# SAFETY DATA SHEET

Product name: MaxPox® 30 Hardener

Issue Date: 11/18/2016
Print Date: 11/19/2016

MaxLiner encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

## 1. IDENTIFICATION

**Product name:** MaxPox 30 Hardener

**Recommended use of the chemical and restrictions on use**
**Identified uses:** Hardener for epoxy resin.

**COMPANY IDENTIFICATION**
MAXLINER
450 COLLEGE DRIVE
MARTINSVILLE, VA 24112 USA

**Customer Information Number:** +1 877-426-5948, Email: info@maxlinerusa.com

**EMERGENCY TELEPHONE NUMBER**
**24-Hour Emergency Contact:** (Infotrac) 800-535-5053
**Local Emergency Contact:** 800-535-5053

## 2. HAZARDS IDENTIFICATION

**Hazard classification**
This material is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.
Acute toxicity - Category 4 - Oral
Skin corrosion - Category 1B
Serious eye damage - Category 1
Skin sensitization - Category 1
Reproductive toxicity - Category 1B
Effects on or via lactation

**Label elements**
**Hazard pictograms**

Signal word: **DANGER!**

**Hazards**
Harmful if swallowed.
Causes severe skin burns and eye damage.
May cause an allergic skin reaction.
May damage fertility or the unborn child.
May cause harm to breast-fed children.

**Precautionary statements**

**Prevention**
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
Avoid contact during pregnancy/ while nursing.
Wash skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Contaminated work clothing should not be allowed out of the workplace.
Wear protective gloves/ protective clothing/ eye protection/ face protection.

**Response**
IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
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.
IF exposed or concerned: Get medical advice/ attention.
If skin irritation or rash occurs: Get medical advice/ attention.
Wash contaminated clothing before reuse.

**Storage**
Store locked up.

**Disposal**
Dispose of contents/ container to an approved waste disposal plant.

**Other hazards**
No data available

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

| Component | CASRN | Concentration |
|---|---|---|
| 4-Nonylphenol, branched | 84852-15-13 | 45.0 – 65.0% |
| Triethylenetetramine mixture | 112-24-3 | 40.0 – 50.0% |
| Dinonylphenol | 1323-65-5 | <0.6% |
| Aminoethylethanolamine | 111-41-1 | <0.6% |
| Tetraethylenepentamine mixture | 112-57-2 | <0.3% |
| Aminoethylpiperazine | 140-31-8 | <0.2% |
| Diethylenetriamine | 111-40-0 | <0.2% |
| Phenol | 108-95-2 | <0.1% |

## 4. FIRST AID MEASURES

**Description of first aid measures**
**General advice:** First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**Inhalation:** Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

**Skin contact:** Immediate continued and thorough washing in flowing water for at least 30 minutes is imperative while removing contaminated clothing. Prompt medical consultation is essential. Wash clothing before reuse. Properly dispose of leather items such as shoes, belts, and watchbands. Suitable emergency safety shower facility should be immediately available.

**Eye contact:** Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

**Ingestion:** Do not induce vomiting. Give one cup (8 ounces or 240 ml) of water or milk if available and transport to a medical facility. Do not give anything by mouth unless the person is fully conscious.

**Most important symptoms and effects, both acute and delayed:** Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

**Indication of any immediate medical attention and special treatment needed**
**Notes to physician:** Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome). Maintain adequate ventilation and oxygenation of the patient. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants, antitussives and corticosteroids may be of help. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. If burn is present, treat as any thermal burn, after decontamination. Due to irritant properties, swallowing may result in burns/ulceration of mouth, stomach and lower gastrointestinal tract with subsequent stricture. Aspiration of vomitus may cause lung injury. Suggest endotracheal/esophageal control if lavage is done. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

## 5. FIREFIGHTING MEASURES

**Suitable extinguishing media:** Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

**Unsuitable extinguishing media:** Do not use direct water stream. May spread fire.

**Special hazards arising from the substance or mixture**
**Hazardous combustion products:** During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides. Carbon dioxide. Carbon monoxide.

**Unusual Fire and Explosion Hazards:** Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

**Advice for firefighters**
**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.

**Special protective equipment for firefighters:** Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures:** Evacuate area. Only trained and properly protected personnel must be involved in clean-up operations. Keep upwind of spill. Ventilate area of leak or spill. Refer to section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

**Environmental precautions:** Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

**Methods and materials for containment and cleaning up:** Contain spilled material if possible. Absorb with materials such as: Sand. Collect in suitable and properly labeled containers. Avoid contact with absorbent materials such as: Ground corn cobs. Moist organic absorbents. Peat moss. Sawdust. See Section 13, Disposal Considerations, for additional information.

## 7. HANDLING AND STORAGE

**Precautions for safe handling:** Do not get in eyes, on skin, on clothing. Do not swallow. Avoid breathing vapor. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

**Conditions for safe storage:** Store in a cool, dry place. Avoid contact with metals such as: Brass. Bronze. Copper. Copper alloys.

**Storage stability**

| Storage temperature: | Shelf life: Use within |
|---|---|
| 5 - 30°C (41-86°F) | 12 month |

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control parameters**

Exposure limits are listed below, if they exist.

| Component | Regulation | Type of Listing | Value/Notation |
|---|---|---|---|
| Triethylenetetramine mixture | USWEEL<br>USWEEL | TWA<br>TWA | 1 ppm<br>Absorbed via skin |
| Aminoethylethanolamine | Dow IHG<br>Dow IHG | TWA<br>TWA | 0.05 mg/m3<br>SKIN, DSEN |
| Tetraethylenepentamine mixture | US WEEL | TWA | 5 mg/m3 |
| Diethylenetriamine | US WEEL<br>ACGIH<br>ACGIH | TWA<br>TWA<br>TWA | SKIN, DSEN<br>1 ppm<br>Absorbed via skin |
| Phenol | ACGIH<br>OSHA Z-1<br>ACGIH<br>CAL PEL<br>OSHA Z-1 | TWA<br>TWA<br>TWA<br>PEL<br>TWA | 5 ppm<br>19 mg/m3 5 ppm<br>SKIN, BEI<br>19 mg/m3 5 ppm<br>Absorbed via skin |

**Exposure controls**

**Engineering controls:** Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

**Eye/face protection:** Use chemical goggles.

**Skin protection**

**Hand protection:** Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Chlorinated polyethylene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. Avoid gloves made of: Polyvinyl alcohol ("PVA"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

**Other protection:** Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

**Respiratory protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. The following should be effective types of air-purifying respirators: Organic vapor cartridge.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**

| | |
|---|---|
| **Appearance** | |
| **Physical state** | Liquid |
| **Color** | Blue |
| **Odor** | Amine |
| **Odor Threshold** | No test data available |
| **pH** | 12 *Literature* |
| **Melting point/range** | Not applicable |
| **Freezing point** | No test data available |
| **Boiling point (760 mmHg)** | 277°C (531°F) *Literature* |
| **Flash point** | Closed cup 138°C (280°F) *Literature* |
| **Evaporation Rate (Butyl Acetate =1)** | No test data available |
| **Flammability (solid, gas)** | Not applicable |
| **Lower explosion limit** | No test data available |
| **Upper explosion limit** | No test data available |
| **Vapor Pressure** | 0.01 kPa at 20°C (68°F) *Literature* |
| **Relative Vapor Density (air=1)** | No test data available |
| **Relative Density (water=1)** | 0.96 at 25°C (77°F) *Calculated* |
| **Water solubility** | Soluble |
| **Partition coefficient: n-octanol/water** | This product is a mixture. See Section 12 for individual component data |
| **Auto-ignition temperature** | No test data available |
| **Decomposition temperature** | No test data available |
| **Dynamic Viscosity** | 280 cP at 25°C (77°F) *ASTM D 445* |
| **Kinematic Viscosity** | No test data available |
| **Explosive properties** | No |
| **Oxidizing properties** | No |
| **Molecular weight** | No test data available |

NOTE: The physical data presented above are typical values and should not be construed as a specification.

## 10. STABILITY AND REACTIVITY

**Reactivity:** No data available

**Chemical stability:** Stable under recommended storage conditions. See Storage, Section 7.

**Possibility of hazardous reactions:** Polymerization will not occur.

**Conditions to avoid:** Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems. Reaction with carbon dioxide may form an amine carbamate. Smoke may be generated depending on vapor pressure of mixture. Product absorbs carbon dioxide from the air.

**Incompatible materials:** Avoid contact with oxidizing materials. Avoid contact with: Acids. Acrylates. Alcohols. Aldehydes. Halogenated hydrocarbons. Ketones. Nitrites. Avoid contact with metals such as: Brass. Bronze. Copper. Copper alloys. Avoid contact with absorbent materials such as: Ground corn cobs. Moist organic absorbents. Peat moss. Sawdust.

**Hazardous decomposition products:** Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Aromatic compounds. Ammonia. Ethylenediamine. Volatile amines. Hydrocarbons. Phenolics.

## 11. TOXICOLOGICAL INFORMATION

*Toxicological information appears in this section when such data is available.*

**Acute toxicity**

**Acute oral toxicity**
Low toxicity if swallowed. Swallowing may result in gastrointestinal irritation or ulceration. Swallowing may result in burns of the mouth and throat.
As product: Single dose oral LD50 has not been determined.
Based on information for component(s):
LD50, Rat, > 1,500 mg/kg Estimated.

**Acute dermal toxicity**
Prolonged skin contact is unlikely to result in absorption of harmful amounts.
As product: The dermal LD50 has not been determined.
For the component(s) tested:
LD50, Rabbit, > 2,000 mg/kg Estimated.

**Acute inhalation toxicity**
At room temperature, exposure to vapor is minimal due to low volatility; vapor from heated material may cause adverse effects. Excessive exposure may cause severe irritation to upper respiratory tract (nose and throat) and lungs.
The LC50 has not been determined.

**Skin corrosion/irritation**
Brief contact may cause severe skin burns. Symptoms may include pain, severe local redness and tissue damage.

**Serious eye damage/eye irritation**
May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

**Sensitization**
For skin sensitization:
A component in this mixture has caused allergic skin reactions in humans.
Contains component(s) which have caused allergic skin sensitization in guinea pigs.
Individuals having an allergic skin reaction to this product may have an allergic skin reaction to similar material(s).
The similar material(s) is/are:
Ethylenediamine.

Triethylenetetramine (TETA).
Piperazine.
Aminoethylethanolamine (AEEA).
Aminoethylpiperazine (AEP).
For respiratory sensitization:
No relevant data found.

**Specific Target Organ Systemic Toxicity (Single Exposure)**
Material is corrosive. Material is not classified as a respiratory irritant; however, upper respiratory tract irritation or corrosivity may be expected.

**Specific Target Organ Systemic Toxicity (Repeated Exposure)**
Contains component(s) which have been reported to cause effects on the following organs in animals:
Lung.
Liver.
Kidney effects and/or tumors have been observed in male rates. These effects are believed to be species and unlikely to occur in humans.

**Carcinogenicity**
Contains component(s) which did not cause cancer in laboratory animals.

**Teratogenicity**
Laboratory animals that were fed exaggerated doses of Triethylenetetramine (TETA) showed adverse fetal effects that were believed to be associated with an observed copper deficiency. In an oral gavage screening study, DETA has been toxic to the fetus in laboratory animal tests. Contains component(s) which have been toxic to the fetus in lab animal tests. Contains component(s) which did not cause birth defects in laboratory animals.

**Reproductive toxicity**
Contains component(s) which have interfered with fertility in animal studies. In a three-generation reproduction study in rats, nonylphenol did not interfere with standard reproductive parameters. However, some additional endpoints which are considered markers of potential reproductive toxicity were affected at higher doses that produced systemic toxicity to the parent animals.

**Mutagenicity**
Contains component(s) which were negative in some in vitro genetic toxicity studies and positive in others. Genetic toxicity studies in animals were negative for component(s) tested.

**Aspiration Hazard**
Aspiration into the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury.

**COMPONENTS INFLUENCING TOXICOLOGY:**

**4-Nonylphenol, branched**

**Acute inhalation toxicity**
LC50, Mouse, female, vapour, > 3.636 mg/l

**Triethylenetetramine mixture**

**Acute inhalation toxicity**
The LC50 has not been determined.

**Dinonylphenol**

**Acute inhalation toxicity**
The LC50 has not been determined.

**Aminoethylethanolamine**

**Acute inhalation toxicity**
At room temperature, exposure to vapor is minimal due to low volatility; vapor from heated material may cause respiratory irritation. Based on the available data, narcotic effects were not observed.

The LC50 has not been determined.

**Tetraethylenepentamine mixture**

**Acute inhalation toxicity**

At room temperature, exposure to vapor is minimal due to low volatility. Excessive exposure may cause irritation to upper respiratory tract (nose and throat).
The LC50 has not been determined. Rat, 8 Hour, vapour, No deaths occurred following exposure to a saturated atmosphere.

**Aminoethylpiperazine**

**Acute inhalation toxicity**

The LC50 has not been determined. 8 Hour, vapour, No deaths occurred following exposure to a saturated atmosphere.

**Diethylenetriamine**

**Acute inhalation toxicity**

LC50, Rat, 4 Hour, dust/mist, > 0.07 - < 0.3 mg/l
Prolonged exposure to aerosol/mist may cause serious adverse effects even death. Excessive exposure may cause severe irritation to upper respiratory tract (nose and throat) and lungs.

**Phenol**

**Acute inhalation toxicity**

Excessive exposure may cause severe irritation to upper respiratory tract (nose and throat) and lungs. Prolonged excessive exposure may cause adverse effects. May cause pulmonary edema (fluid in the lungs). May cause central nervous system effects. Effects may be delayed.
LC50, Rat, 4 Hour, dust/mist, > 1.13 mg/l

## 12. ECOLOGICAL INFORMATION

*Ecotoxicological information appears in this section when such data is available.*

**Toxicity**

**4-Nonylphenol, branched**

**Acute toxicity to fish**

Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).
LC50, Fish, static test, 96 Hour, 0.05 mg/l, EPA-660-75-009

**Acute toxicity to aquatic invertebrates**

EC50, Daphnia magna (Water flea), semi-static test, 48 Hour, 0.0844 mg/l, Other guidelines

**Acute toxicity to algae/aquatic plants**

EC50, Algae (Scenedesmus subspicatus), static test, 72 Hour, Growth rate, 0.33 mg/l, Other guidelines

**Chronic toxicity to fish**

NOEC, Pimephales promelas (fathead minnow), flow-through test, 33 d, survival, 0.0074 mg/l

**Chronic toxicity to aquatic invertebrates**

NOEC, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, 0.024 mg/l

**Aminoethylethanolamine**

**Acute toxicity to fish**

Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).
LC50, Pimephales promelas (fathead minnow), 96 Hour, 640 mg/l, OECD Test Guideline 203 or Equivalent

**Acute toxicity to aquatic invertebrates**

EC50, Daphnia magna (Water flea), static test, 48 Hour, 22 mg/l, OECD Test Guideline 202 or Equivalent

**Acute toxicity to algae/aquatic plants**
EC50, Desmodesmus subspicatus (green algae), 72 Hour, Growth rate inhibition, 353.6 mg/l, OECD Test Guideline 201 or Equivalent

**Toxicity to bacteria**
EC50, Bacteria, 16 Hour, > 5,000 mg/l

**Triethylenetetramine mixture**

**Acute toxicity to fish**
Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).
May increase pH of aquatic systems to > pH 10 which may be toxic to aquatic organisms.
LC50, Pimephales promelas (fathead minnow), static test, 96 Hour, 330 mg/l, OECD Test Guideline 203 or Equivalent

**Acute toxicity to aquatic invertebrates**
EC50, Daphnia magna (Water flea), static test, 48 Hour, 31.1 mg/l, OECD Test Guideline 202 or Equivalent

**Acute toxicity to algae/aquatic plants**
EC50, Pseudokirchneriella subcapitata (green algae), semi-static test, 72 Hour, Growth rate inhibition, 20 mg/l, OECD Test Guideline 201 or Equivalent

**Toxicity to bacteria**
EC50, Bacteria, 16 Hour, 680 mg/l

**Chronic toxicity to aquatic invertebrates**
NOEC, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, 1.9 mg/l

**Dinonylphenol**

**Acute toxicity to fish**
No relevant data found.

**Aminoethylethanolamine**

**Acute toxicity to fish**
Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).
LC50, Pimephales promelas (fathead minnow), 96 Hour, 640 mg/l, OECD Test Guideline 203 or Equivalent

**Acute toxicity to aquatic invertebrates**
EC50, Daphnia magna (Water flea), static test, 48 Hour, 22 mg/l, OECD Test Guideline 202 or Equivalent

**Acute toxicity to algae/aquatic plants**
ErC50, Desmodesmus subspicatus (green algae), 72 Hour, Growth rate inhibition, 353.6 mg/l, OECD Test Guideline 201 or Equivalent

**Toxicity to bacteria**
EC50, Bacteria, 16 Hour, > 5,000 mg/l

**Tetraethylenepentamine mixture**

**Acute toxicity to fish**
Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).
May increase pH of aquatic systems to > pH 10 which may be toxic to aquatic organisms.
LC50, Poecilia reticulata (guppy), semi-static test, 96 Hour, 420 mg/l, OECD Test Guideline 203 or Equivalent

**Acute toxicity to aquatic invertebrates**
EC50, Daphnia magna (Water flea), static test, 48 Hour, 24.1 mg/l, OECD Test Guideline 202 or Equivalent

**Acute toxicity to algae/aquatic plants**
ErC50, Pseudokirchneriella subcapitata (green algae), static test, 72 Hour, Growth rate inhibition, 6.8 mg/l, OECD Test Guideline 201 or Equivalent

**Toxicity to bacteria**
EC50, activated sludge, static test, 1 Hour, 1,600 mg/l

**Aminoethylpiperazine**

**Acute toxicity to fish**
Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).
LC50, Pimephales promelas (Fathead minnow), static test, 96 Hour, 2,190 mg/l, OECD Test Guideline 203 or Equivalent

**Acute toxicity to aquatic invertebrates**
EC50, Daphnia magna (Water flea), static test, 48 Hour, 58 mg/l, OECD Test Guideline 202 or Equivalent

**Acute toxicity to algae/aquatic plants**
ErC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth rate inhibition, >1,000 mg/l, OECD Test Guideline 201 or Equivalent

**Diethylenetriamine**

**Acute toxicity to fish**
Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).
LC50. Poecilia reticulate (guppy), semi-static test, 96 Hour, 430 mg/l

**Acute toxicity to aquatic invertebrates**
EC50, Daphnia magna (Water flea), static test, 48 Hour, 16 mg/l, DIN 38412

**Acute toxicity to algae/aquatic plants**
EC50, Pseudokirchneriella subcapitata (green algae), Static, 72 Hour, Growth rate inhibition, 1.164 mg/l, OECD Test Guideline 201 or equivalent

**Toxicity to bacteria**
EC50, Bacteria, static test, 16 Hour, >5,000 mg/l

**Chronic toxicity to fish**
NOEC, Fish, semi-static test, 28 d. growth, > 10 mg/l

**Chronic toxicity to aquatic invertebrates**
NOEC, Daphnia magna, semi-static test, 21 d, number of offspring, 5.6 mg/l
MATC (Maximum Acceptable Toxicant Level), Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, 7.95 mg/l

**Toxicity to soil-dwelling organisms**
EC50, Eisenia fetida (earthworms), 28 d, 979 mg/kg

**Phenol**

**Acute toxicity to fish**
Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).
LC50, Oncorhynchus mykiss (rainbow trout), flow-through test, 96 Hour, 8.9 mg/l

**Acute toxicity to aquatic invertebrates**
LC50, Ceriodaphnia dubia (water flea), 48 Hour, 4.3 - 20 mg/l
**Acute toxicity to algae/aquatic plants**
EC50, Pseudokirchneriella subcapitata (microalgae), static test, 96 Hour, Growth inhibition (cell density reduction), 61.1 mg/l, Other guidelines

**Toxicity to bacteria**
EC50, activated sludge, 110 - 800 mg/l

**Chronic toxicity to fish**
MATC (Maximum Acceptable Toxicant Level), Pimephales promelas (fathead minnow), 28 d, 2.56 mg/l
NOEC, Cyprinus carpio (Carp), semi-static test, 60 d, survival, 0.077 mg/l

**Persistence and degradability**

**4-Nonylphenol, branched**
**Biodegradability:** Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.
10-day Window: Fail
**Biodegradation:** 48.2 %
**Exposure time:** 35 d
**Method:** OECD Test Guideline 301B or Equivalent

**Theoretical Oxygen Demand:** 3.29 mg/mg

**Photodegradation**
**Test Type:** Half-life (indirect photolysis)
**Sensitizer:** OH radicals
**Atmospheric half-life:** 0.207 d
**Method:** Estimated.

**Triethylenetetramine mixture**
**Biodegradability:** Biodegradation under aerobic static laboratory conditions is moderate (BOD20 or BOD28/ThOD between 10 and 40%).
10-day Window: Fail
**Biodegradation:** 0 %
**Exposure time:** 20 d
**Method:** OECD Test Guideline 301D or Equivalent

**Theoretical Oxygen Demand:** 3.40 mg/mg

**Chemical Oxygen Demand:** 1.94 mg/mg

**Biological oxygen demand (BOD)**

| Incubation Time | BOD |
|---|---|
| 5 d | 5.000% |
| 20 d | 2.5 – 11% |

**Dinonylphenol**
**Biodegradability:** No relevant data found.

**Aminoethylethanolamine**
**Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Pass
**Biodegradation:** > 97 %
**Exposure time:** 28 d

**Method:** OECD Test Guideline 301F or Equivalent
**Theoretical Oxygen Demand:** 2.77 mg/mg
**Chemical Oxygen Demand:** 1,070 mg/g

**Tetraethylenepentamine mixture**

**Biodegradability:** Material is not readily biodegradable according to OECD/EEC guidelines.
10-day Window: Fail
**Biodegradation:** 0 %
**Exposure time:** 28 d
**Method:** OECD Test Guideline 301A or Equivalent
10-day Window: Not applicable
**Biodegradation:** 17 %
**Exposure time:** 84 d
**Method:** OECD Test Guideline 302A or Equivalent
**Theoretical Oxygen Demand:** 3.39 mg/mg
**Chemical Oxygen Demand:** 1.54 - 1.88 mg/mg
**Biological oxygen demand (BOD)**

| Incubation Time | BOD |
|---|---|
| 20 d | 0 – 12% |

**Photodegradation**
**Atmospheric half-life:** 0.41 Hour
**Method:** Estimated.

**Aminoethylpiperazine**

**Biodegradability:** Material is not readily biodegradable according to OECD/EEC guidelines.
10-day Window: Fail
**Biodegradation:** 0 %
**Exposure time:** 28 d
**Method:** OECD Test Guideline 301F or Equivalent
**Theoretical Oxygen Demand:** 3.34 mg/mg
**Chemical Oxygen Demand:** 1.84 mg/mg
**Photodegradation**
**Atmospheric half-life:** 0.05 d
**Method:** Estimated.

**Diethylenetriamine**

**Biodegradability:** Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability). Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions. 10-day Window: Not applicable
**Biodegradation:** > 80 %
**Exposure time:** 30 d
**Method:** OECD Test Guideline 302A or Equivalent
**Theoretical Oxygen Demand:** 3.42 mg/mg
**Biological oxygen Demand (BOD**

| Incubation Time | BOD |
|---|---|
| 5 d | 23.000% |
| 10 d | 46.000% |
| 20 d | 70.000% |

**Photodegradation**
**Sensitizer:** OH radicals
**Atmospheric half-life:** 0.87 Hour

**Method:** Estimated.

**Phenol**

**Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Not applicable
**Biodegradation:** 62 %
**Exposure time:** 100 Hour
**Method:** OECD Test Guideline 301C or Equivalent
10-day Window: Not applicable
**Biodegradation:** 85 %
**Exposure time:** 14 d
**Method:** OECD Test Guideline 301C or Equivalent
**Theoretical Oxygen Demand:** 2.38 mg/mg
**Photodegradation**
**Test Type:** Half-life (indirect photolysis)
**Sensitizer:** OH radicals
**Atmospheric half-life:** 3.8 Hour
**Method:** Estimated.

**Bioaccumulative potential**

**4-Nonylphenol, branched**

**Bioaccumulation:** Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).
**Partition coefficient:** n-octanol/water(log Pow): 5.4 at 23 °C OECD Guideline 117 (Partition Coefficient (n-octanol / water), HPLC Method)
**Bioconcentration factor (BCF):** 271 Pimephales promelas (fathead minnow) 20 d Measured

**Triethylenetetramine mixture**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
**Partition coefficient: n-octanol/water(log Pow):** -2.65 Estimated.

**Dinonylphenol**

**Bioaccumulation:** No relevant data found.

**Aminoethylethanolamine**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
**Partition coefficient: n-octanol/water(log Pow):** -1.46 Measured
**Bioconcentration factor (BCF):** < 3.7 Cyprinus carpio (Carp) 42 d Measured

**Tetraethylenepentamine mixture**

**Bioaccumulation:** No bioconcentration is expected because of the relatively high water solubility.
**Partition coefficient: n-octanol/water(log Pow):** -3.16 Estimated.

**Aminoethylpiperazine**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
**Partition coefficient: n-octanol/water(log Pow):** -1.48 Measured

**Diethylenetriamine**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
**Partition coefficient: n-octanol/water(log Pow):** 1.58 at 20 °C Estimated.
**Bioconcentration factor (BCF):** <0.3 Measured

**Mobility in soil**

**4-Nonylphenol, branched**

Expected to be relatively immobile in soil (Koc > 5000).
**Partition coefficient (Koc):** > 5000 Estimated.

**Triethylenetetramine mixture**

Potential for mobility in soil is very high (Koc between 0 and 50).
**Partition coefficient (Koc):** 4.1 - 310 Estimated.

**Dinonylphenol**

No relevant data found.

**Aminoethylethanolamine**

Potential for mobility in soil is very high (Koc between 0 and 50).
Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.
**Partition coefficient (Koc):** 3.5 Estimated.

**Tetraethylenepentamine mixture**

Potential for mobility in soil is very high (Koc between 0 and 50).
Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.
**Partition coefficient (Koc):** 3.6 - 1098 Estimated.

**Aminoethylpiperazine**

Expected to be relatively immobile in soil (Koc > 5000).
**Partition coefficient (Koc):** 37000 Estimated.

**Diethylenetriamine**

Expected to be relatively immobile in soil (Koc > 5000).
Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.
**Partition coefficient (Koc):** 19111 Estimated.

**Phenol**

Potential for mobility in soil is high (Koc between 50 and 150).
**Partition coefficient (Koc):** 27 - 91 Estimated.

## 13. DISPOSAL CONSIDERATIONS

**Disposal methods:** AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN (M)SDS SECTION: Composition Information. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device.

## 14. TRANSPORT INFORMATION

**DOT**

| | |
|---|---|
| **Proper shipping name** | Corrosive liquids, n.o.s. (4-Nonylphenol, branched, Triethylenetetramine mixture) |
| **UN number** | UN 1760 |
| **Class** | 8 |
| **Packing group** | II |
| **Reportable Quantity** | Phenol |

**Classification for SEA transport (IMO-IMDG):**

| | |
|---|---|
| **Proper shipping name** | CORROSIVE LIQUID, N.O.S. (4-Nonylphenol, branched, Triethylenetetramine mixture) |
| **UN number** | UN 1760 |
| **Class** | 8 |
| **Packing group** | II |
| **Marine pollutant** | 4-Nonylphenol, branched |
| **Transport in bulk according to Annex I or II or MARPOL 73/78 and the IBC or IGC Code** | Consult IMO regulations before transporting ocean bulk |

**Classification for AIR transport (IATA/ICAO):**

| | |
|---|---|
| **Proper shipping name** | Corrosive liquid, n.o.s. (4-Nonylphenol, branched, Triethylenetetramine mixture) |
| **UN number** | UN 1760 |
| **Class** | 8 |
| **Packing group** | II |

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

## 15. REGULATORY INFORMATION

**Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312**
Acute Health Hazard
Chronic Health Hazard

**Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 313**
This product contains the following substances which are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and which are listed in 40 CFR 372.

| **Components** | **CASRN** |
|---|---|
| 4-Nonylphenol, branched | 84852-15-3 |

**Pennsylvania Worker and Community Right-To-Know Act:**
The following chemicals are listed because of the additional requirements of Pennsylvania law:

| Components | CASRN |
|---|---|
| 4-Nonylpehnol, branched | 84852-15-3 |
| Triethylenetetramine mixture | 112-24-3 |

**California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)**
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.

**United States TSCA Inventory (TSCA)**
All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

## 16. OTHER INFORMATION

**Hazard Rating System**
**NFPA**

| Health | Fire | Reactivity |
|---|---|---|
| 3 | 1 | 0 |

**Revision**
Identification Number: 101215912 / A476 / Issue Date: 11/18/2016 / Version: 9.0

**Legend**

| | |
|---|---|
| Absorbed via skin | Absorbed via skin |
| ACGIH | USA, ACGIH Threshold Limit Values (TLV) |
| CAL PEL | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |
| Dow IHG | Dow Industrial Hygiene Guideline |
| OSHA Z-1 | USA. Occupational Exposure Limits (OSHA) – Table Z-1 Limits for Air Contaminants |
| PEL | Permissible exposure limit |
| SKIN, DSEN | Absorbed via Skin, Skin Sensitizer |
| TWA | 8-hr, time-weighted average |
| US WEEL | USA. Workplace Environmental Exposure Levels (WEEL) |

**Information Source and References**
This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

MAXLINER urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.