

Isocyanate Component A**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

Trade name : Isocyanate Component A)
Substance name : Isocyanic acid, polymethylenepolyphenylene ester

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

Use of the Substance/Mixture : Component of a Polyurethane System.
Uses advised against : Professional use of aprotic polar solvents for cleaning., Consumer spray applications., Consumer products requiring heating above 40°C.

1.3 Details of the supplier of the safety data sheet

Company : 870 Curé-Boivin
Address : Boisbriand, QC J7G 2A7
Telephone : 866-437-0223
E-mail address of person responsible for the SDS : info@huntsmanbuilds.com

1.4 Emergency telephone number

Emergency telephone number : In USA, call Chemtrec at (800) 424-9300.
In Canada, call Canutec at (613) 966-6666

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SECTION 2: Hazards identification


2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Acute toxicity, Category 4	H332: Harmful if inhaled.
Skin irritation, Category 2	H315: Causes skin irritation.
Eye irritation, Category 2	H319: Causes serious eye irritation.
Respiratory sensitisation, Category 1	H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Carcinogenicity, Category 2	H351: Suspected of causing cancer.
Specific target organ toxicity - single exposure, Category 3, Respiratory system	H335: May cause respiratory irritation.
Specific target organ toxicity - repeated exposure, Category 2	H373: May cause damage to organs through prolonged or repeated exposure.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms	:	
Signal word	:	Danger
Hazard statements	:	H315 Causes skin irritation. H317 May cause an allergic skin reaction. H319 Causes serious eye irritation. H332 Harmful if inhaled. H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled. H335 May cause respiratory irritation. H351 Suspected of causing cancer. H373 May cause damage to organs through prolonged or repeated exposure.
Precautionary statements	:	Prevention: P201 Obtain special instructions before use. P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray. P264 Wash skin thoroughly after handling. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing

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protection.

Response:

P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Additional Labelling:

EUH204 Contains isocyanates. May produce an allergic reaction.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

Substance name : Isocyanic acid, polymethylenepolyphenylene ester
 CAS-No. : 9016-87-9
 EC-No. : Polymer

Hazardous components

Chemical name	CAS-No. EC-No.	Concentration (% w/w)
Isocyanic acid, polymethylenepolyphenylene ester	9016-87-9 Polymer	>= 90 - <= 100

SECTION 4: First aid measures

4.1 Description of 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.

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

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- 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.

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Take victim immediately to hospital.
If symptoms persist, call a physician.

4.2 Most important symptoms and effects, both acute and delayed

- Symptoms : Severe allergic skin reactions, bronchospasm and anaphylactic shock
- Risks : 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.

4.3 Indication of any immediate medical attention and special treatment needed

- Treatment : 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**5.1 Extinguishing media**

- 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.

5.2 Special hazards arising from the substance or mixture

- 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

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being formed.

No hazardous combustion products are known

5.3 Advice for firefighters

Special protective equipment for firefighters : Wear an approved positive pressure self-contained breathing apparatus in addition to standard fire fighting gear. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

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.

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

Personal precautions : 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.
Refer to protective measures listed in sections 7 and 8.
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.

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- 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.

6.3 Methods and material for containment and cleaning up

- Methods for 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.

6.4 Reference to other sections

For personal protection see section 8., For disposal considerations see section 13., The compositions of liquid decontaminants are given in Section 16.

SECTION 7: Handling and storage**7.1 Precautions for safe handling**

- 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 safe handling : For personal protection see section 8.
Avoid formation of aerosol.
Do not breathe vapours or spray mist.

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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%)

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

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.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : 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.

Advice on common storage : For incompatible materials please refer to Section 10 of this SDS.

Further information on storage stability : Stable under normal conditions.

7.3 Specific end use(s)

Specific use(s) : No data available

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Contains no substances with occupational exposure limit values.

8.2 Exposure controls**Personal protective equipment**

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.

Hand protection
Remarks

: 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. The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it. By industrial use of aprotic polar solvents for cleaning : Butyl rubber (0.7mm), Nitrile rubber (0.4mm), Chloroprene (0.5mm)

Skin and body protection : Impervious clothing

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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.

- 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.
- 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.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- Appearance : liquid
- Colour : brown, clear
- Odour : slight, musty
- Odour Threshold : No data is available on the product itself.
- pH : substance/mixture reacts with water
- Melting point : 5 °C
 Method: Melting / Freezing Temperature
- Boiling point : No data is available on the product itself.
- Flash point : 230 °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.
- Burning rate : No data is available on the product itself.

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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	:	0,00031 Pa (20 °C) Method: Vapour Pressure
Relative vapour density	:	8,5 Method: see user defined free text
Relative density	:	1,23 (20 °C)
Density	:	1,23 g/cm ³ (25 °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.
Decomposition temperature	:	No data is available on the product itself.
Viscosity		
Viscosity, dynamic	:	195 mPa.s (25 °C)
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.

9.2 Other information

Self-ignition	:	> 600 °C Method: Auto-Ignition Temperature (Liquids and Gases)
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SECTION 10: Stability and reactivity**10.1 Reactivity**

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions	:	Reaction with water (moisture) produces CO ₂ -gas. Exothermic reaction with materials containing active hydrogen groups. The reaction becomes progressively more vigorous and can
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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.

10.4 Conditions to avoid

Conditions to avoid : Extremes of temperature and direct sunlight.
Exposure to air or moisture over prolonged periods.

10.5 Incompatible materials

Materials to avoid : Acids
Amines
Bases
Metals
water

10.6 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**11.1 Information on toxicological effects****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.
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.

LC50 (Rat, male and female): 0,49 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Assessment: The component/mixture is moderately toxic after short term inhalation.

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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**Product:**

Species: Rabbit
Assessment: Irritating to skin.
Method: OECD Test Guideline 404
Result: Skin irritation

Serious eye damage/eye irritation**Product:**

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

Respiratory or skin sensitisation**Product:**

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.

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

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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

Components:

Isocyanic acid, polymethylenepolyphenylene ester:
Carcinogenicity - : Suspected human carcinogens
Assessment

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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:**

Exposure routes: Inhalation
Target Organs: Respiratory Tract
Assessment: May cause damage to organs through prolonged or repeated exposure.

Repeated dose toxicity**Product:**

Species: Rat, male and female
NOEC: 0,2
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

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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**12.1 Toxicity****Product:**

Toxicity to fish : 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 : 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 : 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

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

Toxicity to microorganisms : 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 : EC50: $> 1\,000$ mg/kg
Exposure time: 336 h
Species: Eisenia fetida (earthworms)
Method: OECD Test Guideline 207

Components:

Isocyanic acid, polymethylenepolyphenylene ester:

Toxicity to fish : 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 : 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 : 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

Toxicity to microorganisms : 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 daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: ≥ 10 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)

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Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 211

Toxicity to soil dwelling organisms : EC50: > 1 000 mg/kg
Exposure time: 336 h
Species: Eisenia fetida (earthworms)
Method: OECD Test Guideline 207

12.2 Persistence and degradability**Product:**

Biodegradability : Inoculum: Domestic sewage
Concentration: 30 mg/l
Result: Not biodegradable
Biodegradation: 0 %
Exposure time: 28 d
Method: Inherent Biodegradability: Modified MITI Test (II)

Components:

Isocyanic acid, polymethylenepolyphenylene ester:

Biodegradability : Inoculum: Domestic sewage
Concentration: 30 mg/l
Result: Not biodegradable
Biodegradation: 0 %
Exposure time: 28 d
Method: Inherent Biodegradability: Modified MITI Test (II)

Stability in water : Degradation half life (DT50): 0,8 d (25 °C)
Method: No information available.
Remarks: Fresh water

12.3 Bioaccumulative potential**Product:**

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

Components:

Isocyanic acid, polymethylenepolyphenylene ester:

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

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment**Product:**

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or

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very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

12.6 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

- | | | |
|------------------------|---|--|
| Product | : | 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

IATA

Not regulated as a dangerous good

IMDG

Not regulated as a dangerous good

ADR

Not regulated as a dangerous good

RID

Not regulated as a dangerous good

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

- | | | |
|--|---|---|
| REACH - List of substances subject to authorisation (Annex XIV) | : | Not applicable |
| REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). | : | This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57). |
| REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) | : | Conditions of restriction for the following entries should be considered: |

Isocyanate Component A

Number on list 3
Diphenylmethanediisocyanate,
polymeric
(Number on list 56)
4,4'-methylenediphenyl diisocyanate
(Number on list 56)
2,4'-methylenediphenyl diisocyanate
(Number on list 56)

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.
Not applicable

Occupational Illnesses (R- : 62
461-3, France)

Other regulations:

Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

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

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 : All substances listed as active on the TSCA inventory

Inventories

Isocyanate Component A

AICS (Australia), DSL (Canada), IECSC (China), ENCS (Japan), KECI (Korea), NZIOC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (United States of America (USA))

15.2 Chemical safety assessment

A Chemical Safety Assessment is not required for this substance.
Product falls under the EU-polymer definition.

SECTION 16: Other information**Further information**

Other information : 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.)

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.

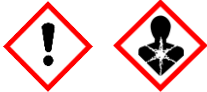
IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

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 BUILDING SOLUTIONS EMPLOYEE IS AUTHORIZED TO PROVIDE OR MAKE AVAILABLE DATA SHEETS FOR HUNTSMAN BUILDING SOLUTIONS PRODUCTS. DATA SHEETS FROM UNAUTHORIZED SOURCES MAY CONTAIN INFORMATION THAT IS NO LONGER CURRENT OR ACCURATE.

Compliant SDS for GHS: HazCom 2012 / United States; WHMIS 2015 / Canada.

SECTION 1: IDENTIFICATION	
Supplier/Manufacturer: Huntsman Building Solutions. 870 Curé-Boivin Boisbriand, QC, Canada. J7G 2A7 Tel: 450-437-0123 Toll free: 1-866-437-0223 Fax: 450-437-2338 E-mail: info@huntsmanbuilds.com www.huntsmanbuildingsolutions.com	GHS Product Identifier: Heatlok Soya HFO Chemical Name: Polyurethane Resin B-side Product type: Liquid Identified Use: Component B of a Spray-Applied Polyurethane System
Emergency Telephone (24/7): CANUTEC 613-996-6666 or *666 (cellular).	
SECTION 2: HAZARDS IDENTIFICATION	
OSHA / HCS Status	This material is classified hazardous under OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the Substance or Mixture	SKIN CORROSION/IRRITATION - Category 2 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A TOXIC TO REPRODUCTION (Fertility) - Category 1A TOXIC TO REPRODUCTION (Unborn child) - Category 1A AQUATIC HAZARD (ACUTE) - Category 3 AQUATIC HAZARD (LONG-TERM) - Category 3
GHS LABEL ELEMENTS INCLUDING PRECAUTIONARY STATEMENTS	
Hazard Pictograms	
Signal Word	DANGER
Hazard Statements	H319 - Causes serious eye irritation. H315 - Causes skin irritation. H360 - May damage fertility or the unborn child. 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. P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing. P273 - Avoid release to the environment. P264 - Wash hands thoroughly after handling.
Response	P308 + P313 - IF exposed or concerned: Get medical attention. P302 + P352 + P362 + P364 - IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. P332 + P313 - If skin irritation occurs: Get medical attention. 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 attention.
Storage	P405 - Store locked up.
Disposal	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
HAZARDS NOT OTHERWISE CLASSIFIED (HNOC)	
Physical Hazards Not Otherwise Classified (PHNOC)	None known.
Health Hazards Not Otherwise Classified (HHNOC)	None known.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Substance/Mixture	Mixture.
Chemical Name	Polyurethane Resin B-side.

CAS NUMBER/OTHER IDENTIFIERS

CAS Number	Not applicable.
Product Code	Not available.

INGREDIENTS	CAS #	%
tris(2-Chloro-1-methylethyl) phosphate	13674-84-5	≥10 - ≤25
Ethanediol	107-21-1	≥1 - ≤3
2,2 - Oxibisethanol	111-46-6	≥1 - ≤3
Glycerol	56-81-5	≥1 - ≤3
1,1,3,3-Tetramethylguanidine	80-70-6	≥1 - ≤3
Dibutyltin dilaurate	77-58-7	≥0.1 - <5

Any concentration shown as a range is to protect confidentiality or is due to batch variation. There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section. Occupational exposure limits, if available, are listed in Section 8.

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 20 minutes. Get medical attention.
Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Skin Contact	Flush contaminated skin with plenty of water. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 20 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Ingestion	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. 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.

MOST IMPORTANT SYMPTOMS/EFFECTS, ACUTE AND DELAYED**POTENTIAL ACUTE HEALTH EFFECTS**

Eye Contact	Causes serious eye irritation.
Inhalation	No known significant effects or critical hazards.
Skin Contact	Causes skin irritation.
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: reduced fetal weight, increase in fetal deaths, skeletal malformations.
Skin Contact	Adverse symptoms may include the following: irritation, redness, reduced fetal weight, increase in fetal deaths, skeletal malformations.
Ingestion	Adverse symptoms may include the following: reduced fetal weight, increase in fetal deaths, skeletal malformations.

INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED, IF NECESSARY

Notes to Physician	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
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.
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See toxicological information (Section 11)

SECTION 5: FIRE FIGHTING MEASURES

Suitable Extinguishing Media	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable Extinguishing Media	None known.
Specific Hazards Arising from the Chemical	This material is harmful 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	Thermal decomposition products may include the following materials: carbon dioxide, carbon monoxide, nitrogen oxides, tin oxides, halogenated compounds, traces of ammonia, phosphorus oxides, aldehydes and ketones, low molecular weight organic products, hydrogen chloride gas, hydrogen fluoride, noxious and toxic fumes.
Special Protective Actions for Fire Fighters	No special measures are required.
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. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For Emergency Responders	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
Environmental Precautions	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP

Spill	Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. 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 (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.
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SECTION 7: HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING

Protective Measures	Put on appropriate personal protective equipment (see Section 8). 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 vapor or mist. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. 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. See also Section 8 for additional information on hygiene measures.
Conditions for Safe Storage Including any Incompatibilities	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.
Storage Temperature	15 - 25°C (59 - 77°F) (minimum - maximum).
Storage Life	6 Months.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

CONTROL PARAMETERS - UNITED STATES

OCCUPATIONAL EXPOSURE LIMITS

Ingredient Name	Exposure Limits
Ethanediol	ACGIH TLV (United States, 3/2015).

	C: 100 mg/m ³ Form: Aerosol.
2,2' -Oxybisethanol	AIHA WEEL (United States, 10/2011). TWA: 10 mg/m ³ 8 hours.
Glycerol	OSHA PEL (United States, 2/2013). TWA: 5 mg/m ³ 8 hours. Form: Respirable fraction. TWA: 15 mg/m ³ 8 hours. Form: Total dust.
Dibutyltin dilaurate	ACGIH TLV (United States, 3/2015). Absorbed through skin. TWA: 0.1 mg/m ³ , (as Sn) 8 hours. STEL: 0.2 mg/m ³ , (as Sn) 15 minutes. NIOSH REL (United States, 10/2013). Absorbed through skin. TWA: 0.1 mg/m ³ , (as Sn) 10 hours. OSHA PEL (United States, 2/2013). TWA: 0.1 mg/m ³ , (as Sn) 8 hours.

CONTROL PARAMETERS - CANADA

OCCUPATIONAL EXPOSURE LIMITS		TWA (8 HOURS)			STEL (15 MINS)			CEILING				
Ingredients Name	List name	ppm	mg/m ³	Other	ppm	mg/m ³	Other	ppm	mg/m ³	Other	Notations	
Ethanediol	US ACGIH 3/2015	-	-	-	-	-	-	-	100	-	[a]	
	AB 4/2009	-	-	-	-	-	-	-	100	-		
	BC 5/2015	-	-	-	-	-	-	-	100	-	[a]	
		-	10	-	-	20	-	-	-	-	-	[b]
		-	-	-	-	-	-	-	50	-	-	[c]
	ON 7/2015	-	-	-	-	-	-	-	100	-	[a]	
QC 1/2014	-	-	-	50	127	-	-	-	-	-	[d]	
2,2' -Oxybisethanol	US AIHA 10/2011	-	10	-	-	-	-	-	-	-		
Glycerol	AB 4/2009	-	10	-	-	-	-	-	-	-	[e]	
	BC 5/2015	-	10	-	-	-	-	-	-	-	[e]	
		-	3	-	-	-	-	-	-	-	-	[f]
	QC 1/2014	-	10	-	-	-	-	-	-	-	[e]	

[3]Skin sensitization.

Form: [a] Aerosol. [b] Particulate. [c]Vapor. [d] Vapor and mist. [e] Mist. [f] Respirable mist. [g] Inhalable fraction.

Appropriate Engineering Controls	If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
Environmental Exposure Controls	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.
INDIVIDUAL PROTECTION MEASURES	
Hygiene Measures	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
Eye/Face Protection	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.
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.
Body Protection	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Other Skin Protection	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Respiratory protection	Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid.
Color	Heatlok Soya HFO: Blue
Odor	Not available.

Odor Threshold	Not available.
pH	Not available.
Melting Point	Not available.
Boiling Point	Not available.
Flash Point	Closed Cup: >93°C (>200°F) [Pensky-Martens].
Evaporation Rate	Not available.
Flammability (Solid, Gas)	Not available.
Lower and Upper Explosive (Flammable) Limits	Not available.
Vapor Pressure	Not available.
Vapor Density	Not available.
Specific Gravity @ 25°C (77°F)	1.19 - 1.23
Solubility	Moderately soluble in water.
Partition Coefficient: N-Octanol/Water	Not available.
Auto-Ignition Temperature	Not available.
Decomposition Temperature	Not available.
Viscosity @ 25°C (77°F) (cps)	250-350
Volatility	Not available.

SECTION 10: STABILITY AND REACTIVITY

Reactivity	No specific test data related to reactivity available for this product or its ingredients.
Chemical Stability	The product is stable.
Possibility of Hazardous Reactions	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to Avoid	Avoid exposure to moisture and high temperatures to protect product quality.
Incompatible Materials	Reactive or incompatible with the following materials: oxidizing materials. Avoid unintended contact with isocyanates.
Hazardous Decomposition Products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS - ACUTE TOXICITY

Product / Ingredient Name	Endpoint	Species	Result	Exposure
tris(2-Chloro-1-methylethyl) phosphate	LC50 Inhalation Dusts and mists	Rat	17.8 mg/l	1 hour
	LC50 Inhalation Dusts and mists	Rat	5 mg/l	4 hours
	LD50 Dermal	Rabbit	1230 mg/kg	-
	LD50 Oral	Rat	1500 mg/kg	-
Ethanediol	LD50 Oral	Rat	4700 mg/kg	-
2,2' -Oxybisethanol	LD50 Dermal	Rabbit	11890 mg/kg	-
	LD50 Oral	Rat	12000 mg/kg	-
Glycerol	LD50 Oral	Rat	12600 mg/kg	-

IRRITATION / CORROSION

Product / Ingredient Name	Result	Species	Score	Exposure	Observation
Ethanediol	Eyes Mild irritant	Rabbit	-	24 h 500 mg	-
	Eyes - Mild irritant	Rabbit	-	1 h 100 mg	-
	Eyes - Moderate irritant	Rabbit	-	6 h 1440 mg	-
	Skin - Mild irritant	Rabbit	-	555 mg	-
2,2' -Oxybisethanol	Eyes - Mild irritant	Rabbit	-	50 mg	-
	Skin - Mild irritant	Human	-	72 h 112 mg Intermittent	-
	Skin - Mild irritant	Rabbit	-	500 mg	-
Glycerol	Eyes - Mild irritant	Rabbit	-	24 h. 500 mg	-
	Skin - Mild irritant	Rabbit	-	24 h. 500 mg	-

Dibutyltin dilaurate	Eyes - Moderate irritant	Rabbit	-	24 h. 100 mg	-	
	Skin - Severe irritant	Rabbit	-	500 mg	-	
SENSITIZATION						
There is no data available.						
MUTAGENICITY						
There is no data available.						
CARCINOGENICITY						
Product / Ingredient Name	OSHA	IARC	NTP	ACGIH	EPA	NIOSH
Ethanediol	-	-	-	A4	-	None.
REPRODUCTIVE TOXICITY						
There is no data available.						
TERATOGENICITY						
There is no data available.						
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE)						
There is no data available.						
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE)						
Product / Ingredient Name	Category	Route of exposure	Target organs			
Dibutyltin dilaurate	Category 2	Not determined.	Not determined,			
ASPIRATION HAZARD						
There is no data available.						
INFORMATION ON THE LIKELY ROUTES OF EXPOSURE						
Dermal contact. Eye contact. Inhalation. Ingestion.						
POTENTIAL ACUTE HEALTH EFFECTS						
Eye Contact	Causes serious eye irritation.					
Inhalation	No known significant effects or critical hazards.					
Skin Contact	Causes skin irritation.					
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: reduced fetal weight, increase in fetal deaths, skeletal malformations.					
Skin Contact	Adverse symptoms may include the following: irritation, redness, reduced fetal weight, in fetal deaths, skeletal malformations.					
Ingestion	Adverse symptoms may include the following: reduced fetal weight, increase in fetal deaths, skeletal malformations.					
DELAYED AND IMMEDIATE EFFECTS AND ALSO CHRONIC EFFECTS FROM SHORT AND LONG TERM EXPOSURE						
SHORT TERM EXPOSURE						
Potential Immediate Effects	No known significant effects or critical hazards.					
Potential Delayed Effects	No known significant effects or critical hazards.					
LONG TERM EXPOSURE						
Potential Immediate Effects	No known significant effects or critical hazards.					
Potential Delayed Effects	No known significant effects or critical hazards.					
POTENTIAL CHRONIC HEALTH EFFECTS						
General	No known significant effects or critical hazards.					
Carcinogenicity	No known significant effects or critical hazards.					
Mutagenicity	No known significant effects or critical hazards.					
Teratogenicity	May damage the unborn child.					
Developmental Effects	No known significant effects or critical hazards.					
Fertility Effects	May damage fertility.					
NUMERICAL MEASURES OF TOXICITY - ACUTE TOXICITY ESTIMATES						
Route	ATE Value					

Oral	4136.2 mg/kg
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SECTION 12: ECOLOGICAL INFORMATION

TOXICITY			
Product / Ingredient Name	Result	Species	Exposure
Ethanediol	Acute LC50 100000 µg/l Marine water	Crustaceans - Crangon crangon - Adult	48 hours
	Acute LC50 10000000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 8050000 µg/l Fresh water	Fish - Pimephales promelas	96 hours
2,2' -Oxybisethanol	Acute LC50 32000 ppm Fresh water	Fish - Pimephales promelas	96 hours
Dibutyltin dilaurate	Chronic EC10 >2 mg/l Fresh water	Algae - Scenedesmus subspicatus	96 hours
PERSISTENCE AND DEGRADABILITY			
Product / Ingredient Name	Aquatic Half-life	Photolysis	Biodegradability
Ethanediol	-	-	Readily
BIOACCUMULATIVE POTENTIAL			
Product / Ingredient Name	LogP _{ow}	BCF	Potential
tris(2-Chloro-1-methylethyl) phosphate	2.68	0.8 to 2.8	low
Ethanediol	-1.36	-	low
2,2' -Oxybisethanol	-1.98	100	low
Glycerol	-1.76	-	low
1,1,3,3-Tetramethylguanidine	0.41	-	low
Dibutyltin dilaurate	4.44	2.91	low
MOBILITY IN SOIL			
Soil/Water Partition Coefficient (K _{oc})	There is no data available.		
Other Adverse Effects	No known significant effects or critical hazards.		

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal Methods	The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should 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 empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
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SECTION 14: TRANSPORTATION INFORMATION

DOT	
UN Number	Not regulated.
UN Proper Shipping Name	-
Transport Hazard Class(es)	-
Packing Group	-
Environmental Hazard	No.
Additional Information	-
TDG	
UN Number	Not regulated.
UN Proper Shipping Name	-
Transport Hazard Class(es)	-
Packing group	-
Environmental hazard	No.
Additional information	-
IMDG	

UN Number	Not regulated.
UN Proper Shipping Name	-
Transport Hazard Class(es)	-
Packing Group	-
Environmental Hazard	No.
Additional Information	-

IATA

UN Number	Not regulated.
UN Proper Shipping Name	-
Transport Hazard Class(es)	-
Packing Group	-
Environmental Hazard	No.
Additional Information	-

AERG: Not applicable.

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 Annex II of MARPOL 73/78 and the IBC Code	Not available.

SECTION 15: REGULATORY INFORMATION

United States	
U.S. Federal Regulations	TSCA 8(a) PAIR: Octamethylcyclotetrasiloxane. United States inventory (TSCA 8b): All components are listed or exempted.
Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)	Listed.
Clean Air Act Section 602 Class I Substances	Not listed.
Clean Air Act Section 602 Class II Substances	Not listed.
DEA List I Chemicals (Precursor Chemicals)	Not listed.
DEA List II Chemicals (Essential Chemicals)	Not listed.
SARA 302/304	No products were found.
SARA 304 RQ	Not applicable.

SARA 311/312

Classification	SKIN CORROSION/IRRITATION - Category 2 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A TOXIC TO REPRODUCTION (Fertility) - Category 1A TOXIC TO REPRODUCTION (Unborn child) - Category 1A
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COMPOSITION/INFORMATION ON INGREDIENTS

Product / Ingredient Name	%	Fire Hazard	Sudden Release of Pressure	Reactive	Immediate (Acute) Health Hazard	Delayed (Chronic) Health Hazard
tris(2-Chloro-1-methylethyl) phosphate	≥10 - ≤25	No.	No.	No.	Yes.	No.
Ethanediol	≥1 - ≤3	No.	No.	No.	Yes.	No.
2,2' -Oxybisethanol	≥1 - ≤3	No.	No.	No.	Yes.	No.
Glycerol	≥1 - ≤3	No.	No.	No.	Yes.	No.
1,1,3,3-Tetramethylguanidine	≥1 - <3	Yes	No.	No.	Yes.	No.
Dibutyltin dilaurate	≥0.1 - <5	No.	No.	No.	Yes.	Yes.

SARA 313

	Product Name	CAS #	%
Form R - Reporting requirements	Ethanediol	107-21-1	≥1 - ≤3

Supplier notification	Ethanediol	107-21-1	≥1 - ≤3	
SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.				
STATE REGULATIONS				
Massachusetts	The following components are listed: Ethanediol; Glycerol.			
New York	The following components are listed: Ethanediol.			
New Jersey	The following components are listed: Ethanediol; Glycerol.			
Pennsylvania	The following components are listed: Ethanediol; 2,2' -Oxybisethanol; Glycerol.			
California Prop. 65				
Product / Ingredient Name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Ethanediol	No.	Yes.	No.	No.
CANADA				
CANADIAN LISTS				
Canadian NPRI	The following components are listed: Ethanediol.			
CEPA Toxic Substances	None of the components are listed.			
Canada Inventory	All components are listed or exempted.			

SECTION 16: OTHER INFORMATION

PROCEDURE USED TO DERIVE THE CLASSIFICATION

Classification	Justification
SKIN CORROSION/IRRITATION - Category 2 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A TOXIC TO REPRODUCTION (Fertility) - Category 1A TOXIC TO REPRODUCTION (Unborn child) - Category 1A AQUATIC HAZARD (ACUTE) - Category 3 AQUATIC HAZARD (LONG-TERM) - Category 3	Calculation method. Calculation method. Calculation method. Calculation method. Calculation method. Calculation method.

HISTORY

Prepared by	Demilec Inc.- Technical Department.
Preparation Date (y-m-d)	Not applicable.
Current Issue Date (y-m-d)	2020-12-30

KEY TO ABBREVIATIONS

ATE	Acute Toxicity Estimate
BCF	Bioconcentration Factor
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
IATA	International Air Transport Association
IBC	Intermediate Bulk Container
IMDG	International Maritime Dangerous Goods
LogPow	Logarithm of the octanol/water partition coefficient
MARPOL 73/78	International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN	United Nations

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.