**SECTION 1. IDENTIFICATION**

Product name: REN-WELD 103 RESIN 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 number: Chemtrec: (800) 424-9300 or (703) 527-3887

**Recommended use of the chemical and restrictions on use**

Recommended use: Adhesives

**SECTION 2. HAZARDS IDENTIFICATION**

**GHS Classification**

Skin irritation: Category 2
Eye irritation: Category 2A
Skin sensitisation: Category 1
Acute aquatic toxicity: Category 2
Chronic aquatic toxicity: Category 2

**GHS label elements**

Hazard pictograms:

- ! Warning icon
- ! Plant icon

**Signal word**

Warning

**Hazard statements**

- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H319 Causes serious eye irritation.
- H411 Toxic to aquatic life with long lasting effects.

**Precautionary statements**

**Prevention:**
- P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
- P264 Wash skin thoroughly after handling.
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P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/ eye protection/ face protection.

Response:
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 Take off contaminated clothing and wash 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 components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bisphenol A epoxy resin</td>
<td>25068-38-6</td>
<td>&gt;= 60 - &lt;= 100</td>
</tr>
<tr>
<td>glycidylether of C12-C14 alcohols</td>
<td>68609-97-2</td>
<td>&gt;= 7 - &lt;= 13</td>
</tr>
<tr>
<td>p-tert-butylphenyl 1-(2,3-epoxy)propyl ether</td>
<td>3101-60-8</td>
<td>&gt;= 3 - &lt;= 7</td>
</tr>
</tbody>
</table>

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

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Show this 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 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:
- 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.

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

SECTION 5. FIREFIGHTING MEASURES

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

Unsuitable extinguishing media: High volume water jet

Specific hazards during firefighting: 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 firefighters: Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment.

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

Advice on safe handling:
- Do not breathe vapours/dust.
- Avoid exposure - obtain special instructions before use.
- Avoid contact with skin and eyes.
- For personal protection see section 8.
- Smoking, eating and drinking should be prohibited in the application area.
- Dispose of rinse water in accordance with local and national regulations.
- Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.

Conditions for safe storage:
- Keep container tightly closed in a dry and well-ventilated place.
- Containers which are opened must be carefully resealed and kept upright to prevent leakage.
- Electrical installations / working materials must comply with the technological safety standards.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters:
Contains no substances with occupational exposure limit values.

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
  - Wear face-shield and protective suit for abnormal processing problems.
- Skin and body protection:
  - Impervious clothing
  - Choose body protection according to the amount and concentration of the dangerous substance at the work place.
- Hygiene measures:
  - When using do not eat or drink.
  - When using do not smoke.
  - Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance: liquid
- Colour: light blue
Odour: slight

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

pH: No data is available on the product itself.

Flash point: > 93 °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.

Flammability (liquids): 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.

Vapour pressure: 0.06665 hPa (148.89 °C)

Relative vapour density: No data is available on the product itself.

Relative density: 1.12

Density: 1.05 - 1.15 g/cm³

Solubility(ies)
  Water solubility: insoluble

Solubility in other solvents: No data is available on the product itself.

Partition coefficient: n-octanol/water: No data is available on the product itself.

Auto-ignition temperature: No data is available on the product itself.

Thermal decomposition: No data is available on the product itself.

Self-Accelerating decomposition temperature (SADT): No data is available on the product itself.

Viscosity: 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:

Acute toxicity

**Components:**

Bisphenol A epoxy resin:
- LD50 (Rat, female): > 2,000 mg/kg
- Method: OECD Test Guideline 420
- Assessment: The substance or mixture has no acute oral toxicity

Glycidylether of C12-C14 alcohols:
- LD50 (Rat, male): ca. 26.8 g/kg
- Method: Other guidelines

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:
- LD50 (Rat, female): > 2,000 mg/kg
- Method: OECD Test Guideline 425
- GLP: yes
- Assessment: The substance or mixture has no acute oral toxicity

**Components:**

Glycidylether of C12-C14 alcohols:
- LC0 (Rat): > 0.15 mg/l
- Exposure time: 7 h
- Test atmosphere: vapour
- Method: Other guidelines

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

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: May cause irreversible eye damage.
Respiratory or skin sensitisation

**Product:**
Remarks: Causes sensitisation.

**Assessment:** No data available

Germ cell mutagenicity

**Components:**

- **Bisphenol A epoxy resin:**
  - **Genotoxicity in vitro:**
    - Metabolic activation: with and without metabolic activation
      - Method: OECD Test Guideline 476
      - Result: positive
    - Concentration: 0 - 5000 µg/plate
    - Metabolic activation: with and without metabolic activation
      - Method: OECD Test Guideline 471
      - Result: positive

- **Glycidylether of C12-C14 alcohols:**
  - **Genotoxicity in vitro:**
    - Test Type: Ames test
      - Species: Salmonella typhimurium
      - Metabolic activation: with and without metabolic activation
        - Method: OECD Test Guideline 471
        - Result: positive
      - GLP: yes
    - Test Type: In vitro mammalian cell gene mutation test
      - Species: Chinese hamster ovary cells
      - Concentration: 0.5 - 5.000 µg/mL
      - Metabolic activation: with and without metabolic activation
        - Method: OECD Test Guideline 476
        - Result: negative
      - GLP: yes

- **p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:**
  - **Genotoxicity in vitro:**
    - Test Type: Chromosome aberration test in vitro
      - Species: Chinese hamster ovary cells
      - Concentration: 50 µg/plate
      - Metabolic activation: negative
        - Method: OECD Test Guideline 473
        - Result: positive
      - GLP: yes
    - Test Type: Ames test
      - Species: Salmonella typhimurium
      - Metabolic activation: with and without metabolic activation
        - Method: OECD Test Guideline 471
        - Result: positive

Components:

- **Bisphenol A epoxy resin:**
  - **Genotoxicity in vivo:**
    - Cell type: Germ
    - Application Route: Oral
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Method: OECD Test Guideline 478
Result: negative

Cell type: Somatic
Application Route: Oral
Dose: 0 - 5000 mg/kg
Method: OPPTS 870.5395
Result: negative

glycidylether of C12-C14 alcohols:
Genotoxicity in vivo
  Test Type: In vivo micronucleus test
  Species: Mouse (male and female)
  Cell type: Bone marrow
  Application Route: Intraperitoneal injection
  Exposure time: 24 hr, 48 hr, and 72 hr
  Method: OECD Test Guideline 474
  Result: negative

Components:
Bisphenol A epoxy resin: Germ cell mutagenicity-Assessment
  Weight of evidence does not support classification as a germ cell mutagen.

Germ cell mutagenicity-Assessment
  No data available

Carcinogenicity

Components:
Bisphenol A epoxy resin:
Species: Rat, (male and female)
Application Route: Oral
Exposure time: 24 month(s)
Dose: 15 mg/kg
Frequency of Treatment: 7 days/week
Method: OECD Test Guideline 453
Result: negative

Species: Mouse, (male)
Application Route: Dermal
Exposure time: 24 month(s)
Dose: 0.1 mg/kg
Frequency of Treatment: 3 days/week
Method: OECD Test Guideline 453
Result: negative

Species: Rat, (female)
Application Route: Dermal
Exposure time: 24 month(s)
Dose: 1 mg/kg
Frequency of Treatment: 5 days/week
Method: OECD Test Guideline 453
Result: negative
Carcinogenicity - Assessment

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

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

Reproductive toxicity

Components:
Bisphenol A epoxy resin:
Effects on fertility
- Test Type: Two-generation study
- Species: Rat, male and female
- Application Route: Oral
- Dose: >750 milligram per kilogram
- General Toxicity - Parent: No-observed-effect level: 540 mg/kg body weight
- General Toxicity F1: No-observed-effect level: 540 mg/kg body weight
- Symptoms: No adverse effects
- Method: OECD Test Guideline 416
- Result: No effects on fertility and early embryonic development were detected.

glycidylether of C12-C14 alcohols:
- Species: Rat, male and female
- Application Route: Dermal
- Duration of Single Treatment: 13 Weeks
- Frequency of Treatment: 5 days/week
- General Toxicity - Parent: No observed adverse effect level: 100 mg/kg body weight
- Method: OECD Test Guideline 411
- GLP: yes

Components:
Bisphenol A epoxy resin:
Effects on foetal development
- Species: Rabbit, female
- Application Route: Dermal
- General Toxicity Maternal: No observed adverse effect level: 30 mg/kg body weight
- Method: Other guidelines
- Result: No teratogenic effects

- Species: Rabbit, female
- Application Route: Oral
- General Toxicity Maternal: No observed adverse effect level: 60 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Species: Rat, female
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: 180 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

glycidylether of C12-C14 alcohols:
Species: Rat, female
Application Route: Dermal
Duration of Single Treatment: 6 h
General Toxicity Maternal: No observed adverse effect level: 200 mg/kg body weight
Developmental Toxicity: No observed adverse effect level: 200 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects
GLP: yes

Reproductive toxicity - Assessment: No data available

STOT - single exposure
No data available

STOT - repeated exposure
No data available

Repeated dose toxicity

Components:
Bisphenol A epoxy resin:
Species: Rat, male and female
NOAEL: 50 mg/kg
Application Route: Ingestion
Exposure time: 14 Weeks
Number of exposures: 7 d
Method: Subchronic toxicity

Species: Rat, male and female
NOEL: 10 mg/kg
Application Route: Skin contact
Exposure time: 13 Weeks
Number of exposures: 5 d
Method: Subchronic toxicity

Species: Mouse, male
NOAEL: 100 mg/kg
Application Route: Skin contact
Exposure time: 13 Weeks
Number of exposures: 3 d
Method: Subchronic toxicity

glycidylether of C12-C14 alcohols:
Species: Rat, male and female
NOEL: 1 mg/kg
LOAEL: 10 mg/kg
Application Route: Skin contact
Exposure time: 13 Weeks
Number of exposures: 5 days/week for 13 weeks
Method: OECD Test Guideline 411
GLP: yes

Repeated dose toxicity - No data available
Assessment

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

Components:
Bisphenol A epoxy resin:
Toxicity to fish: LC50 (Oncorhynchus mykiss (rainbow trout)): 1.5 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 203

Glycidylether of C12-C14 alcohols:
Toxicity to fish: LL50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l
Exposure time: 96 h
Test Type: semi-static test
Method: OECD Test Guideline 203
GLP: yes

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:
Toxicity to fish: LC50 (Oncorhynchus mykiss (rainbow trout)): 7.5 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 203

Components:
Bisphenol A epoxy resin:
Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): 2.7 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water

Glycidylether of C12-C14 alcohols:
Toxicity to daphnia and other aquatic invertebrates: EL50 (Daphnia magna (Water flea)): 7.2 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202
GLP: yes

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:
Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): ca. 67.9 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202
GLP: yes

Components:
Bisphenol A epoxy resin:
Toxicity to algae: EC50 (Selenastrum capricornutum (green algae)): 9.4 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: EPA-660/3-75-009

Glycidylether of C12-C14 alcohols:
Toxicity to algae: IC50 (Selenastrum capricornutum (green algae)): 843.75 mg/l
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: yes

**p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:**

Toxicity to algae: EbC50 (Selenastrum capricornutum (green algae)): ca. 9 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201
GLP: yes

M-Factor (Acute aquatic toxicity): No data available

Toxicity to fish (Chronic toxicity): No data available

**Components:**

**Bisphenol A epoxy resin:**

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
NOEC (Daphnia magna (Water flea)): 0.3 mg/l
Exposure time: 21 d
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 211

M-Factor (Chronic aquatic toxicity): No data available

**Components:**

**Bisphenol A epoxy resin:**

Toxicity to bacteria:
IC50 (activated sludge): > 100 mg/l
Exposure time: 3 h
Test Type: static test
Test substance: Fresh water

**glycidylether of C12-C14 alcohols:**

Toxicity to bacteria:
IC50 (activated sludge): > 100 mg/l
Exposure time: 3 h
Test Type: static test
Method: OECD Test Guideline 209
GLP: yes

**p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:**

Toxicity to bacteria:
EC50: > 1,000 mg/l
Exposure time: 3 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 209
GLP:

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**

**Components:**

Bisphenol A epoxy resin:
Biodegradability: Inoculum: Sewage (STP effluent)
Concentration: 20 mg/l
Result: Not readily biodegradable.
Biodegradation: 5 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

Glycidylether of C12-C14 alcohols:
Biodegradability: Test Type: aerobic
Inoculum: activated sludge
Concentration: 100 mg/l
Result: Readily biodegradable
Biodegradation: 87 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
GLP: yes

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:
Biodegradability: Test Type: aerobic
Inoculum: activated sludge
Concentration: 5 mg/l
Result: Not readily biodegradable.
Biodegradation: ca. 1.1 %
Exposure time: 28 d
Method: OECD Test Guideline 301D
GLP: yes

Biochemical Oxygen Demand (BOD): No data available

Chemical Oxygen Demand (COD): No data available
Component: Bisphenol A epoxy resin:
Stability in water: Degradation half life (DT50): 4.83 d (25 °C) pH: 4
  Method: OECD Test Guideline 111
  Remarks: Fresh water

Degradation half life (DT50): 7.1 d (25 °C) pH: 9
  Method: OECD Test Guideline 111
  Remarks: Fresh water

Degradation half life (DT50): 3.58 d (25 °C) pH: 7
  Method: OECD Test Guideline 111
  Remarks: Fresh water

Component: p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:
Stability in water: Degradation half life (DT50): 17 d (25 °C) pH: 7
  Method: OECD Test Guideline 111
  GLP: No information available.
  Remarks: Fresh water

Component: Bioaccumulative potential

Component: Bisphenol A epoxy resin:
Bioaccumulation: Bioconcentration factor (BCF): 31
  Remarks: Does not bioaccumulate.

Component: Bisphenol A epoxy resin:
Partition coefficient: n-octanol/water: log Pow: 3.242 (25 °C)
  pH: 7.1
  Method: OECD Test Guideline 117

Component: glycidylether of C12-C14 alcohols:
Partition coefficient: n-octanol/water: log Pow: 3.77 (20 °C)
  Method: OECD Test Guideline 107
p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:
Partition coefficient: n-octanol/water
  : log Pow: 3.59 (20 °C)
  pH: 7
  Method: OECD Test Guideline 107

Mobility in soil
Mobility : No data available

Components:
Bisphenol A epoxy resin:
  Distribution among environmental compartments : Koc: 445
p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:
  Distribution among environmental compartments : OECD Test Guideline 121
  log Koc: 2.88
  Method: OECD Test Guideline 121

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 (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. (BISPHENOL A EPOXY RESIN)
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. (BISPHENOL A EPOXY RESIN)
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.

National Regulations

DOT Classification
UN/ID/NA number: UN 3082
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BISPHENOL A EPOXY RESIN)
Class: 9
Packing group: III
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Labels:
- CLASS 9
- ERG Code: 171
- Marine pollutant: yes (BISPHENOL A EPOXY RESIN)

SECTION 15. REGULATORY INFORMATION

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

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.

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

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

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

- CH INV: The formulation contains substances listed on the Swiss Inventory, Not in compliance with the inventory
- TSCA: On the inventory, or in compliance with the inventory
- DSL: This product contains one or several components listed in the Canadian NDSL.
- 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
- KECI: Not 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

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

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

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)
No substances are subject to TSCA 12(b) export notification requirements.
SECTION 16. OTHER INFORMATION

Further information

NFPA:

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Instability</th>
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<tr>
<td>2</td>
<td>1</td>
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Special hazard.

HMIS III:

<table>
<thead>
<tr>
<th>HEALTH</th>
<th>FLAMMABILITY</th>
<th>PHYSICAL HAZARD</th>
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<td></td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

0 = not significant, 1 = Slight, 2 = Moderate, 3 = High, 4 = Extreme, * = Chronic

Revision Date : 09/23/2016

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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SECTION 1. IDENTIFICATION

Product name : REN-WELD® 103 HARDENER US

Manufacturer or supplier's details
Company name of supplier : Huntsman Advanced Materials Americas LLC
Address : 2795 Slough Avenue
Mississauga, ON L4T 1G2, Canada
Telephone : +1 905 678 9150
E-mail address of person responsible for the SDS : MSDS@huntsman.com
Emergency telephone number : Chemtrec: (800) 424-9300 or (703) 527-3887

Recommended use of the chemical and restrictions on use
Recommended use : Hardener

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the Hazardous Products Regulations
Skin corrosion : Category 2
Serious eye damage : Category 1
Skin sensitisation : Category 1
Reproductive toxicity : Category 2
Acute aquatic toxicity : Category 2
Chronic aquatic toxicity : Category 2

GHS label elements
Hazard pictograms :

Signal word : Danger
Hazard statements : H315 Causes skin irritation.
H318 Causes serious eye damage.
H317 May cause an allergic skin reaction.
H361 Suspected of damaging fertility or the unborn child.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements : Prevention:
P201 Obtain special instructions before use.
SAFETY DATA SHEET

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Date of first issue: 10/03/2016

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.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
P308 + P313 IF exposed or concerned: Get medical advice/attention.
P333 + P313 IF skin irritation or rash occurs: Get medical advice/attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P391 Collect spillage.

Storage:
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

Substance / Mixture : Mixture

Hazardous components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triethylenetetramine, propoxylated</td>
<td>26950-63-0</td>
<td>53 - 55</td>
</tr>
<tr>
<td>trientine</td>
<td>112-24-3</td>
<td>35 - 37</td>
</tr>
<tr>
<td>salicylic acid</td>
<td>69-72-7</td>
<td>9 - 11</td>
</tr>
<tr>
<td>Phenol, 4-nonyl-, branched</td>
<td>84352-15-3</td>
<td>0.1 - 1</td>
</tr>
</tbody>
</table>

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
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
Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.
Take victim immediately to hospital.
If on skin, rinse well with water.
If on clothes, remove clothes.

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

If swallowed
Keep respiratory tract clear.
Do NOT induce vomiting.
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. FIREFIGHTING MEASURES

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

Unsuitable extinguishing media
High volume water jet

Specific hazards during firefighting
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 firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Use personal protective equipment.

Environmental precautions
Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

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

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

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

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

Personal protective equipment
**Respiratory protection**: No personal respiratory protective equipment normally required.

**Respiratory protection**: In the case of vapour 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
Wear face-shield and protective suit for abnormal processing problems.

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

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

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance**: liquid

**Colour**: amber

**Odour**: slight, ammoniacal

**Odour Threshold**: No data is available on the product itself.

**pH**: No data is available on the product itself.

**Freezing point**: No data is available on the product itself.

**Melting point**: No data is available on the product itself.

**Boiling point**: No data is available on the product itself.

**Flash point**: > 171 °C
Method: open cup

**Evaporation rate**: No data is available on the product itself.

**Flammability (solid, gas)**: No data is available on the product itself.

**Flammability (liquids)**: No data is available on the product itself.

**Upper explosion limit**: No data is available on the product itself.

**Lower explosion limit**: No data is available on the product itself.

**Vapour pressure**: No data is available on the product itself.
Relative vapour density : No data is available on the product itself.
Relative density : 1.02 - 1.06
Density : 1.02 - 1.06 g/cm³
Solubility(ies)
  Water solubility : partly soluble
Solubility in other solvents : No data is available on the product itself.
Partition coefficient: n-octanol/water : No data is available on the product itself.
Auto-ignition temperature : No data is available on the product itself.
Thermal decomposition : No data is available on the product itself.
Self-Accelerating decomposition temperature (SADT) : No data is available on the product itself.
Viscosity : No data is available on the product itself.
Explosive properties : No data is available on the product itself.
Oxidizing properties : No data is available on the product itself.
Particle size : No data is available on the product itself.

SECTION 10. STABILITY AND REACTIVITY
Reactivity : No 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 : 2,283 mg/kg
    Method: Calculation method
  Acute inhalation toxicity : No data available
  Acute dermal toxicity - Product : Acute toxicity estimate : 2,192 mg/kg
    Method: Calculation method
Acute toxicity (other routes of administration): No data available

Skin corrosion/irritation

Product:
Remarks: Extremely corrosive and destructive to tissue.

Serious eye damage/eye irritation

Product:
Remarks: May cause irreversible eye damage.

Respiratory or skin sensitisation

Product:
Remarks: Causes sensitisation.

Components:
Phenol, 4-nonyl-, branched: Causes severe skin burns and eye damage.

Germ cell mutagenicity

Components:
Triethylenetetramine, propoxylated:
Genotoxicity in vitro: Test Type: In vitro mammalian cell gene mutation test
Species: Chinese hamster ovary cells
Method: OECD Test Guideline 476
Result: negative

Test Type: Ames test
Species: Salmonella typhimurium
Method: OECD Test Guideline 471
Result: positive

Test Type: Chromosome aberration test in vitro
Species: Chinese hamster ovary cells
Method: OECD Test Guideline 473
Result: negative

Trientine:
Genotoxicity in vitro: Concentration: 0 - 200 µg/L
Metabolic activation: negative
Method: OECD Test Guideline 462
Result: negative

Components:
Trientine:
Genotoxicity in vivo: Application Route: Intraperitoneal injection
Dose: 0 - 600 mg/kg
Method: OECD Test Guideline 474
SAFETY DATA SHEET

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Result: negative

Components:
Triethyleneetetramine, propoxy/ated:
Germ cell mutagenicity-Assessment: Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Germ cell mutagenicity-Assessment: No data available

Carcinogenicity
Components:
trientine:
Species: Mouse, (male)
Application Route: Dermal
Dose: 42 mg/kg
Frequency of Treatment: 3 days/week
Method: OECD Test Guideline 451
Result: negative

Species: Mouse, (male)
Application Route: Dermal
Exposure time: 104 weeks
Dose: 16.8 mg/kg
Frequency of Treatment: 3 days/week
Method: OECD Test Guideline 451

salicylic acid:
Species: Rat, (male and female)
Application Route: Oral
Exposure time: 24 month(s)
Dose: 500 mg/kg
Frequency of Treatment: 7 daily
Result: negative

Carcinogenicity - Assessment: No data available

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

Reproductive toxicity
Components:
Triethyleneetetramine, propoxy/ated:
Effects on fertility: Test Type: Fertility
Species: Rat, male and female
Strain: wistar
Application Route: Ingestion
Dose: 100, 300 and 750 milligram per kilogram
General Toxicity - Parent: No-observed-effect level: Measured 750 mg/kg body weight
General Toxicity F1: No-observed-effect level: Measured 750 mg/kg body weight
Method: OECD Test Guideline 422

salicylic acid:
Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 416

Species: Mouse
Application Route: Oral
Method: OECD Test Guideline 416

Components:
Triethylenetetramine, propoxylated:
Effects on foetal development:
Species: Rat, male and female
Strain: Wistar
Application Route: Ingestion
Dose: 100, 300 and 750 milligram per kilogram
General Toxicity Maternal: No-observed-effect level:
Measured 300 mg/kg body weight
Developmental Toxicity: No observed adverse effect level:
Measured 750 mg/kg body weight
Method: OECD Test Guideline 422

trientine:
Species: Rat
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level:
> 750 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Species: Rabbit
Application Route: Dermal
General Toxicity Maternal: No observed adverse effect level:
125 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

salicylic acid:
Species: Rabbit, female
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level:
125 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Phenol, 4-nonyl-, branched:
Species: Rat, female
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level:
75 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

**Components:**

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

- Phenol, 4-nonyl-, branched:
  - Reproductive toxicity - Assessment: Suspected human reproductive toxicant

**STOT - single exposure**

No data available

**STOT - repeated exposure**

**Components:**

- Triethylenetetramine, propoxylated:
  - Exposure routes: Ingestion
  - Target Organs: Kidney
  - Assessment: No significant health effects observed at a concentration of 300mg/kg bw/day.

**Repeated dose toxicity**

**Components:**

- Triethylenetetramine, propoxylated:
  - Species: Rat, male and female
  - NOAEL: 300 mg/kg
  - Application Route: Ingestion
  - Exposure time: 43 - 44 Days
  - Method: OECD Test Guideline 422

- Trientine:
  - Species: Rat, male and female
  - NOAEL: 50 mg/kg/d
  - Application Route: Ingestion
  - Exposure time: 26 Weeks
  - Number of exposures: 7 d
  - Method: Subchronic toxicity

- Salicylic acid:
  - Species: Dog, male and female
  - LOAEL: 700 mg/m3
  - Application Route: Ingestion
  - Test atmosphere: vapour
  - Exposure time: 4 Weeks
  - Number of exposures: 6 d
  - Method: OECD Test Guideline 412

- Species: Rat, male and female
  - LOAEL: 250 mg/kg
  - Application Route: Ingestion
  - Exposure time: 2 yr
Number of exposures: 7 d
Method: Chronic toxicity

Phenol, 4-nonyl-, branched:
Species: Rat, male and female
NOAEL: 100 mg/kg
Application Route: Ingestion
Exposure time: 672 h
Number of exposures: 7 d
Method: Subacute toxicity

Species: Rat, male and female
NOAEL: 50 mg/kg
Application Route: Ingestion
Exposure time: 2,160 h
Number of exposures: 7 d
Method: Subchronic toxicity

Components:
Phenol, 4-nonyl-, branched:
Repeated dose toxicity - Assesment: Causes severe skin burns and eye damage.

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
Other health hazards
No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:
Triethyleneetetramine, propoxylated:
Toxicity to fish: LC50 (Oncorhynchus mykiss (rainbow trout)): Measured > 4.1 mg/l
Exposure time: 96 h
Test Type: semi-static test
Analytical monitoring: yes
Method: OECD Test Guideline 203

trientine:
Toxicity to fish: LC50 (Pimephales promelas (fathead minnow)): 330 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: Fish Acute Toxicity Test

salicylic acid:
Toxicity to fish: LC50 (Pimephales promelas (fathead minnow)): 1,370 mg/l
Exposure time: 96 h
Test Type: flow-through test
Test substance: Fresh water
Method: OECD Test Guideline 203

Phenol, 4-nonyl-, branched:
Toxicity to fish: LC50 (Pimephales promelas (fathead minnow)): 0.128 mg/l
Exposure time: 96 h
Test Type: flow-through test
Test substance: Fresh water
Method: ASTM Method, other

LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.209 mg/l
Exposure time: 96 h
Test Type: flow-through test
Test substance: Fresh water
Method: ASTM Method, other

LC50 (Oncorhynchus mykiss (rainbow trout)): 0.221 mg/l
Exposure time: 96 h
Test Type: flow-through test
Test substance: Fresh water
Method: ASTM Method, other

Components:
Triethyleneetetramine, propoxylated:
Toxicity to daphnia and other: EC50 (Daphnia magna (Water flea)): Measured 48 mg/l
<table>
<thead>
<tr>
<th>Component</th>
<th>Toxicity to daphnia and other aquatic invertebrates</th>
<th>EC50 (Daphnia magna (Water flea)):</th>
</tr>
</thead>
<tbody>
<tr>
<td>trientine:</td>
<td>Exposure time: 48 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 202</td>
<td></td>
</tr>
<tr>
<td>salicylic acid:</td>
<td>EC50: 870 mg/l Exposure time: 48 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 202</td>
<td></td>
</tr>
<tr>
<td>Phenol, 4-nonyl-, branched:</td>
<td>EC50 (Daphnia magna (Water flea)): 0.085 mg/l Exposure time: 48 h Test Type: static test Test substance: Fresh water Method: ASTM Method, other</td>
<td></td>
</tr>
</tbody>
</table>

### Components:

**Triethylenetetramine, propoxylated:**

<table>
<thead>
<tr>
<th>Toxicity to algae</th>
<th>EC50 (Pseudokirchneriella subcapitata (algae)): Measured 4.1 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 201</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ErC10 (Pseudokirchneriella subcapitata (algae)): Measured 0.11 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 201</td>
</tr>
<tr>
<td>trientine:</td>
<td>ErC50 (Selenastrum capricornutum (green algae)): 20 mg/l Exposure time: 72 h Test Type: semi-static test Test substance: Fresh water Method: OECD Test Guideline 201</td>
</tr>
<tr>
<td>salicylic acid:</td>
<td></td>
</tr>
</tbody>
</table>
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Toxicity to algae: EC50: > 100 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Phenol, 4-nonyl-, branched:
Toxicity to algae: EbC50 (Desmodesmus subspicatus (Scenedesmus subspicatus)): 1.3 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
ErC50 (Sesnastrum capricornutum (green algae)): 0.41 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: Algal Toxicity, Tiers I and II

Components:
Phenol, 4-nonyl-, branched:
M-Factor (Acute aquatic toxicity): 10

Components:
Phenol, 4-nonyl-, branched:
Toxicity to fish (Chronic toxicity): NOEC (Oncorhynchus mykiss (rainbow trout)): 0.006 mg/l
Exposure time: 91 d
Test Type: flow-through test
Test substance: Fresh water

Components:
Trientine:
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity): EC10 (Daphnia magna (Water flea)): 1.9 mg/l
Exposure time: 21 d
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 202

Saliylic acid:
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity): NOEC (Daphnia magna (Water flea)): 10 mg/l
Exposure time: 21 d
Method: OECD Test Guideline 202

M-Factor (Chronic aquatic toxicity): No data available

Components:
Triethylenetetramine, propoxylated:
Toxicity to microorganisms: EC10 (activated sludge): 38 mg/l
Exposure time: 3 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 209

Trientine:
**Toxicity to microorganisms**

- **Salicylic acid:**
  - EC50 (Pseudomonas putida): 380 mg/l
  - Exposure time: 16 h
  - Test Type: static test
  - Test substance: Fresh water
  - Method: Cell multiplication inhibition test

- **Phenol, 4-nonyl-, branched:**
  - EC50 (activated sludge): 950 mg/l
  - Exposure time: 3 h
  - Test Type: static test
  - Test substance: Fresh water
  - Method: OECD Test Guideline 209

**Components:**

- **Phenol, 4-nonyl-, branched:**
  - EC10: 3.44 mg/kg
  - Exposure time: 504 h
  - EC50 (Other): 906.7 mg/kg
  - Exposure time: 4 Weeks
  - Test substance: Synthetic

**Components:**

- **Salicylic acid:**
  - NOEC: Exposure time: 120 h
  - Remarks: see user defined free text

- **Sediment toxicity:**
  - No data available

**Components:**

- **Phenol, 4-nonyl-, branched:**
  - EC10: 63.2 mg/kg
  - Exposure time: 672 h
  - Test substance: Synthetic

**Ecotoxicology Assessment**

- **Acute aquatic toxicity:**
  - No data available

- **Chronic aquatic toxicity:**
  - No data available

- **Toxicity Data on Soil:**
  - No data available

- **Other organisms relevant to the environment:**
  - No data available

**Persistence and degradability**

**Components:**


SAFETY DATA SHEET

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Triethylenetetramine, propoxylated:
Biodegradability

: Inoculum: Domestic sewage
Concentration: 100 mg/l
Result: Not readily biodegradable.
Biodegradation: 4 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

Trientine:
Biodegradability

: Inoculum: activated sludge
Result: Not readily biodegradable.
Biodegradation: 0 %
Exposure time: 162 d
Method: OECD Test Guideline 301D

Inoculum: activated sludge
Result: Not readily biodegradable.
Biodegradation: 20 %
Exposure time: 84 d
Method: Inherent Biodegradability: Modified SCAS Test

Salicylic acid:
Biodegradability

: Inoculum: Mixture
Result: Readily biodegradable.
Biodegradation: 88.1 %
Exposure time: 14 d
Method: OECD Test Guideline 301C

Phenol, 4-nonyl-, branched:
Biodegradability

: Inoculum: activated sludge
Concentration: 13 mg/l
Result: Inherently biodegradable.
Biodegradation: ca. 48.2 %
Exposure time: 35 d
Method: OECD Test Guideline 301B

Inoculum: Sediment
Concentration: 2
Result: Inherently biodegradable.
Biodegradation: 100 %
Exposure time: 63 - 84 d
Method: Anaerobic Biodegradability in the Subsurface

Inoculum: Marine water
Concentration: 11
Biodegradation: 50 %
Exposure time: 56 - 112 d
Method: OECD Test Guideline 309

Components:
salicylic acid:
Biochemical Oxygen Demand (BOD)


Components:
salicylic acid:  
Chemical Oxygen Demand (COD): 1500 mgO2/g  
BOD/COD: No data available  
ThOD: No data available  
BOD/ThOD: No data available  
Dissolved organic carbon (DOC): No data available  
Physico-chemical removability: No data available  

**Components:**  
Triethylenetetramine, propoxylated:  
Stability in water: Degradation half life (DT50): > 1 yr (25 °C) pH: 4  
Method: OECD Test Guideline 111  
Degradation half life (DT50): > 1 yr (25 °C) pH: 7  
Method: OECD Test Guideline 111  
Degradation half life (DT50): > 1 yr (25 °C) pH: 9  
Method: OECD Test Guideline 111  
Photodegradation: No data available  
Impact on Sewage Treatment: No data available  

**Bioaccumulative potential**  
**Components:**  
Phenol, 4-nonyl-, branched:  
Bioaccumulation: Species: Lepomis macrochirus (Bluegill sunfish)  
Bioconcentration factor (BCF): 231  
Remarks: Does not bioaccumulate.  
Species: Pimephales promelas (fathead minnow)  
Bioconcentration factor (BCF): 740  
Remarks: Bioaccumulation is unlikely.  

**Components:**  
Triethylenetetramine, propoxylated:  
Partition coefficient: n-octanol/water: log Pow: -2.42  
Trientine:  
Partition coefficient: n-octanol/water: log Pow: -2.65 (20 °C)  
Method: OECD Test Guideline 117  
salicylic acid:  
Partition coefficient: n-octanol/water: log Pow: 2.25 (25 °C)
octanol/water Method: OECD Test Guideline 117

Phenol, 4-nonyl-, branched:
Partition coefficient: n-octanol/water:
 log Pow: 5.4 (23 °C)
 pH: 5.7
 Method: OECD Test Guideline 117

Mobility in soil
Mobility: No data available

Components:

triethylenetetramine, propoxylated:
Distribution among environmental compartments salicylic acid:
Koc: 1584.9 - 5012
Method: OECD Test Guideline 106

Distribution among environmental compartments Phenol, 4-nonyl-, branched:
Koc: 35
Method: OECD Test Guideline 121

Distribution among environmental compartments
Koc: 23000 - 489000
Stability in soil: No data available

Other adverse effects
Environmental fate and pathways: No data available

Components:

Triethylenetetramine, propoxylated:
Results of PBT and vPvB assessment: This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

Endocrine disrupting potential: No data available

Adsorbed organic bound halogens (AOX): No data available

Hazardous to the ozone layer
Ozone-Depletion Potential: Not applicable

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

TDG
UN number: UN 3062
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TRIETHYLENE TETRAMINE PROPOXYLATED)
Class: 9
Packing group: III
Labels: 9

IATA
UN/ID No.: UN 3062
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (TRIETHYLENE TETRAMINE PROPOXYLATED)
Class: 9
Packing group: III
Labels: Miscellaneous
Packing instruction (cargo aircraft): 964
Packing instruction (passenger aircraft): 964

IMDG
UN number: UN 3062
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TRIETHYLENE TETRAMINE PROPOXYLATED)
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.

National Regulations

TDG
UN number : UN 3062
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TRIETHYLENE TETRAMINE PROPOXYLATED)
Class : 9
Packing group : III
Labels : 9
ERG Code : 171
Marine pollutant : yes (TRIETHYLENE TETRAMINE PROPOXYLATED)
Remarks : Different package sizes may lead to a non-regulated classification, Shipment by ground under DOT is non-regulated; however it may be shipped per the applicable hazard classification to facilitate multi-modal transport involving ICAO (IATA) or IMO.

SECTION 15. REGULATORY INFORMATION

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

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

Canada. CEPA 1999 Significant New Activity (SNAc) List
No substances are subject to a Significant New Activity Notification.
SECTION 16. OTHER INFORMATION

Further information

NFPA:

HMIS® IV:

HEALTH  

FLAMMABILITY

PHYSICAL HAZARD

Revision Date:  04/04/2017

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

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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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