RENCAST® 6497 US

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	11/20/2015	400001012896	Date of first issue: 11/20/2015

SECTION 1. IDENTIFICATION

Product name : RENCAST® 6497 US

Manufacturer or supplier's details

Company name of supplier : Huntsman Advanced Materials Americas LLC
Address : P.O. Box 4980
The Woodlands,
TX 77387
United States of America
Telephone : Non-Emergency: (800) 257-5547

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

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

Recommended use of the chemical and restrictions on use

Recommended use : Component of a Polyurethane System.

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Acute toxicity (Inhalation) : Category 4

Skin irritation : Category 2

Eye irritation : Category 2B

Respiratory sensitization : Category 1

Skin sensitization : Category 1

Reproductive toxicity : Category 1B

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

Acute aquatic toxicity : Category 1

Chronic aquatic toxicity : Category 3

GHS Label element

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.
H360 May damage fertility or the unborn child.
H400 Very toxic to aquatic life.
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.
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 must not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
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 or doctor/ physician 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.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
P391 Collect spillage.
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 waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous ingredients

Chemical Name	CAS-No.	Concentration (%)
4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with .alpha -hydro-.omega.-hydroxypoly(oxy-1,2-ethanediyl)	9048-57-1	30 - 60
benzyl butyl phthalate	85-68-7	13 - 30
4,4'-methylenediphenyl diisocyanate	101-68-8	13 - 30
Benzene, 1,1'-methylenebis[isocyanato-, homopolymer	39310-05-9	7 - 13
Benzene, 1,1'-methylenebis[isocyanato-	26447-40-5	1 - 3
dibutyl phthalate	84-74-2	0.1 - 1

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Show this material safety data sheet to the doctor in attendance.
Do not leave the victim unattended.

If inhaled : Call a physician or poison control center immediately.
If unconscious place in recovery position and seek medical advice.

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 : Immediately flush eye(s) with plenty of water.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Induce vomiting immediately and call a physician.
Keep respiratory tract clear.
Do not give milk or alcoholic beverages.
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.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : No data is available on the product itself.

Unsuitable extinguishing media : High volume water jet

Specific hazards during fire fighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	:	No data is available on the product itself.
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 fire-fighters	:	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. Ensure adequate ventilation.
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	:	Avoid formation of aerosol. Do not breathe vapors/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. Provide sufficient air exchange and/or exhaust in work rooms. Dispose of rinse water in accordance with local and national regulations. Persons susceptible to skin sensitization 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.
Electrical installations / working materials must comply with the technological safety standards.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

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

Personal protective equipment

Respiratory protection : No personal respiratory protective equipment normally required.

Respiratory protection : In the case of vapor formation use a respirator with an approved filter.

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.

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

Color : amber

Odor : No data is available on the product itself.

Odor Threshold : No data is available on the product itself.

pH	:	No data is available on the product itself.
Flash point	:	> 93.33 °C Method: estimated, closed cup
Evaporation rate	:	No data is available on the product itself.
Flammability (solid, gas)	:	No data is available on the product itself.
Upper explosion limit	:	No data is available on the product itself.
Lower explosion limit	:	No data is available on the product itself.
Vapor pressure	:	0.035991 hPa (71 °C)
Relative vapor density	:	1
Relative density	:	1.1 - 1.2
Density	:	No data is available on the product itself.
Solubility(ies)		
Water solubility	:	Water reactive
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.
Autoignition temperature	:	No data is available on the product itself.
Thermal decomposition	:	No data is available on the product itself.
Viscosity	:	No data is available on the product itself.
Self-Accelerating decomposition temperature (SADT)	:	No data is available on the product itself.

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No decomposition if stored and applied as directed.
Chemical stability	:	No decomposition if stored and applied as directed.
Possibility of hazardous reactions	:	No decomposition if stored and applied as directed.
Conditions to avoid	:	No data available

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 : > 5,000 mg/kg
Method: Calculation method

Acute inhalation toxicity - Product : Acute toxicity estimate: 2.04 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Ingredients:

4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with .alpha -hydro-.omega.-hydroxypoly(oxy-1,2-ethanediyl)**:**
Acute dermal toxicity : LD50 (Rabbit, male and female): > 9,400 mg/kg
Method: OECD Test Guideline 402
GLP: no

benzyl butyl phthalate**:**
Acute dermal toxicity : LD50 (Rabbit): > 10,000 mg/kg

4,4'-methylenediphenyl diisocyanate**:**
Acute dermal toxicity : LD50 (Rabbit, male and female): > 9,400 mg/kg
Method: OECD Test Guideline 402

Benzene, 1,1'-methylenebis[isocyanato-, homopolymer**:**
Acute dermal toxicity : LD50 (Rabbit, male and female): > 9,400 mg/kg
Method: OECD Test Guideline 402
GLP: no

Benzene, 1,1'-methylenebis[isocyanato-**:**
Acute dermal toxicity : LD50 (Rabbit, male and female): > 9,400 mg/kg
Method: OECD Test Guideline 402

dibutyl phthalate**:**
Acute dermal toxicity : LD50 (Rabbit): > 20,000 mg/kg

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

Skin corrosion/irritation

Product:

Remarks: May cause skin irritation and/or dermatitis.

Serious eye damage/eye irritation

Product:

Remarks: Vapors may cause irritation to the eyes, respiratory system and the skin.

Respiratory or skin sensitization

Product:

Remarks: Causes sensitization.

Assessment: No data available

Germ cell mutagenicity

Ingredients:

4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with .alpha -hydro-.omega.-hydroxypoly(oxy-1,2-ethanediyl)**:**

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

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

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

Benzene, 1,1'-methylenebis[isocyanato-, homopolymer**:**

Genotoxicity in vitro : Concentration: ca 50 ug/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes

Benzene, 1,1'-methylenebis[isocyanato-**:**

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

dibutyl phthalate**:**

Genotoxicity in vitro : Concentration: 100 - 2000 ug/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Concentration: 0 - 5000 µg/L
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Metabolic activation: with and without metabolic activation
Result: negative
GLP: yes

Concentration: 100 - 10000 ug/plate
Metabolic activation: with and without metabolic activation
Result: negative

Ingredients:

4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with .alpha -hydro-.omega.-hydroxypoly(oxy-1,2-ethanediyl)**:**

Genotoxicity in vivo : Application Route: Inhalation
Exposure time: 3 Weeks
Dose: 118 mg/m3
Method: OECD Test Guideline 474
Result: negative
GLP: yes

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

Genotoxicity in vivo : Application Route: Inhalation
Exposure time: 3 Weeks
Dose: 118 mg/m3
Method: OECD Test Guideline 474
Result: negative

Benzene, 1,1'-methylenebis[isocyanato-, homopolymer**:**

Genotoxicity in vivo : Application Route: Inhalation
Exposure time: 3 Weeks
Dose: 118 mg/m3
Method: OECD Test Guideline 474
Result: negative
GLP: yes

Benzene, 1,1'-methylenebis[isocyanato-**:**

Genotoxicity in vivo : Application Route: Inhalation
Exposure time: 3 Weeks
Dose: 118 mg/m3
Method: OECD Test Guideline 474
Result: negative

dibutyl phthalate**:**

Genotoxicity in vivo : Exposure time: 13 Weeks
Dose: 163 - 4278 mg/kg
Result: negative

Carcinogenicity

Ingredients:

4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with .alpha -hydro-.omega.-hydroxypoly(oxy-1,2-ethanediyl)**:**

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
Target Organs: Lungs

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

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
Target Organs: Lungs

Benzene, 1,1'-methylenebis[isocyanato-, homopolymer**:**
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: negative

Benzene, 1,1'-methylenebis[isocyanato-**:**
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: negative

Carcinogenicity - Assessment : No data available

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

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

NTP No ingredient 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

Ingredients:

4,4'-methylenediphenyl diisocyanate**:**
Effects on fertility : Method: OECD Test Guideline 414

Benzene, 1,1'-methylenebis[isocyanato-**:**
Species: Rat, male and female
Application Route: Inhalation
Method: OECD Test Guideline 414

dibutyl phthalate**:**
Species: Rat, male and female
Application Route: Oral
Target Organs: Reproductive organs
GLP: yes

Ingredients:

4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with .alpha -hydro-.omega.-hydroxypoly(oxy-1,2-ethanediyl)**:**

Effects on fetal development : Species: Rat, male and female
Application Route: Inhalation
Method: OECD Test Guideline 414
Result: No teratogenic effects.
GLP: yes

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

Species: Rat, female
Application Route: Inhalation
General Toxicity Maternal: NOAEL (No observed adverse effect level): 4 mg/m³
Method: OECD Test Guideline 414
Result: No teratogenic effects.

Benzene, 1,1'-methylenebis[isocyanato-, homopolymer**:**

Species: Rat, female
Application Route: Inhalation
General Toxicity Maternal: NOAEL (No observed adverse effect level): 4 mg/m³
Method: OECD Test Guideline 414
Result: No teratogenic effects.
GLP: yes

Benzene, 1,1'-methylenebis[isocyanato-**:**

Species: Rat, female
Application Route: Inhalation
General Toxicity Maternal: NOAEL (No observed adverse effect level): 4 mg/m³
Method: OECD Test Guideline 414
Result: No teratogenic effects.

dibutyl phthalate**:**

Species: Rat, male and female
Application Route: Oral
General Toxicity Maternal: LOAEL (Lowest observed adverse effect level): 10,000 ppm
Result: Teratogenic effects.
GLP: yes

Species: Mouse
Application Route: Oral
General Toxicity Maternal: NOAEL (No observed adverse effect level): 100 mg/kg body weight
Result: Teratogenic effects.

Ingredients:

benzyl butyl phthalate**:**

Reproductive toxicity - Assessment : Presumed human reproductive toxicant

dibutyl phthalate**:**

Reproductive toxicity - : Clear evidence of adverse effects on sexual function and

Assessment fertility, and/or on development, based on animal experiments

STOT-single exposure

Ingredients:

4,4'-methylenediphenyl diisocyanate**:**
Routes of exposure: Inhalation
Target Organs: Respiratory Tract
Assessment: May cause respiratory irritation.

Benzene, 1,1'-methylenebis[isocyanato-, homopolymer**:**
Routes of exposure: inhalation (dust/mist/fume)
Target Organs: Respiratory Tract
Assessment: May cause respiratory irritation.

Benzene, 1,1'-methylenebis[isocyanato-**:**
Routes of exposure: Inhalation
Target Organs: Respiratory Tract
Assessment: May cause respiratory irritation.

STOT-repeated exposure

No data available

Repeated dose toxicity

Ingredients:

4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with .alpha -hydro-.omega.-hydroxypoly(oxy-1,2-ethanediyl)**:**
Species: Rat, male and female
NOEC: 0.2 mg/m3
Exposure time: 2 yr
Number of exposures: 5 d
Method: OECD Test Guideline 453

4,4'-methylenediphenyl diisocyanate**:**
Species: Rat, male and female
NOEC: 0.2 mg/m3
Exposure time: 2 yr
Number of exposures: 5 d
Method: OECD Test Guideline 453

Benzene, 1,1'-methylenebis[isocyanato-, homopolymer**:**
Species: Rat, male and female
NOEC: 0.2 mg/m3
Test atmosphere: dust/mist
Exposure time: 2 yr
Number of exposures: 5 d
Method: OECD Test Guideline 453

Benzene, 1,1'-methylenebis[isocyanato-**:**
Species: Rat, male and female
NOEC: 0.2 mg/m3
Test atmosphere: dust/mist
Exposure time: 2 yr
Number of exposures: 5 d
Method: OECD Test Guideline 453

dibutyl phthalate**:**
Species: Rat, male and female
NOEC: 509 mg/m3
Application Route: Ingestion
Test atmosphere: dust/mist
Exposure time: 4 Weeks
Number of exposures: 6 h
Method: OECD Test Guideline 412

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

Product:

Remarks: No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Ingredients:

4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with .alpha -hydro-.omega.-hydroxypoly(oxy-1,2-ethanediyl):

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): > 1,000 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203

benzyl butyl phthalate:

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 1 - 10 mg/l
Exposure time: 96 h
Test Type: static test

LC50 (Oncorhynchus mykiss (rainbow trout)): 1 - 10 mg/l
Exposure time: 96 h
Test Type: static test

LC50 (Oncorhynchus mykiss (rainbow trout)): 0.82 mg/l
Exposure time: 96 h
Test Type: flow-through test

LC50: 1.5 mg/l
Exposure time: 96 h

4,4'-methylenediphenyl diisocyanate:

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): > 1,000 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203

Benzene, 1,1'-methylenebis[isocyanato-, homopolymer:

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
GLP: no

Benzene, 1,1'-methylenebis[isocyanato-:

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

dibutyl phthalate:

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.48 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 203

Ingredients:

4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with .alpha -hydro-.omega.-hydroxypoly(oxy-1,2-ethanediyl)**:**

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
GLP: no

benzyl butyl phthalate**:**

Toxicity to daphnia and other aquatic invertebrates : EC50: 1 - 10 mg/l
Exposure time: 48 h

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

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

Benzene, 1,1'-methylenebis[isocyanato-, homopolymer**:**

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
GLP: no

Benzene, 1,1'-methylenebis[isocyanato-**:**

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

dibutyl phthalate**:**

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 2.99 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: Gammarid Acute Toxicity Test

LC50 (Gammarus salinus (seawater shrimp)): 0.5 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Marine water
Method: Mysid Acute Toxicity Test

Ingredients:

benzyl butyl phthalate**:**

Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): 0.02 - 0.25 mg/l
Exposure time: 96 h
Test substance: Fresh water

IC50: 0.92 - 4.6 mg/l
Exposure time: 72 h

Benzene, 1,1'-methylenebis[isocyanato-, homopolymer:
Toxicity to algae : EC50 (Desmodesmus subspicatus (Scenedesmus subspicatus)): > 1,640 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201
GLP: yes

Benzene, 1,1'-methylenebis[isocyanato-:
Toxicity to algae : EC50 (Desmodesmus subspicatus (Scenedesmus subspicatus)): > 1,640 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

dibutyl phthalate:
Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): 0.75 mg/l
Exposure time: 240 h
Test Type: static test
Test substance: Fresh water

Ingredients:

benzyl butyl phthalate:
M-Factor (Acute aquatic toxicity) : 1

1

dibutyl phthalate:
M-Factor (Acute aquatic toxicity) : 1

Ingredients:

benzyl butyl phthalate:
Toxicity to fish (Chronic toxicity) : NOEC: 0.14 - 0.74 mg/l

Benzene, 1,1'-methylenebis[isocyanato-, homopolymer:
Toxicity to fish (Chronic toxicity) : GLP: no

dibutyl phthalate:
Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): 0.1 mg/l
Exposure time: 99 d

Ingredients:

4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with .alpha -hydro-.omega.-hydroxypoly(oxy-1,2-ethanediyl):
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

benzyl butyl phthalate**:**

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	EC50 (Daphnia magna (Water flea)): 0.97 mg/l Exposure time: 48 hrs

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

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

Benzene, 1,1'-methylenebis[isocyanato-, homopolymer**:**

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

Benzene, 1,1'-methylenebis[isocyanato-**:**

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

dibutyl phthalate**:**

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia pulex (Water flea)): 0.1 mg/l Exposure time: 10 d
M-Factor (Chronic aquatic toxicity)	:	No data available

Ingredients:

4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with .alpha -hydro-.omega.-hydroxypoly(oxy-1,2-ethanediyl)**:**

Toxicity to bacteria	:	EC50 (activated sludge): > 100 mg/l Exposure time: 3 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 209

benzyl butyl phthalate**:**

Toxicity to bacteria	:	IC50: > 2.8 mg/l

Benzene, 1,1'-methylenebis[isocyanato-, homopolymer**:**

Toxicity to bacteria	:	EC50 (activated sludge): > 100 mg/l Exposure time: 3 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 209 GLP: no

Benzene, 1,1'-methylenebis[isocyanato-**:**

Toxicity to bacteria	:	EC50 (activated sludge): > 100 mg/l Exposure time: 3 h

Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 209

dibutyl phthalate:
Toxicity to bacteria : EC50 (Bacteria): 2.2 mg/l
Exposure time: 24 h

Ingredients:

4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with .alpha -hydro-.omega.-hydroxypoly(oxy-1,2-ethanediyl):
Toxicity to soil dwelling organisms : NOEC (Eisenia fetida (earthworms)): >= 1,000 mg/kg
Exposure time: 336 h
Method: OECD Test Guideline 207
GLP: yes

4,4'-methylenediphenyl diisocyanate:
Toxicity to soil dwelling organisms : NOEC (Eisenia fetida (earthworms)): >= 1,000 mg/kg
Exposure time: 336 h
Method: OECD Test Guideline 207

Benzene, 1,1'-methylenebis[isocyanato-, homopolymer:
Toxicity to soil dwelling organisms : EC50 (Eisenia fetida (earthworms)): > 1,000 mg/kg
Exposure time: 336 h
Method: OECD Test Guideline 207
GLP: yes

Benzene, 1,1'-methylenebis[isocyanato-:
Toxicity to soil dwelling organisms : EC50 (Eisenia fetida (earthworms)): > 1,000 mg/kg
Exposure time: 336 h
Method: OECD Test Guideline 207

dibutyl phthalate:
Toxicity to soil dwelling organisms : LC50: 10 mg/kg
Exposure time: 504 h

NOEC: 0.5 mg/kg
Exposure time: 504 h

Ingredients:

dibutyl phthalate:
Plant toxicity : NOEC: 200 mg/l
Exposure time: 3 Weeks
Test substance: Natural

EC50: 387 mg/kg
Exposure time: 168 h
Method: Terrestrial Plants Test: Seedling Emergence and Seedling Growth Test

Ingredients:

dibutyl phthalate:
Sediment toxicity : (Gammarus pulex (Amphipod)): 826 mg/kgsedimentdw
Study: Acute

Test Type: Other guidelines
Water: Fresh water
Exposure duration: 10 d

100 mg/kgsedimentdw
Study: Chronic
Water: Marine water
Exposure duration: 8 Weeks

Ingredients:

dibutyl phthalate**:**

Toxicity to terrestrial organisms	:	NOEC: 0.472 mg/kg Exposure time: 360 h

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

Further information:
No data available

Persistence and degradability

Ingredients:

4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with .alpha -hydro-.omega.-hydroxypoly(oxy-1,2-ethanediyl)**:**

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

benzyl butyl phthalate**:**

Biodegradability	:	Result: Readily biodegradable. Biodegradation: > 60 % Exposure time: 28 d

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

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

Benzene, 1,1'-methylenebis[isocyanato-, homopolymer**:**

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

Benzene, 1,1'-methylenebis[isocyanato-:
Biodegradability : Inoculum: Domestic sewage
Concentration: 30 mg/l
Result: Not biodegradable.
Biodegradation: 0 %
Exposure time: 28 d
Method: Inherent Biodegradability: Modified MITI Test (II)

dibutyl phthalate:
Biodegradability : Inoculum: activated sludge
Concentration: 21.7 mg/l
Result: Readily biodegradable.
Biodegradation: 81 %
Exposure time: 28 d
Method: Directive 67/548/EEC Annex V, C.4.C.

Inoculum: activated sludge
Result: Readily biodegradable.
Biodegradation: > 97 %
Exposure time: 21 d

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

Stability in water : No data available

Ingredients:

dibutyl phthalate:
Photodegradation : Test Type: Air
Rate constant: < .00001

Impact on Sewage Treatment : No data available

Bioaccumulative potential

Ingredients:

4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with .alpha -hydro-.omega.-hydroxypoly(oxy-1,2-ethanediyl)**:**

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

benzyl butyl phthalate**:**

Bioaccumulation : Bioconcentration factor (BCF): 12

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

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

Benzene, 1,1'-methylenebis[isocyanato-, homopolymer**:**

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

Benzene, 1,1'-methylenebis[isocyanato-**:**

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

Bioconcentration factor (BCF): 439
Remarks: Bioaccumulation is unlikely.

dibutyl phthalate**:**

Bioaccumulation : Bioconcentration factor (BCF): 0.81
Test substance: Marine water

Bioconcentration factor (BCF): < 1

Ingredients:

4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with .alpha -hydro-.omega.-hydroxypoly(oxy-1,2-ethanediyl)**:**

Partition coefficient: n-octanol/water : log Pow: 4.51 (20 °C)
pH: 7
Method: OECD Test Guideline 117
GLP: no

benzyl butyl phthalate**:**

Partition coefficient: n-octanol/water : log Pow: 4.91

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

Partition coefficient: n- : log Pow: 4.51 (20 °C)

octanol/water		pH: 7 Method: OECD Test Guideline 117

Benzene, 1,1'-methylenebis[isocyanato-, homopolymer**:**

Partition coefficient: n-octanol/water	:	log Pow: 8.56 (20 °C) GLP: no

Benzene, 1,1'-methylenebis[isocyanato-**:**

Partition coefficient: n-octanol/water	:	log Pow: 4.51 (22 °C) pH: 7 Method: OECD Test Guideline 117 GLP: no

dibutyl phthalate**:**

Partition coefficient: n-octanol/water	:	log Pow: 4.46 (30 °C) pH: 5 - 8 Method: Partition coefficient

Mobility in soil

Mobility	:	No data available

Ingredients:

benzyl butyl phthalate**:**

Distribution among environmental compartments	:	Koc: 4.7.

dibutyl phthalate**:**

Distribution among environmental compartments	:	Koc: 1.4.
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	:	An environmental hazard cannot be excluded in the event of

information - Product		unprofessional handling or disposal. Very toxic to aquatic life. 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.
Contaminated packaging	:	Empty remaining contents. Dispose of as unused product. Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

International Regulation

IATA

UN/ID No.	:	UN 3082
Proper shipping name	:	Environmentally hazardous substance, liquid, n.o.s. (BENZYL BUTYL PHTHALATE)
Class	:	9
Packing group	:	III
Labels	:	Miscellaneous
Packing instruction (cargo aircraft)	:	964
Packing instruction (passenger aircraft)	:	964

IMDG

UN number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BENZYL BUTYL PHTHALATE)
Class	:	9
Packing group	:	III
Labels	:	9
EmS Code	:	F-A, S-F
Marine pollutant	:	yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

DOT Classification

UN/ID/NA number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BENZYL BUTYL PHTHALATE)
Class	:	9
Packing group	:	III
Labels	:	CLASS 9
ERG Code	:	171
Marine pollutant	:	yes(BENZYL BUTYL PHTHALATE)

SECTION 15. REGULATORY INFORMATION

TSCA - 5(a) Significant New Use Rule List of Chemicals : Not relevant

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

Ingredients	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
BENZYL BUTYL PHTHALATE	85-68-7	100	387

Clean Air Act

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).
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	20.4985 %

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489).

California Prop 65 WARNING: This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

dibutyl phthalate	84-74-2
benzyl butyl phthalate	85-68-7

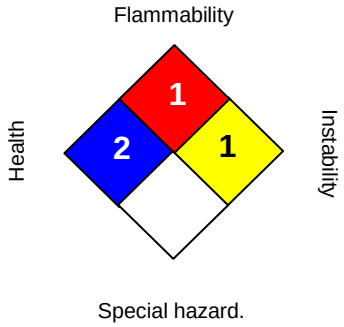
The ingredients of this product are reported in the following inventories:

CH INV	:	The mixture contains substances listed on the Swiss Inventory
TSCA	:	On TSCA 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	:	Not in compliance with the inventory
ISHL	:	Not 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

SECTION 16. OTHER INFORMATION

Further information

NFPA:



HMIS III:

HEALTH	2*
FLAMMABILITY	1
PHYSICAL HAZARD	1

0 = not significant, 1 =Slight,

2 = Moderate, 3 = High

4 = Extreme, * = Chronic

Revision Date : 11/20/2015

While 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.

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REN® 6497 US

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	09/22/2015	400001012895	Date of first issue: 09/22/2015

SECTION 1. IDENTIFICATION

Product name : REN® 6497 US

Manufacturer or supplier's details

Company name of supplier : Huntsman Advanced Materials Americas LLC

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

Telephone : Non-Emergency: (800) 257-5547

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

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

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Skin sensitization : Category 1

Specific target organ systemic toxicity - repeated exposure (Oral) : Category 2 (Kidney)

Acute aquatic toxicity : Category 2

Chronic aquatic toxicity : Category 2

GHS Label element

Hazard pictograms :

Signal Word : Warning

Hazard Statements : H317 May cause an allergic skin reaction.
H373 May cause damage to organs (Kidney) through prolonged or repeated exposure if swallowed.
H411 Toxic to aquatic life with long lasting effects.

Precautionary Statements : **Prevention:**
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P272 Contaminated work clothing must not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves.
Response:

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P314 Get medical advice/ attention if you feel unwell.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P363 Wash contaminated clothing before reuse.
P391 Collect spillage.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous ingredients

Chemical Name	CAS-No.	Concentration (%)
A mixture of 3,5-dimethylthio-2,4-toluenediamine and 3,5-dimethylthio-2,6-toluenediamine	106264-79-3	13 - 30
butane-1,4-diol	110-63-4	1 - 3
Castor oil	8001-79-4	1 - 3

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Show this material safety data sheet to the doctor in attendance.
Do not leave the victim unattended.

If inhaled : If unconscious place in recovery position and seek medical advice.
If symptoms persist, call a physician.

In case of skin contact : If on skin, rinse well with water.

In case of eye contact : Flush eyes with water as a precaution.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear.
Do not give milk or alcoholic beverages.
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.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	:	High volume water jet
Specific hazards during fire fighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	:	No hazardous combustion products are known
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 fire-fighters	:	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.
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 vapors/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. Dispose of rinse water in accordance with local and national regulations.

Persons susceptible to skin sensitization 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.
Electrical installations / working materials must comply with the technological safety standards.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

Hazardous components without workplace control parameters

Ingredients	CAS-No.
A mixture of 3,5-dimethylthio-2,4-toluenediamine and 3,5-dimethylthio-2,6-toluenediamine	106264-79-3
butane-1,4-diol	110-63-4

Personal protective equipment

Respiratory protection : No personal respiratory protective equipment normally required.

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.

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 : Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Color : amber

Odor : characteristic

Odor Threshold : No data is available on the product itself.

pH : No data is available on the product itself.

Flash point	:	> 93.33 °C Method: estimated, closed cup
Evaporation rate	:	No data is available on the product itself.
Flammability (solid, gas)	:	No data is available on the product itself.
Upper explosion limit	:	No data is available on the product itself.
Lower explosion limit	:	No data is available on the product itself.
Vapor pressure	:	No data is available on the product itself.
Relative vapor density	:	No data is available on the product itself.
Relative density	:	1.05 - 1.06
Density	:	No data is available on the product itself.
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.
Autoignition temperature	:	No data is available on the product itself.
Thermal decomposition	:	No data is available on the product itself.
Viscosity	:	No data is available on the product itself.
Self-Accelerating decomposition temperature (SADT)	:	No data is available on the product itself.

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No decomposition if stored and applied as directed.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No decomposition if stored and applied as directed.
Conditions to avoid	:	No data available

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 : > 5,000 mg/kg Method: Calculation method

Ingredients:

butane-1,4-diol**:**

Acute inhalation toxicity : LC50 (Rat, male): > 15 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Acute Inhalation Toxicity: Fixed Concentration Procedure

LC50 (Rat, male and female): > 5.1 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

Ingredients:

A mixture of 3,5-dimethylthio-2,4-toluenediamine and 3,5-dimethylthio-2,6-toluenediamine**:**

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg

butane-1,4-diol**:**

Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg

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

Skin corrosion/irritation

Product:

Remarks: May cause skin irritation and/or dermatitis.

Serious eye damage/eye irritation

Product:

Remarks: Vapors may cause irritation to the eyes, respiratory system and the skin.

Respiratory or skin sensitization

Product:

Remarks: Causes sensitization.

Assessment: No data available

Germ cell mutagenicity

Ingredients:

A mixture of 3,5-dimethylthio-2,4-toluenediamine and 3,5-dimethylthio-2,6-toluenediamine**:**

Genotoxicity in vitro : Method: OECD Test Guideline 471
Result: positive

butane-1,4-diol**:**

Genotoxicity in vitro : 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 473
Result: negative

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

Ingredients:

A mixture of 3,5-dimethylthio-2,4-toluenediamine and 3,5-dimethylthio-2,6-toluenediamine**:**
Genotoxicity in vivo : Method: OECD Test Guideline 474
Result: negative

Carcinogenicity

Ingredients:

butane-1,4-diol**:**
Species: Rat, (female)
Application Route: Oral
Exposure time: 103 weeks
Dose: 225 mg/kg
Frequency of Treatment: 5 daily
Result: negative

Carcinogenicity - Assessment : No data available

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

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

NTP No ingredient 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

Ingredients:

butane-1,4-diol**:**
Effects on fertility : Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 422

Ingredients:

butane-1,4-diol**:**
Effects on fetal development : Species: Rat
Application Route: Oral
General Toxicity Maternal: NOAEL (No observed adverse effect level): 500 mg/kg body weight

Method: OECD Test Guideline 414
Result: No teratogenic effects.

Species: Rat
Application Route: Oral
General Toxicity Maternal: NOAEL (No observed adverse effect level): 800 mg/kg body weight
Method: OECD Test Guideline 422
Result: No teratogenic effects.

Reproductive toxicity - Assessment : No data available

STOT-single exposure

No data available

STOT-repeated exposure

No data available

Repeated dose toxicity

Ingredients:

A mixture of 3,5-dimethylthio-2,4-toluenediamine and 3,5-dimethylthio-2,6-toluenediamine**:**
NOAEL (No observed adverse effect level): 2.8 - 3.5 mg/kg
Exposure time: 2,160 h
Method: Subchronic toxicity

butane-1,4-diol**:**
Species: Rat, male
NOEC: 1100 mg/m3
Test atmosphere: dust/mist
Exposure time: 2 Weeks
Number of exposures: 6 h
Method: OECD Test Guideline 412

Species: Rat, male
NOAEL (No observed adverse effect level): 225 mg/kg
Application Route: Ingestion
Exposure time: 13 Weeks
Number of exposures: 5 d
Method: Subchronic toxicity

Castor oil**:**
Species: Rat
LOAEL (Lowest observed adverse effect level): 7.5 g/kg
Application Route: Ingestion
Exposure time: 2,160 h
Method: Subchronic toxicity

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

Product:
Remarks: No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Ingredients:

A mixture of 3,5-dimethylthio-2,4-toluenediamine and 3,5-dimethylthio-2,6-toluenediamine**:**

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 7.3 mg/l Exposure time: 96 h

butane-1,4-diol**:**

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): > 30,000 mg/l Exposure time: 96 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 203

Ingredients:

A mixture of 3,5-dimethylthio-2,4-toluenediamine and 3,5-dimethylthio-2,6-toluenediamine**:**

Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia): 0.9 mg/l Exposure time: 48 h

butane-1,4-diol:

Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 813 mg/l Exposure time: 48 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 202

Ingredients:

A mixture of 3,5-dimethylthio-2,4-toluenediamine and 3,5-dimethylthio-2,6-toluenediamine:

Toxicity to algae	:	EC50 (Selenastrum capricornutum (green algae)): 7.6 mg/l Exposure time: 72 h

butane-1,4-diol:

Toxicity to algae	:	ErC50 (Desmodesmus subspicatus (Scenedesmus subspicatus)): > 500 mg/l Exposure time: 72 h Test Type: static test Test substance: Fresh water Method: DIN 38412

Ingredients:

A mixture of 3,5-dimethylthio-2,4-toluenediamine and 3,5-dimethylthio-2,6-toluenediamine:

M-Factor (Acute aquatic toxicity)	:	1
Toxicity to fish (Chronic toxicity)	:	No data available

Ingredients:

butane-1,4-diol:

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): > 85 mg/l Exposure time: 21 d Test substance: Fresh water Method: OECD Test Guideline 211
M-Factor (Chronic aquatic toxicity)	:	No data available

Ingredients:

A mixture of 3,5-dimethylthio-2,4-toluenediamine and 3,5-dimethylthio-2,6-toluenediamine:

Toxicity to bacteria	:	IC50 (activated sludge): 1,000 mg/l Exposure time: 3 h
Toxicity to soil dwelling organisms	:	No data available
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

Further information:
No data available

Persistence and degradability

Ingredients:

butane-1,4-diol**:**

Biodegradability	:	Inoculum: activated sludge Concentration: 100 mg/l Result: Readily biodegradable. Biodegradation: 93 - 96 % Exposure time: 14 d Method: OECD Test Guideline 301C
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
Stability in water	:	No data available

Ingredients:

butane-1,4-diol**:**

Photodegradation	:	Test Type: Air Rate constant: < .00001
Impact on Sewage Treatment	:	No data available

Bioaccumulative potential

Ingredients:

butane-1,4-diol:

Bioaccumulation	:	Bioconcentration factor (BCF): 3.16 Remarks: Bioaccumulation is unlikely. Species: Fish Bioconcentration factor (BCF): 3.16 Test substance: Fresh water

Ingredients:

butane-1,4-diol:

Partition coefficient: n-octanol/water	:	log Pow: -0.88 (25 °C) Method: OECD Test Guideline 107

Mobility in soil

Mobility	:	No data available

Ingredients:

butane-1,4-diol:

Distribution among environmental compartments	:	Koc: 0.41 - 1.
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. Toxic to aquatic life with long lasting effects.
Global warming potential	:	No data available

(GWP)

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

SECTION 14. TRANSPORT INFORMATION

International Regulation

IATA

UN/ID No.	:	UN 3082
Proper shipping name	:	Environmentally hazardous substance, liquid, n.o.s. (6-METHYL-2,4-BIS-(METHYLTHIO)-PHENYLENE-1,3-DIAMINE)
Class	:	9
Packing group	:	III
Labels	:	Miscellaneous
Packing instruction (cargo aircraft)	:	964
Packing instruction (passenger aircraft)	:	964

IMDG

UN number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (6-METHYL-2,4-BIS-(METHYLTHIO)-PHENYLENE-1,3-DIAMINE)
Class	:	9
Packing group	:	III
Labels	:	9
EmS Code	:	F-A, S-F
Marine pollutant	:	yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

DOT Classification

UN/ID/NA number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (6-METHYL-2,4-BIS-(METHYLTHIO)-PHENYLENE-1,3-DIAMINE)
Class	:	9
Packing group	:	III
Labels	:	CLASS 9
ERG Code	:	171
Marine pollutant	:	yes(6-METHYL-2,4-BIS-(METHYLTHIO)-PHENYLENE-1,3-DIAMINE)

SECTION 15. REGULATORY INFORMATION

TSCA - 5(a) Significant New Use Rule List of Chemicals : Not relevant

EPCRA - Emergency Planning and Community Right-to-Know

SARA 311/312 Hazards : No SARA Hazards

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.

Clean Air Act

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).
This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 12 (40 CFR 61).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489).

California Prop 65 This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

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

TSCA	:	On TSCA Inventory
DSL	:	All components of this product are on the Canadian DSL.
AICS	:	On the inventory, or in compliance with the inventory
KECI	:	On the inventory, or in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory

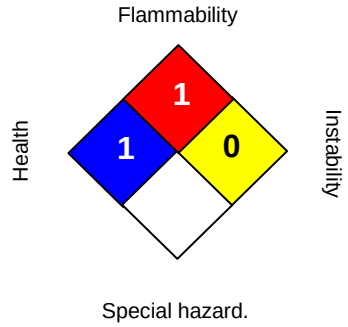
Inventories

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

SECTION 16. OTHER INFORMATION

Further information

NFPA:



HMIS III:

HEALTH	1*
FLAMMABILITY	1
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,

2 = Moderate, 3 = High

4 = Extreme, * = Chronic

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