

SAFETY DATA SHEET

ARALDITE® AV 8503 US

Section 1. Identification

GHS product identifier : ARALDITE® AV 8503 US
Product code : 00066427
Other means of identification : Not available.
Product type : Liquid.
Material uses : Epoxy adhesive
Supplier's details : Huntsman Advanced Materials Americas LLC
P.O. Box 4980
The Woodlands, TX 77387
Non-Emergency phone: (800) 257-5547
e-mail address of person responsible for this SDS : MSDS@huntsman.com
Emergency telephone number (24h/7day) : Chemtrec: (800) 424-9300 or (703) 527-3887




Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A
SKIN SENSITIZATION - Category 1
AQUATIC HAZARD (LONG-TERM) - Category 2

GHS label elements

Hazard pictograms : 

Signal word : Warning

Hazard statements : Causes serious eye irritation.
Causes skin irritation.
May cause an allergic skin reaction.
Toxic to aquatic life with long lasting effects.

Precautionary statements : Wear protective gloves. Wear eye or face protection. Avoid release to the environment. Avoid breathing vapor. Wash hands thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Collect spillage. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention. Dispose of contents and container in accordance with all local, regional, national and international regulations.

Section 2. Hazards identification

Other hazards which do not result in classification : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

| Ingredient name | % | CAS number |
|-------------------------|----------|------------|
| Bisphenol A epoxy resin | 60 - 100 | 25068-38-6 |

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Causes skin irritation. May cause an allergic skin reaction.
- Ingestion** : Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms

Section 4. First aid measures

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
- Ingestion** : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : No specific treatment. Treat symptomatically. Call medical doctor or poison control center immediately if large quantities have been ingested.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

- Flash point** : Closed cup: >93.33°C (>200°F) [Estimated]
- Extinguishing media**
- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.
- Specific hazards arising from the chemical** : In a fire or if heated, a pressure increase will occur and the container may burst. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
halogenated compounds
metal oxide/oxides
- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

- Methods and materials for containment and cleaning up** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Avoid release to the environment. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

- Appropriate engineering controls** : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Thermal hazards** : Not available.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Liquid. [Paste.]
- Color** : Blue.
- Odor** : Not available.
- Odor threshold** : Not available.
- pH** : Not available.

Section 9. Physical and chemical properties

| | |
|---|---|
| Melting point/Freezing point | : Not available. |
| Boiling/condensation point | : >330°C (>626°F) |
| Flash point | : Closed cup: >93.33°C (>200°F) [Estimated] |
| Evaporation rate | : Not available. |
| Flammability (solid, gas) | : Not available. |
| Lower and upper explosive (flammable) limits | : Not available. |
| Vapor pressure | : Not available. |
| Vapor density | : Not available. |
| Relative density | : Not available. |
| Solubility in water | : Insoluble |
| Partition coefficient: n-octanol/water | : Not available. |
| Auto-ignition temperature | : Not available. |
| Decomposition temperature | : Not available. |
| Density | : 1.3 to 1.37 g/cm ³ |
| Viscosity | : Not available. |

Section 10. Stability and reactivity

| | |
|---|--|
| Reactivity | : No specific test data related to reactivity available for this product or its ingredients. |
| Chemical stability | : The product is stable. |
| Possibility of hazardous reactions | : Under normal conditions of storage and use, hazardous reactions will not occur. |
| Conditions to avoid | : No specific data. |
| Incompatible materials | : No specific data. |
| Hazardous decomposition products | : Under normal conditions of storage and use, hazardous decomposition products should not be produced. |

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

| Product/ingredient name | Test | Endpoint | Species | Result |
|-------------------------|--|----------------------|--------------------|-------------|
| Bisphenol A epoxy resin | - | LC0 Inhalation Vapor | Rat - Male | 0.00001 ppm |
| | OECD 402 Acute Dermal Toxicity | LD50 Dermal | Rat - Male, Female | >2000 mg/kg |
| | OECD 420 Acute Oral Toxicity - Fixed Dose Method | LD50 Oral | Rat - Female | >2000 mg/kg |

Irritation/Corrosion

Section 11. Toxicological information

| Product/ingredient name | Test | Species | Result |
|-------------------------|--|---------|----------------------|
| Bisphenol A epoxy resin | OECD 404 Acute Dermal Irritation/Corrosion | Rabbit | Skin - Mild irritant |
| | OECD 405 Acute Eye Irritation/Corrosion | Rabbit | Eyes - Mild irritant |

Conclusion/Summary

- Skin** : Bisphenol A epoxy resin Irritating to skin.
- Eyes** : Bisphenol A epoxy resin Irritating to eyes.
- Respiratory** : Bisphenol A epoxy resin No additional information.

Sensitization

| Product/ingredient name | Test | Route of exposure | Species | Result |
|-------------------------|------|-------------------|---------|-------------|
| Bisphenol A epoxy resin | - | skin | Mouse | Sensitizing |

Mutagenicity

| Product/ingredient name | Test | Result |
|-------------------------|---|----------|
| Bisphenol A epoxy resin | Experiment: In vitro Subject: Bacteria Metabolic activation: +/- | Positive |
| | Experiment: In vitro Subject: Mammalian-Animal Cell: Somatic Metabolic activation: +/- | Positive |
| | Experiment: In vivo Subject: Mammalian-Animal Cell: Germ | Negative |
| | Experiment: In vivo Subject: Mammalian-Animal Cell: Somatic | Negative |

Carcinogenicity

| Product/ingredient name | Test | Species | Dose | Exposure | Result/Result type |
|-------------------------|--|-----------------------|-----------|-----------------------------|-----------------------------|
| Bisphenol A epoxy resin | OECD 453 Combined Chronic Toxicity/ Carcinogenicity Studies | Rat - Male, Female | 15 mg/kg | 2 years; 7 days per week | Negative - Oral - NOAEL |
| | OECD 453 Combined Chronic Toxicity/ Carcinogenicity Studies | Rat - Female | 1 mg/kg | 2 years; 5 days per week | Negative - Dermal - NOEL |
| | OECD 453 Combined Chronic Toxicity/ Carcinogenicity Studies | Mouse - Male | 0.1 mg/kg | 2 years; 3 days per week | Negative - Dermal - NOEL |

Section 11. Toxicological information

Reproductive toxicity

| Product/ingredient name | Test | Species | Maternal toxicity | Fertility | Developmental effects |
|-------------------------|---|--------------------|-------------------|-----------|-----------------------|
| Bisphenol A epoxy resin | OECD 416 Two-Generation Reproduction Toxicity Study | Rat - Male, Female | Negative | Negative | Negative |

Teratogenicity

| Product/ingredient name | Test | Species | Result/Result type |
|-------------------------|--|-----------------|--------------------|
| Bisphenol A epoxy resin | OECD 414 Prenatal Developmental Toxicity Study | Rat - Female | Negative - Oral |
| | EPA CFR | Rabbit - Female | Negative - Dermal |
| | OECD 414 Prenatal Developmental Toxicity Study | Rabbit - Female | Negative - Oral |

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Causes skin irritation. May cause an allergic skin reaction.
- Ingestion** : Irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
- Ingestion** : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Section 11. Toxicological information

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

| Product/ingredient name | Test | Endpoint | Species | Result |
|-------------------------|--|--------------------------|--------------------|-----------|
| Bisphenol A epoxy resin | OECD 408 Repeated Dose 90-Day Oral Toxicity Study in Rodents | Sub-chronic NOAEL Oral | Rat - Male, Female | 50 mg/kg |
| | OECD 411 Subchronic Dermal Toxicity: 90-day Study | Sub-chronic NOEL Dermal | Rat - Male, Female | 10 mg/kg |
| | OECD 411 Subchronic Dermal Toxicity: 90-day Study | Sub-chronic NOAEL Dermal | Mouse - Male | 100 mg/kg |

General : Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Other information : Not available.

Section 12. Ecological information

Toxicity

| Product/ingredient name | Test | Endpoint | Exposure | Species | Result |
|-------------------------|---|------------|-----------------|----------|-----------|
| Bisphenol A epoxy resin | EPA CFR | Acute EC50 | 72 hours Static | Algae | 9.4 mg/l |
| | OECD 202 <i>Daphnia</i> sp. Acute Immobilisation Test | Acute EC50 | 48 hours Static | Daphnia | 1.7 mg/l |
| | Unknown guidelines | Acute IC50 | 3 hours Static | Bacteria | >100 mg/l |
| | OECD 203 Fish, | Acute LC50 | 96 hours | Fish | 1.5 mg/l |

Section 12. Ecological information

| | | | | | |
|--|---|--------------|----------------------------------|---------|----------|
| | Acute Toxicity Test OECD 211 <i>Daphnia</i> <i>Magna</i> Reproduction Test | Chronic NOEC | Static 21 days Semi-static | Daphnia | 0.3 mg/l |
|--|---|--------------|----------------------------------|---------|----------|

Persistence and degradability

| Product/ingredient name | Test | Period | Result |
|-------------------------|--|---------|--------|
| Bisphenol A epoxy resin | OECD Derived from OECD 301F (Biodegradation Test) | 28 days | 5 % |

Conclusion/Summary : Bisphenol A epoxy resin Not readily biodegradable.

| Product/ingredient name | Aquatic half-life | Photolysis | Biodegradability |
|-------------------------|--|------------|------------------|
| Bisphenol A epoxy resin | Fresh water 4.83 days Fresh water 3.58 days Fresh water 7.1 days | - | Not readily |

Bioaccumulative potential

| Product/ingredient name | LogP _{ow} | BCF | Potential |
|-------------------------|--------------------|-----|-----------|
| Bisphenol A epoxy resin | 3.242 | 31 | low |

Mobility in soil

Not available.

Other adverse effects : No known significant effects or critical hazards.

Other ecological information

BOD5 : Not determined.

COD : Not determined.

TOC : Not determined.

Section 13. Disposal considerations

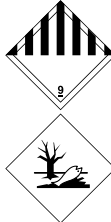
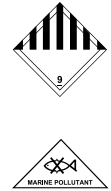
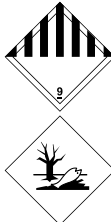
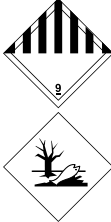
Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Section 14. Transport information

Proper shipping name

- DOT** : Environmentally hazardous substance, liquid, n.o.s. (Bisphenol a epoxy resin). Marine pollutant
- TDG** : Environmentally hazardous substance, liquid, n.o.s. (Bisphenol a epoxy resin). Marine pollutant
- IMDG** : Environmentally hazardous substance, liquid, n.o.s. (Bisphenol a epoxy resin). Marine pollutant
- IATA** : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Bisphenol A epoxy resin)

| Regulatory information | UN number | Classes | PG* | Label | Additional information |
|----------------------------|-----------|---------|-----|--|--|
| DOT Classification | UN3082 | 9 | III |  | Marine pollutants are only regulated for bulk and vessel shipments, per 49CFR171.4 (c) Exceptions. Except when all or part of the transportation is by vessel, the requirements of this subchapter specific to marine pollutants do not apply to non-bulk packagings transported by motor vehicle, rail car or aircraft. |
| TDG Classification | UN3082 | 9 | III |  | The product is not regulated as a dangerous good when transported by road or rail. |
| IMDG Classification | UN3082 | 9 | III |  | The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg. Emergency schedules (EmS) F-A S-F |
| IATA Classification | UN3082 | 9 | III |  | The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg. |

Section 14. Transport information

PG* : Packing group

Section 15. Regulatory information

Safety, health and environmental regulations specific for the product

United States Regulations

- TSCA 8(b) inventory** : All components are listed or exempted.
- TSCA 5(a)2 final significant new use rule (SNUR)** : No ingredients listed.
- TSCA 5(e) substance consent order** : No ingredients listed.
- TSCA 12(b) export notification** : No ingredients listed.
- SARA 311/312** : Immediate (acute) health hazard
- Clean Air Act - Ozone Depleting Substances (ODS)** : This product does not contain nor is it manufactured with ozone depleting substances.
- SARA 313** : No ingredients listed.

| | <u>Ingredient name</u> | <u>%</u> | <u>Section 304 CERCLA Hazardous Substance</u> | <u>CERCLA Reportable Quantity (Lbs)</u> | <u>Product Reportable Quantity (Lbs)</u> |
|------------------------------------|--|----------|---|---|--|
| CERCLA Hazardous substances | : C.I. Pigment Blue 15 (copper and copper compounds) | 0.036 | Listed | No RQ assigned | |

State regulations

- PENNSYLVANIA - RTK** : LIMESTONE
- California Prop 65** : This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

Canadian regulations

- CEPA DSL** : Not determined.
- WHMIS Classes** : Class D-2B: Material causing other toxic effects (Toxic).

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Brazil Regulations

Norma ABNT-NBR 14725-2:2012

Section 15. Regulatory information

Classification system used :

International lists :

- Australia inventory (AICS)**: All components are listed or exempted.
- China inventory (IECSC)**: All components are listed or exempted.
- Japan inventory**: All components are listed or exempted.
- Korea inventory**: All components are listed or exempted.
- Malaysia Inventory (EHS Register)**: Not determined.
- New Zealand Inventory of Chemicals (NZIoC)**: All components are listed or exempted.
- Philippines inventory (PICCS)**: All components are listed or exempted.
- Taiwan inventory (CSNN)**: Not determined.

Section 16. Other information

Hazardous Material Information System (U.S.A.) :

| | | |
|---------------------|---|---|
| Health | * | 2 |
| Flammability | | 1 |
| Physical hazards | | 0 |
| Personal protection | | |

The customer is responsible for determining the PPE code for this material.

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

National Fire Protection Association (U.S.A.) :



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Further information :

Date of printing : 1/9/2015.

Date of issue : 1/9/2015.

Date of previous issue : 10/5/2013.

Version : 2

🔍 Indicates information that has changed from previously issued version.

Section 16. Other information

ARALDITE® is a registered trademark of Huntsman Corporation or an affiliate thereof in one or more countries, but not all countries.

[Notice to reader](#)

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.

NO PERSON OR ORGANIZATION EXCEPT A DULY AUTHORIZED HUNTSMAN EMPLOYEE IS AUTHORIZED TO PROVIDE OR MAKE AVAILABLE DATA SHEETS FOR HUNTSMAN PRODUCTS. DATA SHEETS FROM UNAUTHORIZED SOURCES MAY CONTAIN INFORMATION THAT IS NO LONGER CURRENT OR ACCURATE. NO PART OF THIS DATA SHEET MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM, OR BY ANY MEANS, WITHOUT PERMISSION IN WRITING FROM HUNTSMAN. ALL REQUESTS FOR PERMISSION TO REPRODUCE MATERIAL FROM THIS DATA SHEET SHOULD BE DIRECTED TO HUNTSMAN, MANAGER, PRODUCT SAFETY AT THE ABOVE ADDRESS.

HARDENER HV 8503 US

Version 1.0 Revision Date: 11/05/2015 SDS Number: 400001012610 Date of last issue: -
Date of first issue: 11/05/2015

SECTION 1. IDENTIFICATION

Product name : HARDENER HV 8503 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 corrosion : Category 1B
Serious eye damage : Category 1
Skin sensitization : Category 1
Germ cell mutagenicity : Category 2
Reproductive toxicity : Category 2
Specific target organ systemic toxicity - repeated exposure (Inhalation) : Category 2 (Central nervous system)
Specific target organ systemic toxicity - repeated exposure (Dermal) : Category 2 (Central nervous system)
Acute aquatic toxicity : Category 1
Chronic aquatic toxicity : Category 1

GHS Label element

Hazard pictograms : 

Signal Word : Danger

HARDENER HV 8503 US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: - |
| 1.0 | 11/05/2015 | 400001012610 | Date of first issue: 11/05/2015 |

- Hazard Statements** : H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H341 Suspected of causing genetic defects.
H361 Suspected of damaging fertility or the unborn child.
H373 May cause damage to organs (Central nervous system) through prolonged or repeated exposure in contact with skin.
H373 May cause damage to organs (Central nervous system) through prolonged or repeated exposure if inhaled.
H410 Very toxic to aquatic life with long lasting effects.
- Precautionary Statements** : **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P272 Contaminated work clothing must not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
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/shower.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
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 or doctor/ physician.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P363 Wash contaminated clothing before reuse.
P391 Collect spillage.
Storage:
P405 Store locked up.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

The following percentage of the mixture consists of ingredient(s) with unknown acute toxicity:
12.48 %

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous ingredients

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| Chemical Name | CAS-No. | Concentration (%) |
|---|------------|-------------------|
| 2-Propenenitrile, polymer with 1,3-butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperaziny)ethyl]amino]butyl-terminated | 68683-29-4 | 30 - 60 |
| 1-Piperazineethanamine | 140-31-8 | 3 - 7 |
| triethylenetetramine | 112-24-3 | 3 - 7 |
| phenol | 108-95-2 | 3 - 7 |
| Phenol, 4-nonyl-, branched | 84852-15-3 | 1 - 3 |
| Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines | 68410-23-1 | 1 - 3 |

SECTION 4. FIRST AID MEASURES

- General advice : No hazards which require special first aid measures.
- If inhaled : Move to fresh air in case of accidental inhalation of dust or fumes from overheating or combustion.
If symptoms persist, call a physician.
- In case of skin contact : Take off contaminated clothing and shoes immediately.
Wash off with soap and plenty of 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 swallowed : Clean mouth with water and drink afterwards plenty of water.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
- 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 : No data is available on the product itself.
- Specific extinguishing methods : No data is available on the product itself.
- Further information : Standard procedure for chemical fires.
- Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

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Personal precautions, protective equipment and emergency procedures : Not applicable for product as supplied.

Environmental precautions : No special environmental precautions required.

Methods and materials for containment and cleaning up : Wipe up with absorbent material (e.g. cloth, fleece).
 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 : For personal protection see section 8.
 No special handling advice required.

Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place.

Materials to avoid : No special restrictions on storage with other products.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Ingredients with workplace control parameters**

| Ingredients | CAS-No. | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis |
|-------------|----------|-------------------------------|--|----------|
| phenol | 108-95-2 | TWA | 5 ppm | ACGIH |
| | | TWA | 5 ppm 19 mg/m ³ | OSHA Z-1 |
| | | TWA | 5 ppm 19 mg/m ³ | OSHA PEL |

Personal protective equipment

Respiratory protection : No personal respiratory protective equipment normally required.

Hand protection
 Remarks : For prolonged or repeated contact use protective gloves.

Eye protection : Safety glasses

Skin and body protection : Protective suit

Hygiene measures : General industrial hygiene practice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : paste

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Color : light yellow

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 : > 101 °C
Method: closed cup

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

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

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 : 1.21

Density : No data is available on the product itself.

Solubility(ies)

Water solubility : 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.

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 : Stable under recommended storage conditions.

Chemical stability : No decomposition if stored and applied as directed.

Possibility of hazardous reactions : No hazards to be specially mentioned.

Conditions to avoid : No data available

SECTION 11. TOXICOLOGICAL INFORMATION

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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:

phenol:

Acute inhalation toxicity : LC50 (Rat, female): > 900 mg/m3
Exposure time: 8 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

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

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

Skin corrosion/irritation**Product:**

Remarks: According to the classification criteria of the European Union, the product is not considered as being a skin irritant.

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

Remarks: According to the classification criteria of the European Union, the product is not considered as being an eye irritant.

Respiratory or skin sensitization**Product:**

Remarks: No data available

Assessment: No data available

Germ cell mutagenicity**Ingredients:**

1-Piperazineethanamine:

Genotoxicity in vitro : Concentration: 5000 ug/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

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

triethylenetetramine:
Genotoxicity in vitro : Concentration: 0 - 200 µg/L
Metabolic activation: negative
Method: OECD Test Guideline 482
Result: negative

Ingredients:

1-Piperazineethanamine:
Genotoxicity in vivo : Application Route: Intraperitoneal injection
Dose: 175 - 560 mg/kg
Method: OECD Test Guideline 474
Result: negative

triethylenetetramine:
Genotoxicity in vivo : Application Route: Intraperitoneal injection
Dose: 0 - 600 mg/kg
Method: OECD Test Guideline 474
Result: negative

Ingredients:

phenol:
Germ cell mutagenicity-
Assessment : In vitro tests showed mutagenic effects

Germ cell mutagenicity-
Assessment : No data available

Carcinogenicity**Ingredients:**

triethylenetetramine:
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

phenol:
Species: Mouse, (male and female)
Application Route: Oral
Exposure time: 103 weeks
Dose: 5000 ppm

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Method: OECD Test Guideline 451
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:**

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

phenol:
Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 416
Remarks: No significant adverse effects were reported

Species: Mouse, female
Application Route: Oral

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines:
Species: Rat, male and female
Application Route: Other

Ingredients:

1-Piperazineethanamine:
Effects on fetal development : Species: Rat, male and female
Application Route: Oral
General Toxicity Maternal: NOAEL (No observed adverse effect level): 224 - 285 mg/kg body weight
Method: OECD Test Guideline 422
Result: No teratogenic effects.

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

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

phenol:

Species: Rat, female
Application Route: Oral
General Toxicity Maternal: NOAEL (No observed adverse effect level): 60 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: NOAEL (No observed adverse effect level): 75 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects.

Ingredients:

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

STOT-single exposure**Ingredients:**

phenol:
Routes of exposure: Inhalation
Target Organs: Central nervous system
Assessment: May cause drowsiness or dizziness.

STOT-repeated exposure**Ingredients:**

phenol:
Routes of exposure: Skin contact
Target Organs: Central nervous system
Assessment: May cause damage to organs through prolonged or repeated exposure.

Routes of exposure: Inhalation
Target Organs: Central nervous system
Assessment: May cause damage to organs through prolonged or repeated exposure.

Repeated dose toxicity**Ingredients:**

1-Piperazineethanamine:
Species: Rat, male and female
NOAEL (No observed adverse effect level): 151 - 285 mg/kg/d

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Application Route: Ingestion
Exposure time: 672 h
Method: Subacute toxicity

Species: Rat, male and female
NOAEL (No observed adverse effect level): > 1000 mg/kg/d
Application Route: Skin contact
Exposure time: 696 h
Number of exposures: 5 d
Method: Subacute toxicity

triethylenetetramine:
Species: Rat, male and female
NOAEL (No observed adverse effect level): 50 mg/kg/d
Application Route: Ingestion
Exposure time: 26 Weeks
Number of exposures: 7 d
Method: Subchronic toxicity

phenol:
Species: Monkey, male
NOEC: 1.8 mg/kg, > 19.6 mg/m³
Application Route: Ingestion
Test atmosphere: dust/mist
Exposure time: 672 h
Number of exposures: 8 h
Method: Subacute toxicity

Species: Rabbit
Lowest observable effect level: 260 mg/kg
Application Route: Skin contact
Exposure time: 432 h
Method: Subacute toxicity

Species: Rat, male and female
NOAEL (No observed adverse effect level): 450 mg/kg
Application Route: Ingestion
Exposure time: 103 Weeks
Number of exposures: 7 d
Method: Chronic toxicity

Phenol, 4-nonyl-, branched:
Species: Rat, male and female
NOAEL (No observed adverse effect level): 100 mg/kg
Application Route: Ingestion
Exposure time: 672 h
Number of exposures: 7 d
Method: Subacute toxicity

Species: Rat, male and female
NOAEL (No observed adverse effect level): 50 mg/kg
Application Route: Ingestion
Exposure time: 2,160 h

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Number of exposures: 7 d
Method: Subchronic toxicity

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines:
Species: Rat, male and female
NOAEL (No observed adverse effect level): 1000 mg/kg
Application Route: Ingestion
Exposure time: 6 Weeks
Number of exposures: 7 d
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:**

1-Piperazineethanamine:
Toxicity to fish : LC50: 2,190 mg/l

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Exposure time: 96 h
 Test Type: static test
 Test substance: Fresh water

triethylenetetramine:

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

phenol:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 8.9 mg/l
 Exposure time: 96 h
 Test Type: flow-through test
 Test substance: Fresh water

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

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines:

Toxicity to fish : LC50: 7.07 mg/l
 Exposure time: 96 h
 Test Type: semi-static test
 Test substance: Fresh water
 Method: OECD Test Guideline 203

Ingredients:

2-Propenenitrile, polymer with 1,3-butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1,000 mg/l
 Exposure time: 48 h
 Method: OECD Test Guideline 202

1-Piperazineethanamine:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 58 mg/l
 Exposure time: 48 h
 Test Type: static test
 Method: OECD Test Guideline 202

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triethylenetetramine:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 31.1 mg/l
 Exposure time: 48 h
 Test Type: static test
 Test substance: Fresh water
 Method: Directive 67/548/EEC, Annex V, C.2.

phenol:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 3.1 mg/l
 Exposure time: 48 h
 Test Type: static test
 Test substance: Fresh water
 Method: Aquatic Invertebrate Acute Toxicity Test, Freshwater Daphnids

Phenol, 4-nonyl-, branched:

Toxicity to daphnia and other aquatic invertebrates : 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

EC50 (Daphnia magna (Water flea)): 0.14 mg/l
 Exposure time: 48 h
 Test substance: Fresh water
 Method: Directive 67/548/EEC, Annex V, C.2.

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 5.18 mg/l
 Exposure time: 1,152 h
 Test Type: static test
 Test substance: Fresh water
 Method: OECD Test Guideline 202

Ingredients:

2-Propenenitrile, polymer with 1,3-butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated:

Toxicity to algae : EC50 (No information available.): > 1,000 mg/l
 Exposure time: 72 h
 Method: OECD Test Guideline 201

1-Piperazineethanamine:

Toxicity to algae : EC50 (Senastrum capricornutum (green algae)): > 1,000 mg/l
 Exposure time: 72 h
 Test substance: Fresh water
 Method: OECD Test Guideline 201

triethylenetetramine:

Toxicity to algae : ErC50 (Senastrum capricornutum (green algae)): 20 mg/l
 Exposure time: 72 h
 Test Type: semi-static test
 Test substance: Fresh water
 Method: OECD Test Guideline 201

Phenol, 4-nonyl-, branched:

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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 (Selenastrum 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

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines:
Toxicity to algae : ErC50 (Selenastrum capricornutum (green algae)): 4.11 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

Ingredients:

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

Ingredients:

phenol:
Toxicity to fish (Chronic toxicity) : NOEC (Other): 0.077 mg/l
Exposure time: 60 d
Test Type: semi-static test
Test substance: Fresh water

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

Ingredients:

triethylenetetramine:
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

phenol:
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC10 (Daphnia magna (Water flea)): 4.6 mg/l
Exposure time: 16 d
Test Type: semi-static test
Test substance: Fresh water

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

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Ingredients:

triethylenetetramine:

Toxicity to bacteria : EC50 (activated sludge): 800 mg/l
 Exposure time: 0.5 h
 Test Type: static test
 Test substance: Fresh water

Phenol, 4-nonyl-, branched:

Toxicity to bacteria : EC50 (activated sludge): 950 mg/l
 Exposure time: 3 h
 Test Type: static test
 Test substance: Fresh water
 Method: OECD Test Guideline 209

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines:

Toxicity to bacteria : EC0: > 100 mg/l
 Method: DIN 38412

Ingredients:

Phenol, 4-nonyl-, branched:

Toxicity to soil dwelling organisms : EC10: 3.44 mg/kg
 Exposure time: 504 h
 EC50 (Other): 906.7 mg/kg
 Exposure time: 4 Weeks
 Test substance: Synthetic

Plant toxicity : No data available

Sediment toxicity : No data available

Ingredients:

Phenol, 4-nonyl-, branched:

Toxicity to terrestrial organisms : EC10: 63.2 mg/kg
 Exposure time: 672 h
 Test substance: Synthetic

Ecotoxicology Assessment

Ingredients:

phenol:

Acute aquatic toxicity : Harmful to aquatic life.

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines:

Acute aquatic toxicity : This product has no known ecotoxicological effects.

Ingredients:

phenol:

Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects.

Toxicity Data on Soil : No data available

Other organisms relevant to the environment : No data available

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Further information

The following percentage of the mixture consists of ingredient(s) with unknown hazards to the aquatic environment: 12.48 %

Persistence and degradability**Ingredients:**

2-Propenenitrile, polymer with 1,3-butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperaziny)ethyl]amino]butyl-terminated:

Biodegradability : Result: Not readily biodegradable.

1-Piperazineethanamine:

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

triethylenetetramine:

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

phenol:

Biodegradability : Inoculum: activated sludge
Concentration: 30 mg/l
Result: Readily biodegradable.
Biodegradation: 62 %
Exposure time: 4.16667 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

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Biodegradation: 50 %
 Exposure time: 56 - 112 d
 Method: OECD Test Guideline 309

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines:
 Biodegradability : Inoculum: activated sludge
 Concentration: 9 mg/l
 Result: Inherently biodegradable.
 Biodegradation: 100 %
 Exposure time: 74 d
 Method: OECD Test Guideline 301B

Ingredients:

1-Piperazineethanamine:
 Biochemical Oxygen Demand (BOD) : 5 mg/l
 Incubation time: 5 d

Ingredients:

1-Piperazineethanamine:
 Chemical Oxygen Demand (COD) : 560 mg/l
 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:

1-Piperazineethanamine:
 Photodegradation : Test Type: Air
 Degradation (direct photolysis): 50 %
 Test Type: Water
 Impact on Sewage Treatment : No data available

Bioaccumulative potential**Ingredients:**

1-Piperazineethanamine:
 Bioaccumulation : Species: Fish
 Remarks: Does not bioaccumulate.
 Phenol, 4-nonyl-, branched:
 Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)

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Bioconcentration factor (BCF): 231
Remarks: Does not bioaccumulate.

Species: Pimephales promelas (fathead minnow)
Bioconcentration factor (BCF): 740
Remarks: Bioaccumulation is unlikely.

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines:
Bioaccumulation : Bioconcentration factor (BCF): 1.85 - 2.69
Test substance: Fresh water

Ingredients:

1-Piperazineethanamine:
Partition coefficient: n-octanol/water : log Pow: -1.48 (20 °C)

triethylenetetramine:
Partition coefficient: n-octanol/water : log Pow: -2.65 (20 °C)
Method: OECD Test Guideline 117

phenol:
Partition coefficient: n-octanol/water : log Pow: 1.47 (30 °C)
pH: 3.8

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

Ingredients:

1-Piperazineethanamine:
Distribution among environmental compartments : Koc: ca. 37000.

triethylenetetramine:
Distribution among environmental compartments : Koc: 1584.9 - 5012. Method: OECD Test Guideline 106

Phenol, 4-nonyl-, branched:
Distribution among environmental compartments : Koc: 23000 - 489000.

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

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Adsorbed organic bound halogens (AOX) : No data available

Hazardous to the ozone layer

Ozone-Depletion Potential : Not applicable

Additional ecological information - Product : There is no data available for this product.

Global warming potential (GWP) : No data available

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging : Empty remaining contents.
Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14. TRANSPORT INFORMATION**International Regulation****IATA**

UN/ID No. : UN 1760
 Proper shipping name : Corrosive liquid, n.o.s.
 (AMINOETHYLPIPERAZINE, 4-NONYL PHENOL)
 Class : 8
 Packing group : III
 Labels : Corrosive
 Packing instruction (cargo aircraft) : 856
 Packing instruction (passenger aircraft) : 852

IMDG

UN number : UN 1760
 Proper shipping name : CORROSIVE LIQUID, N.O.S.
 (AMINOETHYLPIPERAZINE, 4-NONYL PHENOL)
 Class : 8
 Packing group : III
 Labels : 8
 EmS Code : F-A, S-B
 Marine pollutant : yes

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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 1760 |
| Proper shipping name | : CORROSIVE LIQUIDS, N.O.S. (AMINOETHYLPIPERAZINE, 4-NONYL PHENOL) |
| Class | : 8 |
| Packing group | : III |
| Labels | : CORROSIVE |
| ERG Code | : 154 |
| Marine pollutant | : yes(4-NONYL PHENOL) |

SECTION 15. REGULATORY INFORMATION

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

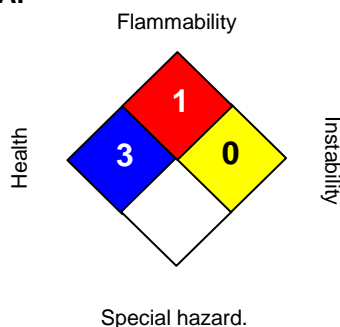
California Prop 65 : This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

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

| | |
|--------|---|
| 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 | : Not 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 |

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SECTION 16. OTHER INFORMATION**Further information****NFPA:****HMIS III:**

| | |
|------------------------|----------|
| HEALTH | 3 |
| FLAMMABILITY | 1 |
| PHYSICAL HAZARD | 0 |

0 = not significant, 1 = Slight,

2 = Moderate, 3 = High

4 = Extreme, * = Chronic

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