardous build-up of pressure could result if contaminated containers are re-sealed. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Prevent fire extinguishing water from contaminating surface water or the ground water system. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Special protective equipment for firefighters	:	Wear an approved positive pressure self-contained breathing apparatus in addition to standard fire fighting gear.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Immediately evacuate personnel to safe areas. Use personal protective equipment. If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Only qualified personnel equipped with suitable protective equipment may intervene. For additional precautions and advice on safe handling, see section 7. Never return spills in original containers for re-use. Make sure that there is a sufficient amount of neutralizing/ absorbent material near the storage area. The danger areas must be delimited and identified using relevant warning and safety signs. Treat recovered material as described in the section "Disposal considerations". For disposal considerations see section 13.
Environmental precautions	:	Do not allow uncontrolled discharge of product into the environment. Do not allow material to contaminate ground water system. Prevent product from entering drains.

Prevent further leakage or spillage if safe to do so.
Local authorities should be advised if significant spillages cannot be contained.
If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up : Clean-up methods - small spillage
Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).
Clean contaminated surface thoroughly.
Sweep up or vacuum up spillage and collect in suitable container for disposal.
Neutralize small spillages with decontaminant.
The compositions of liquid decontaminants are given in Section 16.
Remove and dispose of residues.
Clean-up methods - large spillage
If the product is in its solid form:
Spilled MDI flakes should be picked up carefully.
The area should be vacuum cleaned to remove remaining dust particles completely.
If the product is in its liquid form:
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Leave to react for at least 30 minutes.
Shovel into open-top drums for further decontamination.
Wash the spillage area with water.
Test atmosphere for MDI vapour.
Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Technical measures : Ensure that eyewash stations and safety showers are close to the workstation location.

Local/Total ventilation : Use only with adequate ventilation.

Advice on protection against fire and explosion : Normal measures for preventive fire protection.

Advice on safe handling : For personal protection see section 8.
Avoid formation of aerosol.
Do not breathe vapours or spray mist.
Do not breathe vapours/dust.
Do not swallow.
Do not get in eyes or mouth or on skin.
Do not get on skin or clothing.
Avoid exposure - obtain special instructions before use.
Smoking, eating and drinking should be prohibited in the application area.
Provide sufficient air exchange and/or exhaust in work rooms.
Keep container closed when not in use.
Open drum carefully as content may be under pressure.

Dispose of rinse water in accordance with local and national regulations.
Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
Industrial use of aprotic polar solvents for cleaning can release hazardous primary aromatic amines (>0.1%)

Conditions for safe storage : Keep containers tightly closed in a dry, cool and well-ventilated place.
Keep in properly labelled containers.
Observe label precautions.
Protect from moisture.
Electrical installations / working materials must comply with the technological safety standards.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Materials to avoid : For incompatible materials please refer to Section 10 of this SDS.

Further information on storage stability : Stable under recommended storage conditions.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
4,4'-methylenediphenyl diisocyanate	101-68-8	TWA	0.005 ppm	ACGIH
		TWA	0.005 ppm 0.05 mg/m3	NIOSH REL
		C	0.02 ppm 0.2 mg/m3	NIOSH REL
		C	0.02 ppm 0.2 mg/m3	OSHA Z-1

Personal protective equipment

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.
Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
In emergency, non-routine and unknown exposure situations, including confined space entries, a NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA)or a full facepiece pressure demand supplied air respirator (SAR) with auxiliary self-contained air supply, should be used.

Hand protection

Remarks	:	The suitability for a specific workplace should be discussed with the producers of the protective gloves. Protective gloves should be worn when handling freshly made polyurethane products to avoid contact with trace residual materials which may be hazardous in contact with skin. Use chemical resistant gloves classified under Standard EN374: protective gloves against chemicals and microorganisms. Examples of glove materials that might provide suitable protection include: Butyl rubber, Chlorinated polyethylene, Polyethylene, Ethyl vinyl alcohol copolymers laminated (“EVAL”), Polychloroprene (Neoprene*), Nitrile/butadiene rubber (“nitrile” or “NBR”), Polyvinyl chloride (“PVC” or “vinyl”), Fluoroelastomer (Viton*). When prolonged or frequently repeated contact may occur, a glove with protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN374) is recommended. When only brief contact is expected, a glove with protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN374) is recommended. Notice: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all requisite workplace factors such as, but not limited to : other chemicals that may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), as well as instructions/specifications provided by the glove supplier By industrial use of aprotic polar solvents for cleaning : Butyl rubber (0.7mm), Nitrile rubber (0.4mm), Chloroprene (0.5mm)
Eye 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 or dusts. Chemical splash goggles. Always wear eye protection when the potential for inadvertent eye contact with the product cannot be excluded. Please follow all applicable local/national requirements when selecting protective measures for a specific workplace. Ensure that eyewash stations and safety showers are close to the workstation location.
Skin and body protection	:	Impervious clothing Choose body protection according to the amount and concentration of the dangerous substance at the work place. Recommended: Overall (preferably heavy cotton) or Tyvek-Pro Tech 'C' , Tyvek Pro 'F' disposable coverall.
Protective measures	:	Personal protective equipment comprising: suitable protective gloves, safety goggles and protective clothing

The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Ensure that eye flushing systems and safety showers are located close to the working place.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.
Wash face, hands and any exposed skin thoroughly after handling.
Remove contaminated clothing and protective equipment before entering eating areas.
When using do not eat, drink or smoke.
Contaminated work clothing should not be allowed out of the workplace.
Wash hands before breaks and immediately after handling the product.
Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Colour	:	brown, Clear
Odour	:	slight, musty
Odour Threshold	:	No data is available on the product itself.
pH	:	No data is available on the product itself.
Freezing point	:	No data is available on the product itself.
Melting point	:	No data is available on the product itself.
Boiling point	:	No data is available on the product itself.
Flash point	:	> 302 °F / > 150 °C Method: closed cup
Evaporation rate	:	No data is available on the product itself.
Flammability (solid, gas)	:	No data is available on the product itself.
Flammability (liquids)	:	No data is available on the product itself.
Upper explosion limit / Upper flammability limit	:	No data is available on the product itself.
Lower explosion limit / Lower flammability limit	:	No data is available on the product itself.
Vapour pressure	:	< 0.00001 hPa (68 °F / 20 °C)
Relative vapour density	:	No data is available on the product itself.

Relative density	:	1.23
Density	:	1.23 g/cm3 (77 °F / 25 °C) Method: estimated
Solubility(ies)		
Water solubility	:	Decomposes in contact with water. (68 °F / 20 °C) Method: Information given is based on data obtained from similar substances.
Solubility in other solvents	:	No data is available on the product itself.
Partition coefficient: n-octanol/water	:	No data is available on the product itself.
Auto-ignition temperature	:	No data is available on the product itself.
Thermal decomposition	:	No data is available on the product itself.
Self-Accelerating decomposition temperature (SADT)	:	No data is available on the product itself.
Viscosity		
Viscosity, dynamic	:	200 mPa.s (77 °F / 25 °C)
Explosive properties	:	No data is available on the product itself.
Oxidizing properties	:	No data is available on the product itself.
Particle size	:	No data is available on the product itself.

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Reaction with water (moisture) produces CO2-gas. Exothermic reaction with materials containing active hydrogen groups. The reaction becomes progressively more vigorous and can be violent at higher temperatures if the miscibility of the reaction partners is good or is supported by stirring or by the presence of solvents. MDI is insoluble with, and heavier than water and sinks to the bottom but reacts slowly at the interface. A solid water-insoluble layer of polyurea is formed at the interface by liberating carbon dioxide gas.
Conditions to avoid	:	Extremes of temperature and direct sunlight. Exposure to air or moisture over prolonged periods.
Incompatible materials	:	Acids

Amines
Bases
Metals
water

Hazardous decomposition products : Combustion products may include: carbon monoxide, carbon dioxide, nitrogen oxides, hydrocarbons and HCN. In the event of extreme heat (>500 degrees C), aniline is suspected of being formed.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : No data is available on the product itself.

Acute toxicity

Acute oral toxicity - Product : LD50 (Rat, male): > 10,000 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity - Product : Assessment: The substance/mixture is not toxic on inhalation as defined by dangerous goods regulations.

Acute toxicity estimate: 1.36 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Remarks: Methods used to generate the exposure concentrations in the animal studies use extreme laboratory conditions and does not represent actual exposure conditions of the material in the workplace, storage, transportation or expected use on the market due to the very low vapor pressure. Therefore, these test results cannot be used to for hazard classification of the material. Rather, an acute toxicity estimate is calculated based on weight of evidence and expert judgement and is used to justify a modified classification for acute inhalation toxicity.

Acute dermal toxicity - Product : LD50 (Rabbit, male and female): > 9,400 mg/kg
Method: OECD Test Guideline 402

Acute toxicity (other routes of administration) : No data available

Skin corrosion/irritation

Components:

Diphenylmethanediisocyanate**:**
Species: Rabbit
Assessment: Irritating to skin.
Method: OECD Test Guideline 404

Result: Skin irritation

4,4'-methylenediphenyl diisocyanate**:**
Species: Rabbit
Method: OECD Test Guideline 404
Result: Irritating to skin.

Serious eye damage/eye irritation

Components:

Diphenylmethanediisocyanate**:**
Species: Rabbit
Result: Irritation to eyes, reversing within 7 days
Assessment: Mild eye irritant
Method: OECD Test Guideline 405

4,4'-methylenediphenyl diisocyanate**:**
Species: Rabbit
Result: Mild eye irritation

Respiratory or skin sensitisation

Components:

Diphenylmethanediisocyanate**:**
Exposure routes: Skin
Species: Guinea pig
Method: OECD Test Guideline 406
Result: May cause sensitisation by skin contact.

Exposure routes: Respiratory Tract
Species: Rat
Result: May cause sensitisation by inhalation.

4,4'-methylenediphenyl diisocyanate**:**
Exposure routes: Skin
Species: Mouse
Method: OECD Test Guideline 429
Result: May cause sensitisation by skin contact.

Exposure routes: Respiratory Tract
Species: Guinea pig
Result: May cause sensitisation by inhalation.

Assessment: May cause an allergic skin reaction., May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Germ cell mutagenicity

Product:

Genotoxicity in vitro : Concentration: 200 ug/plate
Metabolic activation: with and without metabolic activation
Method: Directive 67/548/EEC, Annex, B.13/14
Result: negative

Product:

Genotoxicity in vivo : Application Route: Inhalation
Result: Not classified due to inconclusive data.

Application Route: Inhalation
Exposure time: 3 Weeks
Dose: 113 mg/m3
Method: OECD Test Guideline 474
Result: negative

Product:

Germ cell mutagenicity-Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Carcinogenicity

Product:

Remarks: Rats have been exposed for two years to a respirable aerosol of polymeric MDI which resulted in a chronic pulmonary irritation at high concentrations. Only at the top level (6 mg/m3), there was a significant incidence of a benign tumour of the lung (adenoma) and one malignant tumour (adenocarcinoma). There were no lung tumours at 1 mg/m3 and no effects at 0.2 mg/m3. Overall, the tumour incidence, both benign and malignant, and the number of animals with the tumours were not different from controls. The increased incidence of lung tumours is associated with prolonged respiratory irritation and the concurrent accumulation of yellow material in the lung, which occurred throughout the study. In the absence of prolonged exposure to high concentrations leading to chronic irritation and lung damage, it is highly unlikely that tumour formation will occur.

Remarks: Industrial use of aprotic polar solvents for cleaning can release hazardous primary aromatic amines (>0.1%)
Based on animal studies, primary aromatic amines are considered as potential carcinogen to humans. Some of those chemicals are proven carcinogens to humans
Provided the recommended personal protective equipment and hygiene measures are applied, no adverse effects to human health are to be expected

Species: Rat, male and female
Application Route: Inhalation
Exposure time: 24 month(s)
Dose: 1 mg/m³
Frequency of Treatment: 5 daily
Method: OECD Test Guideline 453
Result: positive

Species: Rat, male and female
Application Route: Inhalation
Exposure time: 24 month(s)
Dose: 1 mg/m³
Frequency of Treatment: 5 daily
Method: OECD Test Guideline 453
Result: positive

Carcinogenicity - Assessment : No data available

IARC No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed

human carcinogen by IARC.

ACGIH

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

OSHA

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Product:

Effects on fertility : Species: Rat, male and female
Application Route: Inhalation
Method: OECD Test Guideline 414
Remarks: No significant adverse effects were reported

Product:

Effects on foetal development : Species: Rat, male and female
Application Route: Inhalation
General Toxicity Maternal: 4 mg/m³
Method: OECD Test Guideline 414
Result: No teratogenic effects

Product:

Reproductive toxicity - Assessment : No toxicity to reproduction
No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.

STOT - single exposure

Product:

Exposure routes: Inhalation
Target Organs: Respiratory Tract
Assessment: May cause respiratory irritation.

STOT - repeated exposure

Product:

Assessment: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.
Remarks: Lung decrement has been reported in some studies as a consequence of repeated exposure to MDI. However, this effect can only be observed after inhalation exposure in the tissue at the point of contact and does not represent systemic toxicity. It is a local effect that is already covered by respiratory irritation (STOT single exposure, Cat. 3) and respiratory sensitization (Category 1).

In some humans, but not all, epidemiological studies have found long term decreases in ventilatory function and respiratory symptoms (EU RA 2005). However, there is generally co-exposure to other materials and sometimes also to toluene diisocyanate which may have

contributed to lung decrement. Therefore, it is concluded that possible lung effects do not qualify as specific target organ toxicity after repeated exposure in accordance to chapter 3.9.1.6 of the GHS (UNECE 2003). In addition, all warning and safety measures for local effects as well as for acute inhalation toxicity already provide for a protection of workers and professional users that are involved in the handling of MDI.

Repeated dose toxicity

Product:

Species: Rat, male and female
NOEC: 0.2 mg/m3
Exposure time: 17,520 h
Number of exposures: 5 d
Method: OECD Test Guideline 453

Repeated dose toxicity - Assessment : No data available

Aspiration toxicity

No data available

Experience with human exposure

General Information: No data available

Inhalation: No data available

Skin contact: No data available

Eye contact: No data available

Ingestion: No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

Ingestion: No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Toxicity to fish - Product : LC50 (Brachydanio rerio (zebrafish)): > 1,000 mg/l
Exposure time: 96 h

Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 203

LC0: > 1,000 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates - Product	:	EC50 (Daphnia magna (Water flea)): > 1,000 mg/l Exposure time: 24 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants - Product	:	EC50 (Desmodesmus subspicatus (green algae)): > 1,640 mg/l Exposure time: 72 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 201
M-Factor (Acute aquatic toxicity)	:	No data available
Toxicity to fish (Chronic toxicity)	:	No data available
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) - Product	:	NOEC (Daphnia magna (Water flea)): >= 10 mg/l Exposure time: 21 d Test Type: semi-static test Test substance: Fresh water Method: OECD Test Guideline 211
M-Factor (Chronic aquatic toxicity)	:	No data available
Toxicity to microorganisms - Product	:	EC50 (activated sludge): > 100 mg/l Exposure time: 3 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 209
Toxicity to soil dwelling organisms - Product	:	EC50 (Eisenia fetida (earthworms)): > 1,000 mg/kg Exposure time: 336 h Method: OECD Test Guideline 207
Plant toxicity	:	No data available
Sediment toxicity	:	No data available
Toxicity to terrestrial organisms	:	No data available
Ecotoxicology Assessment Acute aquatic toxicity	:	No data available

Chronic aquatic toxicity	:	No data available
Toxicity Data on Soil	:	No data available
Other organisms relevant to the environment	:	No data available

Persistence and degradability

Biodegradability - Product	:	Inoculum: Domestic sewage Concentration: 30 mg/l Result: Not biodegradable Biodegradation: 0 % Exposure time: 28 d Method: Inherent Biodegradability: Modified MITI Test (II)
Biochemical Oxygen Demand (BOD)	:	No data available
Chemical Oxygen Demand (COD)	:	No data available
BOD/COD	:	No data available
ThOD	:	No data available
BOD/ThOD	:	No data available
Dissolved organic carbon (DOC)	:	No data available
Physico-chemical removability	:	No data available

Components:

Diphenylmethanediisocyanate**:**

Stability in water	:	Degradation half life(DT50): 0.8 d (77 °F / 25 °C) Method: No information available. Remarks: Fresh water

4,4'-methylenediphenyl diisocyanate**:**

Stability in water	:	Degradation half life(DT50): 20 hrs (77 °F / 25 °C) Remarks: Fresh water
Photodegradation	:	No data available
Impact on Sewage Treatment	:	No data available

Bioaccumulative potential

Bioaccumulation - Product	:	Species: Cyprinus carpio (Carp) Bioconcentration factor (BCF): 200 Remarks: Bioaccumulation is unlikely.

Components:

4,4'-methylenediphenyl diisocyanate**:**

Partition coefficient: n-octanol/water	:	log Pow: 4.51 (68 °F / 20 °C) pH: 7 Method: OECD Test Guideline 117

Mobility in soil

Mobility	:	No data available
Distribution among environmental compartments	:	No data available
Stability in soil	:	No data available

Other adverse effects

Environmental fate and pathways	:	No data available
Results of PBT and vPvB assessment	:	No data available
Endocrine disrupting potential	:	No data available
Adsorbed organic bound halogens (AOX)	:	No data available

Hazardous to the ozone layer

Ozone-Depletion Potential	:	Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
Additional ecological information	:	No data available
Global warming potential (GWP)	:	No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	Do not dispose of waste into sewer. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.
Contaminated packaging	:	Empty remaining contents. Dispose of as unused product.

Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA
Not regulated as dangerous goods

IMDG
Not regulated as dangerous goods

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

National Regulations

DOT Classification

UN/ID/NA number	:	NA 3082
Proper shipping name	:	OTHER REGULATED SUBSTANCES, LIQUID, N.O.S. (Methylene Diphenyl Diisocyanate)
Class	:	9
Packing group	:	III
Labels	:	Class 9 - Miscellaneous dangerous substances and articles
ERG Code	:	171
Marine pollutant	:	no

Special precautions for user
The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
4,4'-methylenediphenyl diisocyanate	101-68-8	5000	11904
chlorobenzene	108-90-7	100	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 311/312 Hazards : Acute toxicity (any route of exposure)
Skin corrosion or irritation
Serious eye damage or eye irritation
Respiratory or skin sensitisation
Specific target organ toxicity (single or repeated exposure)

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Diphenylmethanediisocyanate	9016-87-9	>= 50 - < 70 %
4,4'-methylenediphenyl diisocyanate	101-68-8	>= 30 - < 50 %

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):

4,4'-methylenediphenyl diisocyanate	101-68-8

California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

The components of this product are reported in the following inventories:

CH INV	:	On the inventory, or in compliance with the inventory
DSL	:	All components of this product are on the Canadian DSL
AICS	:	On the inventory, or in compliance with the inventory
NZIoC	:	On the inventory, or in compliance with the inventory
ENCS	:	On the inventory, or in compliance with the inventory
KECI	:	On the inventory, or in compliance with the inventory
PICCS	:	On the inventory, or in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory
TCSI	:	On the inventory, or in compliance with the inventory
TSCA	:	On the inventory, or in compliance with the inventory

Inventories

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (USA)

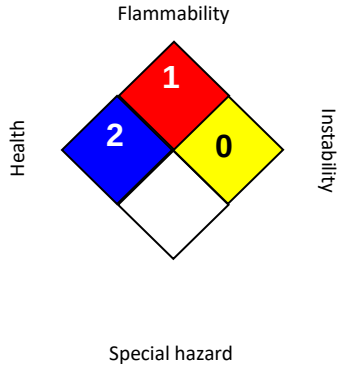
TSCA - 5(a) Significant New Use Rule List of Chemicals
No substances are subject to a Significant New Use Rule.

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)
No substances are subject to TSCA 12(b) export notification requirements.

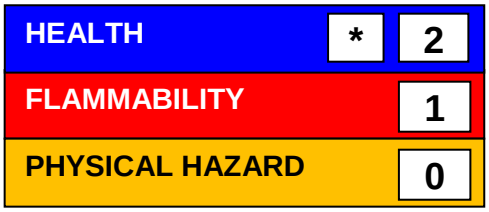
SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



HMIS® IV:



HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard

Liquid decontaminants (percentages by weight or volume) :
Decontaminant 1 : *- sodium carbonate : 5 - 10 % *- liquid detergent : 0.2 - 2 % *- water : to make up to 100 %
Decontaminant 2 : *- concentrated ammonia solution : 3 - 8 % *- liquid detergent : 0.2 - 2 % *- water : to make up to 100 %
Decontaminant 1 reacts slower with diisocyanates but is more environmentally friendly than decontaminant 2.
Decontaminant 2 contains ammonia. Ammonia presents health hazards. (See supplier safety information.)

Revision Date	:	11/19/2019
ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
ACGIH / TWA	:	8-hour, time-weighted average
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
NIOSH REL / C	:	Ceiling value not be exceeded at any time.
OSHA Z-1 / C	:	Ceiling

The information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

NO PERSON OR ORGANIZATION EXCEPT A DULY AUTHORIZED HUNTSMAN EMPLOYEE IS AUTHORIZED TO PROVIDE OR MAKE AVAILABLE DATA SHEETS FOR HUNTSMAN PRODUCTS. DATA SHEETS FROM UNAUTHORIZED SOURCES MAY CONTAIN INFORMATION THAT IS NO LONGER CURRENT OR ACCURATE.

RIMLINE® SA 97030 (STI-03-003-9B H20STOP)

Version	Revision Date:	SDS Number:	Date of last issue: 05/16/2018
1.2	11/12/2018	400001016706	Date of first issue: 09/28/2016

SECTION 1. IDENTIFICATION

Product name : RIMLINE® SA 97030 (STI-03-003-9B H20STOP)

Manufacturer or supplier's details

Company name of supplier : Huntsman Polyurethanes

Address : P.O. Box 4980
The Woodlands,
TX 77387
United States of America (USA)

Telephone : Tech Info:(800) 257-5547

E-mail address of person responsible for the SDS : SDS@huntsman.com

Emergency telephone number : Chemtrec: (800) 424-9300 or (703) 527-3887

Recommended use of the chemical and restrictions on use

Recommended use : Component of a Polyurethane System.

Restrictions on use : For industrial use only.

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200

Skin irritation : Category 2

Serious eye damage : Category 1

Skin sensitisation : Category 1

Reproductive toxicity : Category 2

Specific target organ toxicity - repeated exposure (Oral) : Category 2 (Kidney, Liver, Pancreas)

Short-term (acute) aquatic hazard : Category 3

Long-term (chronic) aquatic hazard : Category 3

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.
H361d Suspected of damaging the unborn child.
H373 May cause damage to organs (Kidney, Liver, Pancreas) through prolonged or repeated exposure if swallowed.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P272 Contaminated work clothing must not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
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/doctor.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
Storage:
P405 Store locked up.
Disposal:
P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
Glycerol, propoxylated	25791-96-2	20 - 30
Ethylenediamine, ethoxylated and propoxylated	26316-40-5	1 - 5
Triethylenediamine	280-57-9	1 - 3
N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine)	3033-62-3	1 - 2.5

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate	6846-50-0	1 - 2.5
tris(2-chloro-1-methylethyl) phosphate	13674-84-5	1 - 2.5
diethylmethylbenzenediamine	68479-98-1	1 - 2.5

The specific chemical identity and/or exact percentage (concentration) of composition may be withheld as a trade secret.

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
Treat symptomatically.
Get medical attention if symptoms occur.

If inhaled : If inhaled, remove to fresh air.
Get medical attention if symptoms occur.

In case of skin contact : If skin irritation persists, call a physician.
If on skin, rinse well with water.
If on clothes, remove clothes.

In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Continue rinsing eyes during transport to hospital.
Remove contact lenses.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear.
Do NOT induce vomiting.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital.

Most important symptoms and effects, both acute and delayed : None known.

Notes to physician : Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing : High volume water jet

media

Hazardous combustion products	:	Carbon oxides Nitrogen oxides (NOx) Hydrogen chloride Halogenated compounds Oxides of phosphorus
Specific extinguishing methods	:	No data is available on the product itself.
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Special protective equipment for firefighters	:	Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment. Refer to protective measures listed in sections 7 and 8.
Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Advice on safe handling	:	Do not breathe vapours/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. To avoid spills during handling keep bottle on a metal tray. Dispose of rinse water in accordance with local and national regulations. Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
Conditions for safe storage	:	Keep container tightly closed in a dry and well-ventilated place.

Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Observe label precautions.
Keep in properly labelled containers.

Materials to avoid : For incompatible materials please refer to Section 10 of this SDS.

Further information on storage stability : Stable under normal conditions.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine)	3033-62-3	TWA	0.05 ppm	ACGIH
		STEL	0.15 ppm	ACGIH

Personal protective equipment

Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Hand protection
Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures : When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Colour	:	No data is available on the product itself.
Odour	:	No data is available on the product itself.
Odour Threshold	:	No data is available on the product itself.
pH	:	No data is available on the product itself.
Freezing point	:	No data is available on the product itself.
Melting point	:	No data is available on the product itself.
Boiling point	:	No data is available on the product itself.
Flash point	:	> 250.00 °F / > 121.11 °C Method: Seta closed cup
Evaporation rate	:	No data is available on the product itself.
Flammability (solid, gas)	:	No data is available on the product itself.
Flammability (liquids)	:	No data is available on the product itself.
Upper explosion limit / Upper flammability limit	:	No data is available on the product itself.
Lower explosion limit / Lower flammability limit	:	No data is available on the product itself.
Vapour pressure	:	No data is available on the product itself.
Relative vapour density	:	No data is available on the product itself.
Relative density	:	1.05 (68 °F / 20 °C)
Density	:	1.05 g/cm3 (68 °F / 20 °C)
Solubility(ies)		
Water solubility	:	No data is available on the product itself.
Solubility in other solvents	:	No data is available on the product itself.
Partition coefficient: n-octanol/water	:	No data is available on the product itself.
Auto-ignition temperature	:	No data is available on the product itself.
Thermal decomposition	:	No data is available on the product itself.
Self-Accelerating	:	No data is available on the product itself.

decomposition temperature (SADT)

Viscosity
Viscosity, dynamic : 300 mPa.s

Explosive properties : No data is available on the product itself.

Oxidizing properties : No data is available on the product itself.

Particle size : No data is available on the product itself.

SECTION 10. STABILITY AND REACTIVITY

Reactivity : No dangerous reaction known under conditions of normal use.
Chemical stability : Stable under normal conditions.
Possibility of hazardous reactions : No hazards to be specially mentioned.
Conditions to avoid : None known.

Incompatible materials : None known.

Hazardous decomposition products : carbon monoxide

carbon dioxide

Halogenated compounds

hydrogen chloride

Oxides of phosphorus

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : No data is available on the product itself.

Acute toxicity

Acute oral toxicity - Product : Acute toxicity estimate : 3,320 mg/kg
Method: Calculation method

Acute inhalation toxicity - Product : Acute toxicity estimate: > 200 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Acute dermal toxicity - Product : Acute toxicity estimate : > 5,000 mg/kg
Method: Calculation method

Acute toxicity (other routes of : No data available

administration)

Skin corrosion/irritation

Components:

Glycerol, propoxylated**:**
Species: Rabbit
Assessment: No skin irritation
Method: OECD Test Guideline 404
Result: No skin irritation

Ethylenediamine, ethoxylated and propoxylated**:**
Species: Rabbit
Assessment: No skin irritation
Method: OPPTS 870.2500
Result: No skin irritation

Triethylenediamine**:**
Species: Rabbit
Assessment: Irritant
Result: Irritating to skin.

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine)**:**
Species: Rabbit
Method: OECD Test Guideline 404
Result: Causes burns.

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate**:**
Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

tris(2-chloro-1-methylethyl) phosphate**:**
Species: Rabbit
Assessment: No skin irritation
Method: OECD Test Guideline 404
Result: No skin irritation

diethylmethylbenzenediamine**:**
Species: Rabbit
Assessment: No skin irritation
Method: OECD Test Guideline 404
Result: No skin irritation

Serious eye damage/eye irritation

Components:

Glycerol, propoxylated**:**
Species: Rabbit
Result: No eye irritation
Assessment: No eye irritation
Method: OECD Test Guideline 405

Ethylenediamine, ethoxylated and propoxylated**:**
Species: Rabbit
Result: Irritation to eyes, reversing after 7 to 21 days

Method: OECD Test Guideline 405

Species: Rabbit
Result: Mild eye irritation
Method: OECD Test Guideline 405

Triethylenediamine**:**
Species: Rabbit
Result: Irreversible effects on the eye
Assessment: Risk of serious damage to eyes.
Method: OECD Test Guideline 405

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine)**:**
Species: Rabbit
Result: Risk of serious damage to eyes.
Method: OECD Test Guideline 405

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate**:**
Species: Rabbit
Result: No eye irritation
Method: OECD Test Guideline 405

tris(2-chloro-1-methylethyl) phosphate**:**
Species: Rabbit
Result: No eye irritation
Assessment: No eye irritation
Method: OECD Test Guideline 405

diethylmethylbenzenediamine**:**
Species: Rabbit
Result: Irritating to eyes.
Assessment: Irritant

Species: Rabbit
Result: Normally reversible injuries
Assessment: Irritant
Method: OECD Test Guideline 405

Respiratory or skin sensitisation

Components:

Glycerol, propoxylated**:**
Exposure routes: Skin
Species: Guinea pig
Assessment: Does not cause skin sensitisation.
Method: OECD Test Guideline 406
Result: Does not cause skin sensitisation.

Ethylenediamine, ethoxylated and propoxylated**:**
Exposure routes: Skin
Species: Mouse
Method: OECD Test Guideline 429
Result: The product is a skin sensitiser, sub-category 1B.

Triethylenediamine**:**
Exposure routes: Skin

Species: Guinea pig
Method: OECD Test Guideline 406
Result: Does not cause skin sensitisation.

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine)**:**
Exposure routes: Skin
Species: Guinea pig
Method: OECD Test Guideline 406
Result: Does not cause skin sensitisation.

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate**:**
Exposure routes: Skin
Species: Humans
Result: Does not cause skin sensitisation.

tris(2-chloro-1-methylethyl) phosphate**:**
Exposure routes: Skin
Species: Mouse
Method: OECD Test Guideline 429
Result: Does not cause skin sensitisation.

diethylmethylbenzenediamine**:**
Exposure routes: Skin
Species: Guinea pig
Result: Does not cause skin sensitisation.

Components:

Glycerol, propoxylated**:**
Assessment: Harmful if swallowed.

Germ cell mutagenicity

Components:

Glycerol, propoxylated**:**
Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Test Type: Chromosome aberration test in vitro
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Ethylenediamine, ethoxylated and propoxylated**:**
Genotoxicity in vitro : Concentration: 5000 ug/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471

Result: negative

Concentration: 2800 ug/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Concentration: 2800 µg/L
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Triethylenediamine**:**
Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine)**:**
Genotoxicity in vitro : Concentration: .08 - .18 mg/ml
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 479
Result: Not classified due to inconclusive data.

Metabolic activation: negative
Method: OECD Test Guideline 482
Result: negative

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate**:**
Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Concentration: 100 - 5000 ug/plate
Metabolic activation: with and without metabolic activation
Method: Directive 67/548/EEC, Annex, B.13/14
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster ovary cells
Method: OECD Test Guideline 476
Result: negative

diethylmethylbenzenediamine**:**
Genotoxicity in vitro : Metabolic activation: negative
Method: OECD Test Guideline 476
Result: negative

Components:

Triethylenediamine:
Genotoxicity in vivo : Application Route: Oral
Dose: 0 - 900 mg/kg
Result: negative

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):
Genotoxicity in vivo : Application Route: Intraperitoneal injection
Dose: 45 - 145 mg/kg
Method: OECD Test Guideline 474
Result: negative

diethylmethylbenzenediamine:
Genotoxicity in vivo : Application Route: Oral
Method: OECD Test Guideline 474
Result: negative

Components:

tris(2-chloro-1-methylethyl) phosphate:
Germ cell mutagenicity-Assessment : Did not show mutagenic effects in animal experiments.

Germ cell mutagenicity-Assessment : No data available

Carcinogenicity

Components:

diethylmethylbenzenediamine:
Species: Rat, male and female
Application Route: Oral
Exposure time: 24 month(s)
Dose: 1.8 - 3.2 mg/kg
Frequency of Treatment: 7 daily
Method: OECD Test Guideline 451
Result: negative

Carcinogenicity - Assessment : No data available

IARC No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Components:

Ethylenediamine, ethoxylated and propoxylated**:**

Effects on fertility : Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 421
Result: Animal testing did not show any effects on fertility.

Triethylenediamine**:**

Species: Rat, male and female
Application Route: Oral
Dose: 100 milligram per kilogram
Method: OECD Test Guideline 422

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate**:**

Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 421

Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 422
Result: Animal testing did not show any effects on fertility.

tris(2-chloro-1-methylethyl) phosphate**:**

Species: Rat, male and female
Application Route: Oral
General Toxicity - Parent: Lowest observed adverse effect level: 99 mg/kg body weight
Method: OECD Test Guideline 416
Result: Animal testing did not show any effects on fertility.

Components:

Triethylenediamine**:**

Effects on foetal development : Species: Rat, female
Application Route: Oral
Result: No teratogenic effects

Species: Rat, male and female
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: 300 mg/kg body weight
Method: OECD Test Guideline 422
Result: No teratogenic effects

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine)**:**

Species: Rabbit
Application Route: Dermal
General Toxicity Maternal: No observed adverse effect level: 2.5 mg/kg body weight
Embryo-foetal toxicity: No observed adverse effect level: 12 mg/kg body weight
Method: OECD Test Guideline 414
Result: Embryotoxic effects and adverse effects on the offspring were detected only at high maternally toxic doses

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate**:**
Species: Rat, females
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: 343 mg/kg body weight
Developmental Toxicity: No observed adverse effect level: 343 mg/kg body weight
Method: OECD Test Guideline 414

tris(2-chloro-1-methylethyl) phosphate**:**
Species: Rat, female
Application Route: Oral
General Toxicity Maternal: No-observed-effect level: 57 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Components:

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate**:**
Reproductive toxicity - Assessment : Some evidence of adverse effects on development, based on animal experiments.

STOT - single exposure

No data available

STOT - repeated exposure

Components:

diethylmethylbenzenediamine**:**
Exposure routes: Ingestion
Target Organs: Pancreas, Liver, Kidney
Assessment: May cause damage to organs through prolonged or repeated exposure.

Repeated dose toxicity

Components:

Glycerol, propoxylated**:**
Species: Rat, male and female
NOAEL: >= 1000 mg/kg
Application Route: Oral
Exposure time: 31 Days
Number of exposures: 11 hours/day
Method: OECD Test Guideline 407

Triethylenediamine**:**
Species: Rat, male and female
LOEC: 60 mg/m3
Application Route: Ingestion
Test atmosphere: dust/mist
Exposure time: 696 h
Number of exposures: 7 d
Method: OECD Test Guideline 412

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):
Species: Rat, male and female
NOEC: 8.2 mg/m3
Application Route: Ingestion
Test atmosphere: vapour
Exposure time: 336 h
Number of exposures: 6 h
Method: Subacute toxicity

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate:
Species: Rat, male and female
NOAEL: 150 - 750 mg/kg/d
Application Route: Ingestion
Exposure time: 13 Weeks
Number of exposures: 7 d
Method: Subchronic toxicity

Species: Rat, male and female
NOEL: 30 mg/kg
Application Route: Ingestion
Number of exposures: 7 d
Method: Subchronic toxicity

tris(2-chloro-1-methylethyl) phosphate:
Species: Rat, male
LOAEL: 52 mg/kg/d
Application Route: Ingestion
Exposure time: 13 Weeks
Number of exposures: 7 d
Method: Subchronic toxicity

diethylmethylbenzenediamine:
Species: Rat, male and female
NOAEL: 8 - 10 mg/kg
Application Route: Ingestion
Exposure time: 2,160 h
Method: Subchronic toxicity

Components:

Glycerol, propoxylated:
Repeated dose toxicity - Assessment : Harmful if swallowed.

Aspiration toxicity

No data available

Experience with human exposure

General Information: No data available

Inhalation: No data available

Skin contact: No data available

Components:

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):
Eye contact : Symptoms: Blurred vision

Ingestion: No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

Ingestion: No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Glycerol, propoxylated:
Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): > 1,000 mg/l
Exposure time: 96 h
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 203

Ethylenediamine, ethoxylated and propoxylated:
Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 25,600 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 203

Triethylenediamine:
Toxicity to fish : LC50 (Cyprinus carpio (Carp)): > 100 mg/l
Exposure time: 96 h
Test substance: Fresh water
Method: OECD Test Guideline 203

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):
Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): ca. 131.2 mg/l

Exposure time: 96 h
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 203

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate**:**

Toxicity to fish : EC50 (Lepomis macrochirus (Bluegill sunfish)): >= 6 mg/l
Exposure time: 96 h
Test Type: flow-through test
Test substance: Fresh water
Method: OECD Test Guideline 203
Remarks: No-observed-effect level

tris(2-chloro-1-methylethyl) phosphate**:**

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): 56.2 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water

LC50 (Pimephales promelas (fathead minnow)): 51 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water

diethylmethylbenzenediamine**:**

Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 200 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: DIN 38412

Components:

Glycerol, propoxylated**:**

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

Ethylenediamine, ethoxylated and propoxylated**:**

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 103 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

Triethylenediamine**:**

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine)**:**

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 102 mg/l
Exposure time: 48 h

Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate:
Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1.46 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Remarks: Aquatic toxicity is unlikely due to low solubility.

tris(2-chloro-1-methylethyl) phosphate:
Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 131 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water

diethylmethylbenzenediamine:
Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.5 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: Directive 67/548/EEC, Annex V, C.2.

Components:

Glycerol, propoxylated:
Toxicity to algae : LC50 (Desmodesmus subspicatus (green algae)): > 100 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

Ethylenediamine, ethoxylated and propoxylated:
Toxicity to algae : EC50: 150.67 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Marine water
Method: Directive 67/548/EEC, Annex V, C.3.

Triethylenediamine:
Toxicity to algae : ErC50 (Selenastrum capricornutum (green algae)): 180 mg/l
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):
Toxicity to algae : ErC50 (Selenastrum capricornutum (green algae)): 24 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate:
Toxicity to algae : ErC50 (Selenastrum capricornutum (green algae)): > 7.49 mg/l

Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201
Remarks: Aquatic toxicity is unlikely due to low solubility.

tris(2-chloro-1-methylethyl) phosphate:
Toxicity to algae : ErC50 (Selenastrum capricornutum (green algae)): 82 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

diethylmethylbenzenediamine:
Toxicity to algae : ErC50 (Desmodesmus subspicatus (green algae)): ca. 104 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

Components:

diethylmethylbenzenediamine:
M-Factor (Acute aquatic toxicity) : 1

Components:

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate:
Toxicity to fish (Chronic toxicity) : GLP: yes

Components:

Glycerol, propoxylated:
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): >= 10 mg/l
Exposure time: 21 d
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 211

Ethylenediamine, ethoxylated and propoxylated:
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): >= 10 mg/l
Exposure time: 21 d
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 211

Triethylenediamine:
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 92 mg/l
Exposure time: 48 hrs
Test Type: static test
Method: OECD Test Guideline 202

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate:
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.7 mg/l
Exposure time: 21 d
Test Type: flow-through test

Test substance: Fresh water
Method: OECD Test Guideline 211
Remarks: Aquatic toxicity is unlikely due to low solubility.

EC50 (Daphnia magna (Water flea)): >= 1.3 mg/l
Exposure time: 21 d
Test Type: flow-through test
Test substance: Fresh water

tris(2-chloro-1-methylethyl) phosphate**:**

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 32 mg/l Exposure time: 21 d Test Type: semi-static test Test substance: Fresh water Method: OECD Test Guideline 202
M-Factor (Chronic aquatic toxicity)	:	No data available

Components:

Glycerol, propoxylated**:**

Toxicity to microorganisms	:	IC50 (activated sludge): > 10,000 mg/l Exposure time: 3 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 209

Ethylenediamine, ethoxylated and propoxylated**:**

Toxicity to microorganisms	:	IC50 (activated sludge): > 10,000 mg/l Exposure time: 3 h Test Type: static test Test substance: Fresh water Method: Directive 67/548/EEC, Annex V, C.11

tris(2-chloro-1-methylethyl) phosphate**:**

Toxicity to microorganisms	:	EC50 (activated sludge): 784 mg/l Exposure time: 3 h Test Type: static test Test substance: Fresh water Method: ISO 8192

diethylmethylbenzenediamine**:**

Toxicity to microorganisms	:	EC50 (Pseudomonas putida): >= 170 mg/l Exposure time: 24 h Test Type: static test Test substance: Fresh water
Toxicity to soil dwelling organisms	:	No data available
Plant toxicity	:	No data available
Sediment toxicity	:	No data available
Toxicity to terrestrial	:	No data available

organisms

Ecotoxicology Assessment
Acute aquatic toxicity : No data available

Components:

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):
Chronic aquatic toxicity : This product has no known ecotoxicological effects.

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate:
Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects.

tris(2-chloro-1-methylethyl) phosphate:
Chronic aquatic toxicity : This product has no known ecotoxicological effects.

Toxicity Data on Soil : No data available

Other organisms relevant to the environment : No data available

Persistence and degradability

Components:

Glycerol, propoxylated:
Biodegradability : Test Type: aerobic
Concentration: 100 mg/l
Result: Inherently biodegradable.
Biodegradation: 1.9 %
Exposure time: 28 d
Method: Inherent Biodegradability: Modified SCAS Test

Test Type: aerobic
Concentration: 20 mg/l
Result: Not readily biodegradable.
Biodegradation: 40 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

Test Type: aerobic
Inoculum: Mixture
Result: Inherently biodegradable.
Biodegradation: 22 %
Exposure time: 28 d
Method: ISO 5815

Ethylenediamine, ethoxylated and propoxylated:
Biodegradability : Concentration: 100 mg/l
Result: Not biodegradable
Biodegradation: 2 %
Exposure time: 28 d
Method: Directive 67/548/EEC Annex V, C.4.D.

Triethylenediamine:
Biodegradability : Inoculum: activated sludge
Result: Not readily biodegradable.

Biodegradation: 7 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

Inoculum: activated sludge
Result: Not readily biodegradable.
Biodegradation: ca. 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301C

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):
Biodegradability : Inoculum: activated sludge
Result: Inherently biodegradable.
Biodegradation: < 10 %
Exposure time: 28 d
Method: OECD Test Guideline 302B

Inoculum: activated sludge
Result: Not readily biodegradable.
Biodegradation: 2 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate:
Biodegradability : Inoculum: activated sludge
Concentration: 10 mg/l
Result: Readily biodegradable.
Biodegradation: 70.73 %
Exposure time: 28 d
Method: OECD Test Guideline 310

tris(2-chloro-1-methylethyl) phosphate:
Biodegradability : Inoculum: activated sludge
Result: Inherently biodegradable.
Biodegradation: 95 %
Exposure time: 63 d
Method: OECD Test Guideline 302A

Inoculum: activated sludge
Concentration: 20 mg/l
Result: Not readily biodegradable.
Biodegradation: 14 %
Exposure time: 28 d
Method: OECD Test Guideline 301E

diethylmethylbenzenediamine:
Biodegradability : Result: Not readily biodegradable.
Biodegradation: < 60 %
Exposure time: 28 d

Result: Not readily biodegradable.
Biodegradation: < 1 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

Components:

Glycerol, propoxylated:
Biochemical Oxygen Demand (BOD) : 355 mg/g

Ethylenediamine, ethoxylated and propoxylated:
Biochemical Oxygen Demand (BOD) : 355 mg/g

Components:

Glycerol, propoxylated:
Chemical Oxygen Demand (COD) : 1,600 mg/g

Ethylenediamine, ethoxylated and propoxylated:
Chemical Oxygen Demand (COD) : 1,600 mg/g

BOD/COD : No data available

ThOD : No data available

BOD/ThOD : No data available

Dissolved organic carbon (DOC) : No data available

Physico-chemical removability : No data available

Components:

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate:
Stability in water : Degradation half life(DT50): 1.48 - 14.75 yr (68 °F / 20 °C) pH: 7.5
Method: No information available.

tris(2-chloro-1-methylethyl) phosphate:
Stability in water : Degradation half life(DT50): > 1 yr (77 °F / 25 °C) pH: 6.5
Remarks: Fresh water

Components:

Triethylenediamine:
Photodegradation : Rate constant: < .00001

tris(2-chloro-1-methylethyl) phosphate:
Photodegradation : Test Type: Air
Rate constant: < .00001
Degradation (direct photolysis): 50 %

diethylmethylbenzenediamine:
Photodegradation : Test Type: Air
Rate constant: < .00001

Impact on Sewage Treatment : No data available

Bioaccumulative potential

Components:

Glycerol, propoxylated:
Bioaccumulation : Remarks: Does not bioaccumulate.

Triethylenediamine:
Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): < 13
Exposure time: 42 d
Test substance: Fresh water
Remarks: Bioaccumulation is unlikely.

Bioconcentration factor (BCF): 3.16

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):
Bioaccumulation : Remarks: Bioaccumulation is unlikely.

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate:
Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)
Bioconcentration factor (BCF): 1.95
Exposure time: 23 d
Test substance: Fresh water
Method: flow-through test
Remarks: Bioaccumulation is unlikely.

tris(2-chloro-1-methylethyl) phosphate:
Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 0.8 - 14
Exposure time: 42 d
Test substance: Fresh water
Method: flow-through test

Bioconcentration factor (BCF): 6.58

diethylmethylbenzenediamine:
Bioaccumulation : Bioconcentration factor (BCF): 13.82
Remarks: Bioaccumulation is unlikely.

Bioconcentration factor (BCF): 2.75
Remarks: Does not bioaccumulate.

Components:

Glycerol, propoxylated:
Partition coefficient: n-octanol/water : Pow: 0.73 - 1.82 (77 °F / 25 °C)
pH: > 12

Ethylenediamine, ethoxylated and propoxylated:
Partition coefficient: n-octanol/water : log Pow: -1.25 - 1.2 (77 °F / 25 °C)
pH: 12

Triethylenediamine:
Partition coefficient: n-octanol/water : log Pow: -0.49

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):

Partition coefficient: n-octanol/water	:	log Pow: -0.34 (68 °F / 20 °C) Method: Partition coefficient

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate**:**

Partition coefficient: n-octanol/water	:	log Pow: 4.04 - 4.91 (77 °F / 25 °C) pH: 7

tris(2-chloro-1-methylethyl) phosphate**:**

Partition coefficient: n-octanol/water	:	log Pow: 2.68 (86 °F / 30 °C) pH: 7.1 Method: Partition coefficient

diethylmethylbenzenediamine**:**

Partition coefficient: n-octanol/water	:	log Pow: 1.17 (77 °F / 25 °C) Method: OECD Test Guideline 107

Mobility in soil

Mobility	:	No data available

Components:

Ethylenediamine, ethoxylated and propoxylated**:**

Distribution among environmental compartments	:	Koc: ca. 1.58 Method: OECD Test Guideline 121

tris(2-chloro-1-methylethyl) phosphate**:**

Distribution among environmental compartments	:	Koc: 576 Method: Directive 67/548/EEC, Annex V, C.19 Koc: 780 Method: OECD Test Guideline 106

diethylmethylbenzenediamine**:**

Distribution among environmental compartments	:	Koc: 132 - 170 Koc: 31.72 - 551
Stability in soil	:	No data available

Other adverse effects

Environmental fate and pathways	:	No data available
Results of PBT and vPvB assessment	:	No data available
Endocrine disrupting potential	:	No data available
Adsorbed organic bound halogens (AOX)	:	No data available

Hazardous to the ozone layer

Ozone-Depletion Potential	:	Regulation: 40 CFR Protection of Environment; Part 82

Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information - Product : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life with long lasting effects.

Global warming potential (GWP) : No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.
Dispose of as hazardous waste in compliance with local and national regulations.
Dispose of contents/ container to an approved waste disposal plant.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

IATA
Not regulated as dangerous goods

IMDG
Not regulated as dangerous goods

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

National Regulations

DOT Classification
Not regulated as dangerous goods

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
ethylene oxide	75-21-8	10	*
1,4-dioxane	123-91-1	100	*
methyloxirane	75-56-9	100	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 311/312 Hazards : Skin corrosion or irritation
Serious eye damage or eye irritation
Respiratory or skin sensitisation
Reproductive toxicity
Specific target organ toxicity (single or repeated exposure)

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

California Prop. 65

WARNING: This product can expose you to chemicals including 1,4-dioxane, ethylene oxide, methyloxirane, which is/are known to the State of California to cause cancer, and ethylene oxide, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

The components of this product are reported in the following inventories:

CH INV : The formulation contains substances listed on the Swiss Inventory, Not in compliance with the inventory
DSL : All components of this product are on the Canadian DSL
AICS : On the inventory, or in compliance with the inventory
NZIoC : Not in compliance with the inventory
ENCS : On the inventory, or in compliance with the inventory
KECI : On the inventory, or in compliance with the inventory
PICCS : On the inventory, or in compliance with the inventory
IECSC : On the inventory, or in compliance with the inventory
TCSI : Not in compliance with the inventory
TSCA : On the inventory, or in compliance with the inventory

Inventories

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (USA)

TSCA - 5(a) Significant New Use Rule List of Chemicals
No substances are subject to a Significant New Use Rule.

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

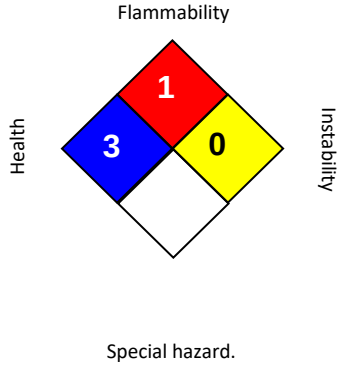
US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

diethylmethylbenzenediamine 68479-98-1

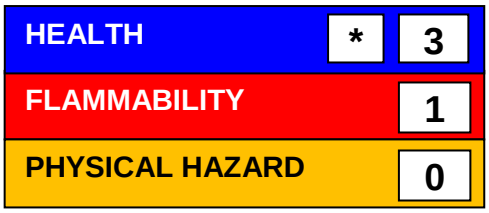
SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



HMIS® IV:



HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Revision Date : 11/12/2018

ACGIH : USA. ACGIH Threshold Limit Values (TLV)
ACGIH / TWA : 8-hour, time-weighted average
ACGIH / STEL : Short-term exposure limit

The information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.