



# MATERIAL SAFETY DATA SHEET

## 1. Product and Company Identification

**Material name** STAR BRITE TEAK BRIGHTENER  
**Version #** 03  
**Revision date** 05-19-2013dco Replaces: 06-10-2010  
**MSDS Number** 815XX  
**Product use** **Teak brightener**

## 2. Hazards Identification

**Physical state** Liquid.  
**Appearance** Clear liquid.  
**Emergency overview** DANGER

Combustible liquid. Corrosive. Causes skin and eye burns. Harmful in contact with skin and if swallowed. Prolonged exposure may cause chronic effects.

**OSHA regulatory status** This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

### Potential health effects

#### Routes of exposure

Inhalation. Ingestion. Skin contact. Eye contact.

#### Eyes

Causes eye burns. Risk of serious damage to eyes.

#### Skin

Causes skin burns. May be harmful if absorbed through skin.

#### Inhalation

Causes burns. Prolonged inhalation may be harmful.

#### Ingestion

Harmful if swallowed. Components of the product may be absorbed into the body by ingestion. Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus and possibly the digestive tract.

### Target organs

Blood. Eyes. Liver. Respiratory system. Skin.

2-Butoxy ethanol may be absorbed through the skin in toxic amounts if contact is repeated and prolonged and may cause blood damage. These effects have not been observed in humans.

Kidneys. Central nervous system.

### Chronic effects

Kidney injury may occur. Liver injury may occur. May cause central nervous system disorder (e.g., narcosis involving a loss of coordination, weakness, fatigue, mental confusion and blurred vision) and/or damage. Unconsciousness. Edema. Jaundice. Cyanosis (blue tissue condition, nails, lips, and/or skin).

### Signs and symptoms

Irritation of nose and throat. Irritation of eyes and mucous membranes. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

**Potential environmental effects** May cause long-term adverse effects in the environment.

## 3. Composition / Information on Ingredients

Components	CAS #	Percent
Water	7732-18-5	60-100
Oxalic acid	144-62-7	5-10
Alcohols, C9-C11, ethoxylated	68439-46-3	1-5
Ethylene glycol n-butyl ether	111-76-2	1-5

### Composition comments

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

## 4. First Aid Measures

### First aid procedures

<b>Eye contact</b>	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if symptoms persist.
<b>Skin contact</b>	Remove and isolate contaminated clothing and shoes. Immediately flush skin with plenty of water. Get medical attention immediately. For minor skin contact, avoid spreading material on unaffected skin. Wash clothing separately before reuse.
<b>Inhalation</b>	Move to fresh air. If breathing is difficult, give oxygen. Oxygen or artificial respiration if needed. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention if symptoms persist.
<b>Ingestion</b>	Rinse mouth thoroughly. Never give anything by mouth to a victim who is unconscious or is having convulsions. Do not induce vomiting without advice from poison control center. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. If vomiting occurs, keep head low so that stomach content does not get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If material is ingested, immediately contact a poison control center. If swallowed, seek medical advice immediately and show this container or label.

### Notes to physician

Treat symptomatically. The effects might be delayed.

### General advice

Take off contaminated clothing and shoes immediately. Get medical attention if any discomfort develops.

## 5. Fire Fighting Measures

### Flammable properties

The product is combustible, and heating may generate vapors which may form explosive vapor/air mixtures.

### Extinguishing media

#### Suitable extinguishing media

Water. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO<sub>2</sub>).

### Protection of firefighters

#### Protective equipment and precautions for firefighters

In the event of fire, cool tanks with water spray. Move containers from fire area if you can do it without risk. Use water spray to cool unopened containers. Cool containers exposed to flames with water until well after the fire is out.

### Special protective equipment for fire-fighters

Self-contained breathing apparatus, operated in positive pressure mode and full protective clothing must be worn in case of fire.

### Specific methods

In the event of fire, cool tanks with water spray. Use water spray to cool unopened containers.

### Hazardous combustion products

May include oxides of nitrogen.

## 6. Accidental Release Measures

### Personal precautions

Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Local authorities should be advised if significant spillages cannot be contained. Wear protective clothing as described in Section 8 of this safety data sheet. Ensure adequate ventilation. Ventilate closed spaces before entering them. Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

### Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not contaminate water.

### Methods for containment

Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Prevent entry into waterways, sewers, basements or confined areas.

### Methods for cleaning up

Should not be released into the environment.

Large Spills: Dike far ahead of spill for later disposal. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece).

Never return spills to original containers for re-use. This material and its container must be disposed of as hazardous waste. Following product recovery, flush area with water. Clean surface thoroughly to remove residual contamination.

### Other information

Clean up in accordance with all applicable regulations.

## 7. Handling and Storage

### Handling

Do not get this material in contact with eyes. Do not get this material in contact with skin. Do not eat, drink or smoke when using the product. Avoid breathing mist or vapor. Do not get this material on clothing. Do not use in areas without adequate ventilation. Keep away from heat, spark, open flames and other sources of ignition. Wear personal protective equipment. Avoid prolonged exposure. Wash thoroughly after handling. Avoid release to the environment. Handle and open container with care.

### Storage

Keep locked-up. Store in a well-ventilated place. Keep container tightly closed. Store in a closed container away from incompatible materials. Keep out of the reach of children. Do not handle or store near an open flame, heat or other sources of ignition. Use care in handling/storage. Keep away from food, drink and animal feedingstuffs.

## 8. Exposure Controls / Personal Protection

### Occupational exposure limits

#### ACGIH

##### Components

Components	Type	Value
Ethylene glycol n-butyl ether (111-76-2)	TWA	20 ppm
Oxalic acid (144-62-7)	STEL	2 mg/m <sup>3</sup>
	TWA	1 mg/m <sup>3</sup>

#### U.S. - OSHA

##### Components

Components	Type	Value
Ethylene glycol n-butyl ether (111-76-2)	PEL	240 mg/m <sup>3</sup>
		50 ppm
Oxalic acid (144-62-7)	PEL	1 mg/m <sup>3</sup>

#### Canada - Alberta

##### Components

Components	Type	Value
Ethylene glycol n-butyl ether (111-76-2)	TWA	20 ppm
		97 mg/m <sup>3</sup>
Oxalic acid (144-62-7)	STEL	2 mg/m <sup>3</sup>
	TWA	1 mg/m <sup>3</sup>

#### Canada - British Columbia

##### Components

Components	Type	Value
Ethylene glycol n-butyl ether (111-76-2)	TWA	20 ppm
Oxalic acid (144-62-7)	STEL	2 mg/m <sup>3</sup>
	TWA	1 mg/m <sup>3</sup>

#### Canada - Ontario

##### Components

Components	Type	Value
Ethylene glycol n-butyl ether (111-76-2)	TWA	20 ppm
Oxalic acid (144-62-7)	STEL	2 mg/m <sup>3</sup>
	TWA	1 mg/m <sup>3</sup>

#### Canada - Quebec

##### Components

Components	Type	Value
Ethylene glycol n-butyl ether (111-76-2)	TWA	20 ppm
		97 mg/m <sup>3</sup>
Oxalic acid (144-62-7)	STEL	2 mg/m <sup>3</sup>
	TWA	1 mg/m <sup>3</sup>

#### Mexico

##### Components

Components	Type	Value
Ethylene glycol n-butyl ether (111-76-2)	STEL	360 mg/m <sup>3</sup>
		75 ppm
	TWA	26 ppm
		120 mg/m <sup>3</sup>
Oxalic acid (144-62-7)	STEL	2 mg/m <sup>3</sup>
	TWA	1 mg/m <sup>3</sup>

<b>Engineering controls</b>	Ensure adequate ventilation, especially in confined areas. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.
<b>Personal protective equipment</b>	
<b>Eye / face protection</b>	Wear chemical goggles. Face-shield.
<b>Skin protection</b>	Anti-static and flame-retardant protective clothing is recommended. Wear chemical protective equipment that is specifically recommended by the manufacturer.
<b>Respiratory protection</b>	Wear positive pressure self-contained breathing apparatus (SCBA). Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection. Seek advice from local supervisor.
<b>General hygiene considerations</b>	Do not get this material in contact with skin. Do not get in eyes. Do not get this material on clothing. When using, do not eat, drink or smoke. Avoid contact with eyes. Handle in accordance with good industrial hygiene and safety practices. Always observe national occupational health and hygiene requirements including requirements for medical surveillance.

## 9. Physical & Chemical Properties

<b>Appearance</b>	Clear liquid.
<b>Color</b>	Clear.
<b>Odor</b>	Sweet. Pleasant.
<b>Odor threshold</b>	Not available.
<b>Physical state</b>	Liquid.
<b>Form</b>	Liquid.
<b>pH</b>	1 Approx.
<b>Melting point</b>	Not available.
<b>Freezing point</b>	Not available.
<b>Boiling point</b>	212 °F (100 °C)
<b>Flash point</b>	153.9 °F (67.7 °C)
<b>Evaporation rate</b>	Similar to water.
<b>Flammability</b>	Not available.
<b>Flammability limits in air, upper, % by volume</b>	Not available.
<b>Flammability limits in air, lower, % by volume</b>	Not available.
<b>Vapor pressure</b>	Not available.
<b>Vapor density</b>	Not available.
<b>Specific gravity</b>	1.01 @ 20 °C
<b>Solubility (water)</b>	Completely soluble.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Percent volatile</b>	Not available.

## 10. Chemical Stability & Reactivity Information

<b>Chemical stability</b>	Stable at normal conditions.
<b>Conditions to avoid</b>	Heat, sparks, flames, elevated temperatures. Contact with incompatible materials.
<b>Incompatible materials</b>	Strong oxidizing agents. Chlorites and hypochlorites.
<b>Hazardous decomposition products</b>	Nitrogen oxides (NOx).
<b>Possibility of hazardous reactions</b>	Hazardous polymerization does not occur.

## 11. Toxicological Information

### Toxicological data

#### Components

Ethylene glycol n-butyl ether (111-76-2)

#### Test Results

Acute Dermal LD50 Rabbit: 400 mg/kg  
Acute Inhalation LC50 Mouse: 700 mg/l 7 Hours  
Acute Inhalation LC50 Rat: 450 mg/l 4 Hours  
Acute Oral LD50 Guinea pig: 1200 mg/kg  
Acute Oral LD50 Mouse: 1200 mg/kg  
Acute Oral LD50 Rabbit: 320 mg/kg  
Acute Oral LD50 Rat: 1480 mg/kg  
Acute Other LD50 Mouse: 1130 mg/kg  
Acute Other LD50 Rabbit: 280 mg/kg  
Acute Other LD50 Rat: 340 mg/kg  
Acute Oral LC50 Rat: 375 mg/kg

Oxalic acid (144-62-7)

#### Acute effects

Causes eye and skin burns.

#### Local effects

Blood disorder may occur after ingestion. Liver toxicity.

#### Sensitization

Not available.

#### Chronic effects

Hazardous by OSHA criteria. Prolonged exposure may cause chronic effects. May be harmful if absorbed through skin. Prolonged inhalation may be harmful. Repeated absorption may cause disorder of central nervous system, liver, kidneys and blood.

2-Butoxy ethanol may be absorbed through the skin in toxic amounts if contact is repeated and prolonged. These effects have not been observed in humans.

#### Subchronic effects

Kidney injury may occur. Blood disorder may occur after ingestion. Blood disorder may occur after prolonged inhalation. Blood disorder may occur after prolonged skin contact.

#### Carcinogenicity

This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

#### ACGIH Carcinogens

Ethylene glycol n-butyl ether (CAS 111-76-2)

A3 Confirmed animal carcinogen with unknown relevance to humans.

#### IARC Monographs. Overall Evaluation of Carcinogenicity

Ethylene glycol n-butyl ether (CAS 111-76-2)

3 Not classifiable as to carcinogenicity to humans.

#### Epidemiology

Not available.

#### Mutagenicity

Not available.

#### Neurological effects

Hazardous by OSHA criteria.

#### Reproductive effects

Not available.

#### Teratogenicity

Not available.

#### Further information

Symptoms may be delayed.

## 12. Ecological Information

### Ecotoxicological data

#### Components

Ethylene glycol n-butyl ether (111-76-2)

Oxalic acid (144-62-7)

Alcohols, C9-C11, ethoxylated (68439-46-3)

#### Test Results

LC50 Inland silverside (*Menidia beryllina*): 1250 mg/l 96 hours  
EC50 Water flea (*Daphnia magna*): 125 - 150 mg/l 48 hours  
EC50 Water flea (*Daphnia magna*): 2.9 - 8.5 mg/l 48 hours  
LC50 Fathead minnow (*Pimephales promelas*): 6 - 12 mg/l 96 hours

#### Ecotoxicity

Contains a substance which causes risk of hazardous effects to the environment.

#### Environmental effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

#### Persistence and degradability

Not available.

#### Bioaccumulation / Accumulation

No data available.

<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Mobility in environmental media</b>	The product is soluble in water.

### 13. Disposal Considerations

<b>Waste codes</b>	D002: Waste Corrosive material [pH <=2 or >=12.5, or corrosive to steel]
<b>Disposal instructions</b>	This material and its container must be disposed of as hazardous waste. Dispose of this material and its container to hazardous or special waste collection point. Must be incinerated in a suitable incineration plant holding a permit delivered by the competent authorities. Do not dispose of waste into sewer. Do not allow this material to drain into sewers/water supplies. Dispose in accordance with all applicable regulations.
<b>Waste from residues / unused products</b>	Dispose in accordance with applicable federal, state, and local regulations.

### 14. Transport Information

#### DOT BULK

##### Basic shipping requirements:

<b>UN number</b>	NA1993
<b>Proper shipping name</b>	Combustible liquid, n.o.s. (Ethylene glycol n-butyl ether, Oxalic acid)
<b>Hazard class</b>	- Combustible Liquid
<b>Packing group</b>	III

#### IATA

Not regulated as dangerous goods.

#### IMDG

Not regulated as dangerous goods.

#### TDG

Not regulated as dangerous goods.

### 15. Regulatory Information

<b>US federal regulations</b>	This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List.
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CERCLA/SARA Hazardous Substances - Not applicable.

#### US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

Ethylene glycol n-butyl ether (CAS 111-76-2)	1.0 % N230
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#### US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

Ethylene glycol n-butyl ether (CAS 111-76-2)	N230 Listed.
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#### CERCLA (Superfund) reportable quantity (lbs)

None

#### Superfund Amendments and Reauthorization Act of 1986 (SARA)

<b>Hazard categories</b>	Immediate Hazard - Yes Delayed Hazard - Yes Fire Hazard - Yes Pressure Hazard - No Reactivity Hazard - No
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<b>Section 302 extremely hazardous substance</b>	No
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<b>Section 311 hazardous chemical</b>	No
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<b>Drug Enforcement Agency (DEA)</b>	Not controlled
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<b>Canadian regulations</b>	This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.
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<b>WHMIS status</b>	Controlled
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**WHMIS classification** B3 - Flammable/Combustible  
 D1A - Immediate/Serious-VERY TOXIC  
 D1B - Immediate/Serious-TOXIC  
 D2B - Other Toxic Effects-TOXIC  
 E - Corrosive

**WHMIS labeling**



**Inventory status**

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

**State regulations**

This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

**US - California Hazardous Substances (Director's): Listed substance**

Ethylene glycol n-butyl ether (CAS 111-76-2) Listed.  
 Oxalic acid (CAS 144-62-7) Listed.

**US - Massachusetts RTK - Substance: Listed substance**

Ethylene glycol n-butyl ether (CAS 111-76-2) Listed.  
 Oxalic acid (CAS 144-62-7) Listed.

**US - New Jersey Community RTK (EHS Survey): Reportable threshold**

Ethylene glycol n-butyl ether (CAS 111-76-2) 500 LBS

**US - New Jersey RTK - Substances: Listed substance**

Ethylene glycol n-butyl ether (CAS 111-76-2) Listed.  
 Oxalic acid (CAS 144-62-7) Listed.

**US - Pennsylvania RTK - Hazardous Substances: Listed substance**

Ethylene glycol n-butyl ether (CAS 111-76-2) Listed.  
 Oxalic acid (CAS 144-62-7) Listed.

**16. Other Information**

**Further information**

HMIS® is a registered trade and service mark of the NPCA.

**HMIS® ratings**

Health: 2\*  
 Flammability: 2  
 Physical hazard: 0

**NFPA ratings**

Health: 2  
 Flammability: 2  
 Instability: 0

**Disclaimer**

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. Star brite assumes no responsibility for injury to the vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, Star brite assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his use of the material.

**Issue date**

06-10-2010



# MATERIAL SAFETY DATA SHEET

## 1. Product and Company Identification

**Material name** Starbrite Premium Teak Oil  
**Version #** 01  
**Issue date** 05-08-2012  
**Revision date** -  
**Supersedes date** -  
**CAS #** Mixture  
**Product code** 851XX  
**Product use** Coatings.

## 2. Hazards Identification

**Physical state** Liquid.  
**Appearance** Brown to amber colored liquid.  
**Emergency overview** WARNING!

Combustible liquid and vapor.  
Harmful if swallowed - may enter lungs if swallowed or vomited. Causes skin irritation.

**OSHA regulatory status** This product is hazardous according to OSHA 29 CFR 1910.1200.

### Potential health effects

**Routes of exposure** Inhalation. Skin contact. Ingestion.

**Eyes** Direct contact with eyes may cause temporary irritation.

**Skin** Causes skin irritation.

**Inhalation** Overexposure to mists/vapors of this product may cause headache, dizziness, nausea, and respiratory tract irritation.

**Ingestion** Harmful if swallowed - may enter lungs if swallowed or vomited.

**Signs and symptoms** Causes skin irritation. Overexposure to mists/vapors of this product may cause headache, dizziness, nausea, and respiratory tract irritation.

**Potential environmental effects** Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

## 3. Composition / Information on Ingredients

Components	CAS #	Percent
Distillates (petroleum), hydrotreated light	64742-47-8	<75

**Composition comments** All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

## 4. First Aid Measures

### First aid procedures

**Eye contact** Any material that contacts the eye should be washed out immediately with water. If easy to do, remove contact lenses. Get medical attention if symptoms persist.

**Skin contact** Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.

**Inhalation** If symptomatic, move to fresh air. Get medical attention if symptoms persist.



**Ingestion**

DO NOT induce vomiting. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person. If vomiting occurs, keep head lower than the hips to help prevent aspiration. Call a physician or poison control center immediately.

**Notes to physician**

Treat symptomatically.

**5. Fire Fighting Measures****Flammable properties**

Combustible liquid and vapor. Material will float and may ignite on surface of water. Containers may explode when heated.

**Extinguishing media****Suitable extinguishing media**

Carbon dioxide (CO<sub>2</sub>). Foam. Dry chemical. Water fog.

**Unsuitable extinguishing media**

None known.

**Fire fighting equipment/instructions**

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

**Specific methods**

Cool containers exposed to heat with water spray and remove container, if no risk is involved.

**Hazardous combustion products**

Carbon oxides.

**6. Accidental Release Measures****Personal precautions**

Ensure adequate ventilation. Wear suitable protective clothing. See Section 8 of the MSDS for Personal Protective Equipment.

**Environmental precautions**

Collect and dispose of spillage as indicated in Section 13 of the MSDS.

**Methods for containment**

Eliminate all ignition sources. Dike the spilled material, where this is possible. Prevent entry into waterways, sewer, basements or confined areas.

**Methods for cleaning up**

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece).

Never return spills to original containers for re-use. Following product recovery, flush area with water. Clean surface thoroughly to remove residual contamination.

**Other information**

Clean up in accordance with all applicable regulations.

**7. Handling and Storage****Handling**

Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Use only with adequate ventilation. Wash thoroughly after handling. Observe good industrial hygiene practices.

**Storage**

Keep container tightly closed and in a well-ventilated place. Store in closed original container at room temperature. Store away from incompatible materials.

**8. Exposure Controls / Personal Protection****Occupational exposure limits****Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)**

Components	Type	Value	Form
Distillates (petroleum), hydrotreated light (64742-47-8)	TWA	200 mg/m <sup>3</sup>	Vapor.

**Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)**

Components	Type	Value	Form
Distillates (petroleum), hydrotreated light (64742-47-8)	TWA	200 mg/m <sup>3</sup>	Non-aerosol.

**Engineering controls**

Provide adequate ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation of vapors.

**Personal protective equipment****Eye / face protection**

Use approved safety goggles or face shield.

**Skin protection**

Wear appropriate chemical resistant clothing to prevent any possibility of skin contact.

<b>Respiratory protection</b>	In case of inadequate ventilation, use respiratory protection.
<b>General hygiene considerations</b>	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

## 9. Physical & Chemical Properties

<b>Appearance</b>	Brown to amber colored liquid.
<b>Physical state</b>	Liquid.
<b>Form</b>	Liquid.
<b>Color</b>	Brown to amber.
<b>Odor</b>	Solvent.
<b>Odor threshold</b>	Not available.
<b>pH</b>	Not available.
<b>Vapor pressure</b>	No data available.
<b>Vapor density</b>	No data available.
<b>Boiling point</b>	300.2 °F (149 °C)
<b>Melting point/Freezing point</b>	-94 °F (-70 °C)
<b>Solubility (water)</b>	Insoluble.
<b>Specific gravity</b>	Not available.
<b>Flash point</b>	149 °F (65 °C) Pensky-Martens Closed Cup
<b>Flammability limits in air, upper, % by volume</b>	No data available.
<b>Flammability limits in air, lower, % by volume</b>	No data available.
<b>Auto-ignition temperature</b>	Not available.
<b>Evaporation rate</b>	No data available.
<b>Viscosity</b>	No data available.

## 10. Chemical Stability & Reactivity Information

<b>Chemical stability</b>	Material is stable under normal conditions.
<b>Conditions to avoid</b>	Heat, sparks, flames. Contact with incompatible materials.
<b>Incompatible materials</b>	Strong oxidizing agents.
<b>Hazardous decomposition products</b>	No hazardous decomposition products are known.
<b>Possibility of hazardous reactions</b>	Will not occur.

## 11. Toxicological Information

<b>Sensitization</b>	None known.
<b>Acute effects</b>	Harmful if swallowed - may enter lungs if swallowed or vomited. Causes skin irritation. Overexposure to mists/vapors of this product may cause headache, dizziness, nausea, and respiratory tract irritation.
<b>Carcinogenicity</b>	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

## 12. Ecological Information

### Ecotoxicological data

Components	Species	Test Results
Distillates (petroleum), hydrotreated light (64742-47-8)		
<b>Aquatic</b>		
Fish	LC50 Rainbow trout,donaldson trout (Oncorhynchus mykiss)	2.9 mg/l, 96 hours
<b>Ecotoxicity</b>	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.	
<b>Persistence and degradability</b>	No data available.	

<b>Bioaccumulation / Accumulation</b>	No data available.
<b>Mobility in environmental media</b>	No data available.

### 13. Disposal Considerations

<b>Disposal instructions</b>	Must be incinerated in a suitable incineration plant holding a permit delivered by the competent authorities. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container.
<b>Waste from residues / unused products</b>	Dispose of waste and residues in accordance with local authority requirements.
<b>Contaminated packaging</b>	Since emptied containers retain product residue, follow label warnings even after container is emptied.

### 14. Transport Information

#### DOT

##### Basic shipping requirements:

<b>UN number</b>	NA1993
<b>Proper shipping name</b>	Combustible liquids, n.o.s. (Distillates (petroleum), hydrotreated light)
<b>Hazard class</b>	Combustible Liquid
<b>Packing group</b>	III
<b>Additional information:</b>	
<b>Special provisions</b>	B1, B52, IB3, T4, TP1, TP29
<b>Packaging exceptions</b>	150
<b>Packaging non bulk</b>	203
<b>Packaging bulk</b>	242

#### IATA

Not regulated as dangerous goods.

#### IMDG

Not regulated as dangerous goods.

#### TDG

<b>Proper shipping name</b>	COMBUSTIBLE LIQUID, N.O.S. (Distillates (petroleum), hydrotreated light)
<b>Hazard class</b>	Combustible Liquid
<b>UN number</b>	UN1993
<b>Packing group</b>	III
<b>Special provisions</b>	16

#### General

This product meets the limited quantities exception as follows:  
 DOT: Not regulated as dangerous goods except when shipped in bulk.  
 Otherwise, the above descriptions apply.

### 15. Regulatory Information

**US federal regulations** This product is hazardous according to OSHA 29 CFR 1910.1200.

#### TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

#### CERCLA (Superfund) reportable quantity (lbs) (40 CFR 302.4)

None

#### Superfund Amendments and Reauthorization Act of 1986 (SARA)

<b>Hazard categories</b>	Immediate Hazard - Yes Delayed Hazard - No Fire Hazard - Yes Pressure Hazard - No Reactivity Hazard - No
--------------------------	--

**Section 302 extremely hazardous substance (40 CFR 355, Appendix A)** No

**Section 311/312 (40 CFR 370)** No

**Drug Enforcement Administration (DEA) (21 CFR 1308.11-15)**

Not controlled

**Canadian regulations**

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

**WHMIS status**

Controlled

**WHMIS classification**

B3 - Combustible Liquids

**WHMIS labeling**



**Inventory status**

<b>Country(s) or region</b>	<b>Inventory name</b>	<b>On inventory (yes/no)*</b>
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

\*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s)

**State regulations**

This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

**US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance**

Not listed.

**US. Massachusetts RTK - Substance List**

Distillates (petroleum), hydrotreated light (CAS 64742-47-8) Listed.

**US. New Jersey Worker and Community Right-to-Know Act**

Distillates (petroleum), hydrotreated light (CAS 64742-47-8) 10000 LBS

**US. Pennsylvania RTK - Hazardous Substances**

Distillates (petroleum), hydrotreated light (CAS 64742-47-8) Listed.

**16. Other Information**

**HMIS® ratings**

Health: 2  
Flammability: 2  
Physical hazard: 0

**NFPA ratings**

Health: 2  
Flammability: 2  
Instability: 0

**Disclaimer**

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. Star brite assumes no responsibility for injury to the vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, Star brite assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his use of the material.

# MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI, Canadian WHMIS Standards and European Union Directives

## PART I *What is the material and what do I need to know in an emergency?*

### 1. PRODUCT IDENTIFICATION

TRADE NAME (AS LABELED): **STARBRITE TEAK CLEANER**  
SYNONYMS: **TEAK CLEANER**  
CHEMICAL NAME/CLASS: Bleach/Lye Solution  
PART NUMBER: 81416, 81432, 81400N  
PRODUCT USE: Teak Care

### 2. COMPOSITION and INFORMATION ON INGREDIENTS

**EU LABELING AND CLASSIFICATION:** This product meets the definition of the hazard class of Irritant, as defined by the European Economic Community Guidelines.

EU CLASSIFICATION: [Xi] Irritating. [N]: Dangerous for the Environment

EU RISK PHRASES: [R: 36/37/38]: Irritating to eyes, skin and respiratory system. [R: 51]: Toxic to aquatic organisms.

EU SAFETY PHRASES: [S: 1/2]: Keep out of the reach of children. (*This safety phrase can be omitted from the label when the substance or preparation is sold for industrial use only*). [S: 22]: In case of contact with eyes, rinse immediately with plenty of water. [S: 45]: In case of accident, or if you feel unwell, seek medical advice immediately (show label where possible).

CHEMICAL NAME	CAS #	EINECS #	% w/v	EU CLASSIFICATION FOR COMPONENTS
Alcohol Ethoxylate	68439-46-3	Unlisted	1-4%	HAZARD CLASSIFICATION: Not Applicable RISK PHRASES: Not Applicable
Proprietary Acrylic Polymer Mixture			1-4%	HAZARD CLASSIFICATION: Not Applicable RISK PHRASES: Not Applicable
Proprietary Phosphoric Acid Ester			1-4%	HAZARD CLASSIFICATION: Not Applicable RISK PHRASES: Not Applicable
Sodium Hydroxide	1310-73-2	215-185-5	1-4%	HAZARD CLASSIFICATION: C (Corrosive) RISK PHRASES: R: 35
Sodium Hypochlorite	7681-52-9	231-668-3	5-10%	HAZARD CLASSIFICATION: C (Corrosive); N (Dangerous for the Environment) RISK PHRASES: R: 31; R: 35; R: 50
Water	7732-18-5	231-791-2	Balance	HAZARD CLASSIFICATION: Not Applicable RISK PHRASES: Not Applicable

See Section 15 for full EU classification information of product and components.

NOTE: ALL Canadian WHMIS required information is included in appropriate sections based on the ANSI Z400.1-1998 format. This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR. The MSDS is also prepared to include all European Union required information under EU Directives.

### 3. HAZARD IDENTIFICATION

**EMERGENCY OVERVIEW: Product Description:** This product is a clear, colorless liquid with a chlorine odor. **Health Hazards:** The main hazard associated with overexposure to this product is the potential for moderate irritation of eyes, skin, and other contaminated tissue. **Flammability Hazards:** If involved in a fire, this product will produce sodium oxides and hydrogen chloride. **Reactivity Hazards:** This product is not reactive. **Environmental Hazards:** This can be harmful or fatal to contaminated plant, animal, and aquatic life. **Emergency Recommendations:** Emergency responders must wear the personal protective equipment suitable for the situation to which they are responding.

### 3. HAZARD IDENTIFICATION (Continued)

**SYMPTOMS OF OVEREXPOSURE BY ROUTE OF EXPOSURE:** The most significant routes of occupational overexposure are inhalation and contact with skin and eyes. The symptoms of overexposure to this product are described on the following page.

**INHALATION:** Inhalation of high concentrations of vapors, mists, or sprays of this product may moderately irritate the respiratory system. Symptoms of inhalation overexposure can include coughing, discomfort, sore throat, and difficulty breathing. Chronic inhalation of this product may cause chronic inflammation of upper respiratory tract or bronchitis.

**CONTACT WITH SKIN or EYES:** Skin contact can cause moderate irritation, depending on the duration and concentration of exposure. Symptoms of such overexposure may include redness, dryness, and itching. Repeated skin contact with this product may cause dermatitis (dry, red skin). Eye contact with this product can irritate contaminated eyes. Symptoms of eye contact can include pain, redness, and tearing. Prolonged eye contact may cause temporary tissue damage.

**SKIN ABSORPTION:** The components of this product are not known to be absorbed through intact skin.

**INGESTION:** Ingestion is not anticipated to be a significant route of exposure for any component of this product. If this product is swallowed, it may cause nausea, vomiting, diarrhea, and abdominal discomfort.



**INJECTION:** Injection of this product (as may occur if skin is punctured by a contaminated object) may cause pain, redness, and local swelling.

**HEALTH EFFECTS OR RISKS FROM EXPOSURE:** An Explanation in **Lay Terms**. In the event of overexposure, the following symptoms may be observed:

**ACUTE:** The primary acute health effect associated with this product is the potential for moderate irritation of contaminated eyes, skin, or other contaminated tissue. Ingestion overexposure may cause nausea, vomiting, diarrhea, and abdominal discomfort.

**CHRONIC:** Chronic inhalation of this product may cause chronic inflammation of upper respiratory tract or bronchitis. Repeated skin contact with this product may cause dermatitis (dry, red skin). See Section 11 (Toxicology Information) for additional data.

**TARGET ORGANS:** ACUTE: Skin, eyes, central nervous system. CHRONIC: Skin.

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM			
HEALTH HAZARD	(BLUE)	2	
FLAMMABILITY HAZARD	(RED)	0	
PHYSICAL HAZARD	(ORANGE)	0	
PROTECTIVE EQUIPMENT			
EYES	RESPIRATORY	HANDS	BODY
	SEE SECTION 8		SEE SECTION 8
For Routine Industrial Use and Handling Applications			

**See Section 16 for Definition of Ratings**

## PART II *What should I do if a hazardous situation occurs?*

### 4. FIRST-AID MEASURES

Contaminated individuals must be taken for medical attention. Rescuers should be taken for medical attention if necessary. Take a copy of label and MSDS to health professional with the contaminated individual.

**SKIN EXPOSURE:** If this product contaminates the skin, immediately begin decontamination with running water. Minimum flushing is for 15 minutes. Remove exposed or contaminated clothing, taking care not to contaminate eyes. The contaminated individual must seek immediate medical attention if any adverse health effect occurs.

**EYE EXPOSURE:** If this product's liquid or vapors enter the eyes, open the contaminated individual's eyes while under gently running water. Use sufficient force to open eyelids. Have the contaminated individual "roll" eyes. Minimum flushing is for 15 minutes. The contaminated individual must seek immediate medical attention.

**INHALATION:** If vapors, mists, or sprays of this product are inhaled, remove the contaminated individual to fresh air. If necessary, use artificial respiration to support vital functions. Remove or cover gross contamination to avoid exposure to rescuers.

**INGESTION:** If this product is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. If professional advice is not available, do not induce vomiting. Have victim rinse mouth with water if conscious. Never induce vomiting or give a diluent (e.g., water) to someone who is unconscious, having convulsions, or unable to swallow. If vomiting occurs, lean patient forward or place on left side (head-down position if possible) to maintain an open airway and prevent aspiration.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Preexisting dermatitis or other skin disorders may be aggravated by exposure to this product.

**RECOMMENDATIONS TO PHYSICIANS:** Treat symptoms and eliminate overexposure.

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## 5. FIRE-FIGHTING MEASURES

FLASH POINT: Not applicable.

AUTOIGNITION TEMPERATURE: Not determined.

FLAMMABLE LIMITS (in air by volume, %):

Lower (LEL): Not applicable.

Upper (UEL): Not applicable.

FIRE EXTINGUISHING MATERIALS:

Water Spray: YES

Foam: YES

Halon: YES

Carbon Dioxide: YES

Dry Chemical: YES

Other: Any "ABC" Class.

UNUSUAL FIRE AND EXPLOSION HAZARDS: This product is irritating and presents a moderate contact hazard to firefighters. When involved in a fire, this material may decompose and produce irritating vapors and toxic gases (e.g., sodium oxides and hydrogen chloride).

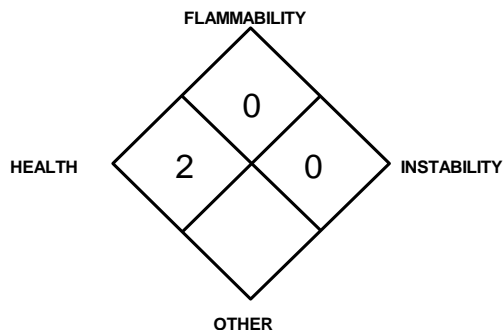
Explosion Sensitivity to Mechanical Impact: Not sensitive.

Explosion Sensitivity to Static Discharge: Not sensitive.

SPECIAL FIRE-FIGHTING PROCEDURES: Incipient fire responders

should wear eye protection. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. If possible, prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas. If necessary, rinse contaminated fire response equipment thoroughly with water before returning such equipment to service.

### NFPA RATING



**See Section 16 for  
Definition of Ratings**

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## 6. ACCIDENTAL RELEASE MEASURES

RELEASE RESPONSE: In case of a release, clear the affected area and protect people. Appropriately trained personnel in proper personal protective equipment, using pre-planned procedures should respond to uncontrolled releases. The proper personal protective equipment for incidental releases (e.g., 32-ounce container) should be rubber gloves and goggles. In the event that a cleanup will generate excessive splashes, goggles, boots, and chemical resistant body protection should also be worn. In the event of a non-incidental release (e.g., several 1-gallon containers released in a poorly ventilated area), minimum Personal Protective Equipment should be Level B: triple-gloves (rubber gloves and nitrile gloves over latex gloves), chemical resistant suit and boots, hard hat, and Self-Contained Breathing Apparatus. Absorb spilled liquid with polypads or other suitable absorbent materials. Decontaminate the area thoroughly. Place all spill residue in an appropriate container and seal.

Dispose of in accordance with U.S. Federal, State, and local hazardous waste disposal regulations and those of Canada and its Provinces and EU Member States (see Section 13, Disposal Considerations).

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## PART III *How can I prevent hazardous situations from occurring?*

### 7. HANDLING and STORAGE

WORK PRACTICES AND HYGIENE PRACTICES: As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing vapors or mists generated by this product. Use in a well-ventilated location. Remove contaminated clothing immediately.

STORAGE AND HANDLING PRACTICES: All employees who handle this material should be trained to handle it safely. Open containers slowly on a stable surface. Empty containers may contain residual amounts of this product; therefore, empty containers should be handled with care. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Store away from incompatible materials (see Section 10, Stability and Reactivity). Material should be stored in secondary containers. Keep container tightly closed when not in use. Inspect all incoming containers before storage to ensure containers are properly labeled and not damaged.

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain that application equipment is locked and tagged-out safely if necessary. Collect all rinsates and dispose of according to applicable U.S. Federal, State, or local procedures and those of Canada and its Provinces and those of EU Member States.

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### 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation to ensure exposure levels are maintained below the limits provided in Section 2 (Composition and Information on Ingredients) if applicable. Ensure eyewash/safety shower stations are available near areas where this product is used.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION (Continued)

### EXPOSURE LIMITS/GUIDELINES:

CHEMICAL NAME	CAS #	EXPOSURE LIMITS IN AIR									
		ACGIH-TLVs		OSHA-PELs		NIOSH-RELs		NIOSH	AIHA WEELs		OTHER
		TWA mg/m <sup>3</sup>	STEL mg/m <sup>3</sup>	TWA mg/m <sup>3</sup>	STEL mg/m <sup>3</sup>	TWA mg/m <sup>3</sup>	STEL mg/m <sup>3</sup>	IDLH mg/m <sup>3</sup>	TWA mg/m <sup>3</sup>	STEL mg/m <sup>3</sup>	mg/m <sup>3</sup>
Sodium Hypochlorite	7681-52-9	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Sodium Hydroxide	1310-73-2	NE	2 ceiling	NE	2 2 ceiling (vacated 1989 PEL)	NE	NE	NE	NE	NE	NIOSH REL: STEL = 2 (ceiling)
Water	7732-18-5	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE

NE = Not Established.

See Section 16 for Definitions of Terms Used.

**INTERNATIONAL OCCUPATIONAL EXPOSURE LIMITS:** In addition to the exposure limit values cited above, other exposure limits have been established by various countries for the components of this mixture, as provided below (no listing for a component indicates no values are available):

#### **SODIUM HYDROXIDE:**

Australia: TWA = 2 mg/m<sup>3</sup>, JAN 1993

Austria: MAK = 2 mg/m<sup>3</sup>, JAN 1999

Belgium: STEL = 2 mg/m<sup>3</sup>, JAN 1993

Denmark: TWA = 2 mg/m<sup>3</sup>, JAN 1999

Finland: TWA = 2 mg/m<sup>3</sup>, JAN 1999

Germany: MAK = 2 mg/m<sup>3</sup>, JAN 1999

Japan: OEL(C) = 2 mg/m<sup>3</sup>, JAN 1999

The Netherlands: MAC-TGG = 2 mg/m<sup>3</sup>, JAN 1999

#### **SODIUM HYDROXIDE (continued):**

Norway: TWA = 2 mg/m<sup>3</sup>, JAN 1999

The Philippines: TWA = 2 mg/m<sup>3</sup>, JAN 1993

Sweden: TGV = 2 mg/m<sup>3</sup>, JAN 1999

Switzerland: MAK-W = 2 mg/m<sup>3</sup>, KZG-W = 4 mg/m<sup>3</sup>, JAN 1999

Thailand: TWA = 2 mg/m<sup>3</sup>, JAN 1993

Turkey: TWA = 2 mg/m<sup>3</sup>, JAN 1993

United Kingdom: STEL 2 mg/m<sup>3</sup>, SEP 2000

In Argentina, Bulgaria, Colombia, Jordan, Korea, New Zealand, Singapore, Vietnam, New Zealand, Singapore, Vietnam check ACGIH TLV

**RESPIRATORY PROTECTION:** Maintain airborne contaminant concentrations below exposure limits listed above, if applicable. If respiratory protection is needed, use only protection authorized in the U.S. Federal OSHA Standard (29 CFR 1910.134), applicable U.S. State regulations, the Canadian CSA Standard Z94.4-93, the European Standard EN149, or Standards of EU member states. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998). The following are NIOSH respiratory protection equipment guidelines for the Sodium Hydroxide component.

#### **SODIUM HYDROXIDE**

##### **CONCENTRATION**

UP TO 10 mg/m<sup>3</sup>:

##### **RESPIRATORY PROTECTION**

Any Supplied-Air Respirator (SAR) operated in a continuous-flow mode, or any Air-Purifying, Full-Facepiece Respirator with a high-efficiency particulate filter, or any Powered, Air-Purifying Respirator (PAPR) with a dust and mist filter, or any Self-Contained Breathing Apparatus (SCBA) with a full facepiece, or any SAR with a full facepiece.

Emergency or Planned Entry Into Unknown Concentrations or IDLH Conditions: Any SCBA that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode, or any SAR that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary SCBA operated in pressure-demand or other positive-pressure mode.

Escape: Any Air-Purifying, Full-Facepiece Respirator with a high-efficiency particulate filter, or any appropriate escape-type, SCBA.

**EYE PROTECTION:** Splash goggles or safety glasses. Face-shields should be worn if operations will generate splashes or sprays. If necessary, refer to U.S. OSHA 29 CFR 1910.133, Canadian Standards, or the European Standard EN166.

**HAND PROTECTION:** Wear Nitrile rubber, Polyethylene, Viton™ gloves (resistance to breakthrough longer than 8 hours when tested against a similar petroleum substance) for routine industrial use. Natural rubber and butyl rubber gloves are not recommended. Resistance of specific materials can vary from product to product. Evaluate resistance under conditions of use and maintain clothing carefully. Use triple gloves for spill response, as stated in Section 6 (Accidental Release Measures) of this MSDS. If necessary, refer to U.S. OSHA 29 CFR 1910.138, appropriate Standards of Canada, or appropriate Standards of the European Union.

**BODY PROTECTION:** If operations will generate splashes or sprays, use body protection appropriate for task (e.g., coveralls or apron). If necessary, refer to appropriate Standards of Canada or the European Union. If a hazard of injury to the feet exists due to falling objects, rolling objects, where objects may pierce the soles of the feet or where employee's feet may be exposed to electrical hazards, use foot protection, as described in U.S. OSHA 29 CFR 1910.136.



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## 9. PHYSICAL and CHEMICAL PROPERTIES

RELATIVE VAPOR DENSITY (air = 1): Not determined.

SPECIFIC GRAVITY (water = 1): 1.02

SOLUBILITY IN WATER: Completely soluble.

VAPOR PRESSURE, mm Hg @ 20°C (68°F): Not determined.

ODOR THRESHOLD: Not determined.

COEFFICIENT OF OIL/WATER DISTRIBUTION (PARTITION COEFFICIENT): Not available.

APPEARANCE, ODOR and COLOR: This product is a clear, colorless liquid with a chlorine odor.

HOW TO DETECT THIS SUBSTANCE (warning properties): The odor may act as a distinguishing characteristic.

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## 10. STABILITY and REACTIVITY

STABILITY: Normally stable.

DECOMPOSITION PRODUCTS: Thermal decomposition may produce irritating vapors and toxic gases (e.g., sodium oxides and hydrogen chlorides).

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: This product is not compatible with amines, ammonium acetate, ammonium carbonate, ammonium nitrate, ammonium oxalate, ammonium phosphate, cellulose, and ethyleneimine, strong acids, reducing agents, amines, and ammonia salts.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Avoid exposure to or contact with extreme temperatures and incompatible chemicals.

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## PART IV *Is there any other useful information about this material?*

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### 11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: The specific toxicology data available for components greater than 1% in concentration are as follows.

#### **ALCOHOL, C9-11, ETHOXYLATED:**

LD<sub>50</sub> (Oral-Rat) 1378 mg/kg: Behavioral: somnolence (general depressed activity), ataxia; Gastrointestinal: hypermotility, diarrhea

LD<sub>50</sub> (Skin-Rat) > 2 gm/kg: Behavioral: somnolence (general depressed activity), ataxia; Gastrointestinal: hypermotility, diarrhea

TDLo (Skin-Rat) 1950 mg/kg/13 weeks-intermittent: Nutritional and Gross Metabolic: weight loss or decreased weight gain, changes in phosphorus, changes in potassium

#### **SODIUM HYDROXIDE:**

Eye Irritancy (monkey) = 1%/24 hours; severe  
Skin Irritancy (rabbit) = 500 mg/24 hours; severe  
Eye Irritancy (rabbit) = 400 µg; mild  
Eye Irritancy (rabbit) = 1%; severe  
Eye Irritancy (rabbit) = 50 µg/24 hours; severe  
Eye Irritancy (rabbit) = 1 mg/24 hours; severe  
Eye Irritancy (rabbit) = 1 mg/30 seconds/rinsed; severe

LD<sub>50</sub> (Intraperitoneal, mouse) = 40 mg/kg

LDLo (oral, rabbit) = 500 mg/kg

Cytogenetic Analysis (parenteral, grasshopper) = 20 mg

Cytogenetic Analysis (lung, hamster) = 10 mmol/L

Cytogenetic Analysis (hamster) = 16 mmol/L

#### **PROPRIETARY ACRYLIC POLYMER MIXTURE**

LD<sub>50</sub> (Oral-Rat) > 5000 mg/kg;

LD<sub>50</sub> (Skin-Rabbit) > 5000 mg/kg;

SUSPECTED CANCER AGENT: The components of this product are not found on the following lists: FEDERAL OSHA Z LIST, NTP, IARC, and CAL/OSHA and therefore are neither considered to be nor suspected to be cancer-causing agents by these agencies.

IRRITANCY OF PRODUCT: This product can moderately irritate eyes, skin, and other contaminated tissue.

SENSITIZATION TO THE PRODUCT: The components of this product are not known to be skin or respiratory sensitizers.

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of this product and its components on the human reproductive system.

Mutagenicity: The components of this product are not reported to cause mutagenic effects in humans. Animal mutation data are available for the Sodium Hydroxide component of this product; these data were obtained during clinical studies on specific animal tissues exposed to high doses of this compound.

EVAPORATION RATE (n-BuAc = 1): Similar to water.

MELTING/FREEZING POINT: Not determined.

BOILING POINT: 100°C (212°F)

pH: 12.5-13.

#### **SODIUM HYPOCHLORITE:**

Standard Draize (Skin-Human) 4%/48 hours  
Standard Draize (Eye-Rabbit) 10 mg Moderate  
Standard Draize (Eye-Rabbit) 1.31 mg Mild

TDLo (Oral-Woman) 1 gm/kg: Behavioral: somnolence (general depressed activity); Vascular: BP lowering not characterized in autonomic section; Skin and Appendages: corrosive (after topical exposure)

LD<sub>50</sub> (Oral-mouse) 5800 mg/kg: Behavioral: changes in motor activity (specific assay); Gastrointestinal: other changes

TDLo (Intravenous-Man) 45 mg/kg: Lungs, Thorax, or Respiration: other changes; Gastrointestinal: nausea or vomiting

TDLo (Intraperitoneal-Rat) 65.12 µg/kg: Lungs, Thorax, or Respiration: respiratory depression; Skin and Appendages: cutaneous sensitization, experimental (after topical exposure); Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: phosphatases

TDLo (Oral-Rat) 140 mg/kg/9 weeks-continuous: Endocrine: changes in spleen weight; Immunological Including Allergic: decrease in cellular immune response; Biochemical: Metabolism (Intermediary): lipids including transport

TDLo (Intraperitoneal-Rat) 47.96 mg/kg/11 days-intermittent: Blood: tumors; Immunological Including Allergic: autoimmune

#### **SODIUM HYPOCHLORITE (continued):**

TDLo (Intraperitoneal-Rat) 26.05 mg/kg/7 days-intermittent: Blood: tumors; Immunological Including Allergic: autoimmune

TDLo (Intraperitoneal-Rat) 26.05 mg/kg/9 days-intermittent: Blood: tumors; Immunological Including Allergic: autoimmune

Mutation in Microorganisms (Bacteria-*Salmonella typhimurium*) 1 mg/plate

DNA Repair (Bacteria-*Escherichia coli*) 20 µg/disc

DNA Damage (Bacteria-*Escherichia coli*) 420 µmol/L

DNA Damage (Non-Mammalian Species-Cells-Not Otherwise Specified) 10 mg/L/1n hour

DNA Damage (Multiple Routes Fish-Not Otherwise Specified) 1.24 mg/L/3 hours

Phage Inhibition Capacity (Bacteria-*Escherichia coli*) 103 µg/well

Micronucleus Test (Multiple Routes-Non-Mammalian Species) 200 ppb

Micronucleus Test (Multiple Routes-Fish-Not Otherwise Specified) 0.55 mg/L/20 days-continuous

Cytogenetic Analysis (Multiple Routes-Non-Mammalian Species) 120 µg/L

Cytogenetic Analysis (Human-Lymphocyte) 100 ppm/24 hours

Cytogenetic Analysis (Hamster-Lung) 100 mg/L  
Sister Chromatid Exchange (Human-Embryo) 149 mg/L

## 11. TOXICOLOGICAL INFORMATION (Continued)

### REPRODUCTIVE TOXICITY INFORMATION (continued):

Embryotoxicity: The components of this product are not reported to cause embryotoxic effects in humans.

Teratogenicity: The components of this product are not reported to cause teratogenic effects in humans.

Reproductive Toxicity: The components of this product are not reported to cause adverse reproductive effects in humans.

A mutagen is a chemical that causes permanent changes to genetic material (DNA) such that the changes will propagate through generational lines. An embryotoxin is a chemical that causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical that causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance that interferes in any way with the reproductive process.

BIOLOGICAL EXPOSURE INDICES: Currently, there are no Biological Exposure Indices (BEIs) determined for the components of this product.

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## 12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

ENVIRONMENTAL STABILITY: The components of this product are relatively stable under ambient, environmental conditions. Additional environmental data are available for components of this product, as follows:

### SODIUM HYDROXIDE:

Water solubility = 9 g/0.9 mL water. BOD: None.

Octanol/Water Partition Coefficient: SRP4: Too low to be measured (or possibly virtually 0)

Persistence: Can persist for extended periods of time.

EFFECT OF MATERIAL ON PLANTS or ANIMALS: This product may be harmful or fatal to contaminated plant and animal life (especially if large quantities are released).

EFFECT OF CHEMICAL ON AQUATIC LIFE: This solution is designed to be toxic to certain forms of marine life; High concentrations of this solution may be detrimental to any aquatic environment. The following ecotoxicity data are available for the components of this product.

### SODIUM HYDROXIDE:

Acute Hazard Level:

Lethal pH (goldfish) = 10.9

Lethal pH (bluegill) = 10.5

### SODIUM HYDROXIDE (continued):

LC<sub>100</sub> (*Cyprinus carpio*) 24 hours = 180 ppm/ 25°C

TL<sub>m</sub> (mosquito fish) 96 hours = 125 ppm/ fresh water

TL<sub>m</sub> (bluegill) 48 hours = 99 mg/L/ tap water

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## 13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate Federal, State, and local regulations. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority.

EPA WASTE NUMBER: Not applicable to wastes consisting only of this product.

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## 14. TRANSPORTATION INFORMATION

THIS PRODUCT IS NOT HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION. This product has been tested and was found to NOT meet the shipping classification of Corrosive, per DOT criteria.

PROPER SHIPPING NAME: Not Regulated

HAZARD CLASS NUMBER and DESCRIPTION: Not Applicable

UN IDENTIFICATION NUMBER: Not Applicable

PACKING GROUP: Not Applicable

DOT LABEL(S) REQUIRED: Not Applicable

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER, 2004: Not Applicable

MARINE POLLUTANT: No component of this product is listed as a Marine Pollutant, per Appendix B to 49 CFR 172.101

TRANSPORT CANADA, TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: This product is NOT considered as Dangerous Goods, per regulations of Transport Canada.

INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA): This product is NOT considered as dangerous goods under rules of IATA.

INTERNATIONAL MARITIME ORGANIZATION (IMO) DESIGNATION: This product is NOT considered as Dangerous Goods by the International Maritime Organization.

EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD (ADR): This product is NOT regulated as Dangerous Goods by the United Nations Economic Commission for Europe to be dangerous goods.

## 15. REGULATORY INFORMATION

### ADDITIONAL U.S. REGULATIONS:

U.S. SARA REPORTING REQUIREMENTS: The components of this product are not subject to the reporting requirements of Sections 302, 304, and 313 of Title III of the Superfund Amendments and Reauthorization Act.

CHEMICAL NAME	SARA 302 (40 CFR 355, Appendix A)	SARA 304 (40 CFR Table 302.4)	SARA 313 (40 CFR 372.65)
Sodium Hydroxide	No	Yes	No
Sodium Hypochlorite	No	Yes	No

U.S. SARA THRESHOLD PLANNING QUANTITY: There are no specific Threshold Planning Quantities for any component of this product. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lbs. (4,540 kg) therefore applies, per 40 CFR 370.20.

U.S. CERCLA REPORTABLE QUANTITY (RQ): Sodium Hydroxide = 1000 lb (454 kg); Sodium Hypochlorite = 100 lb (45.4 kg).

U.S. TSCA INVENTORY STATUS: The components of this product are listed on the TSCA Inventory.

OTHER U.S. FEDERAL REGULATIONS: Not applicable.

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): No component of this product is on the California Proposition 65 lists.

LABELING (Precautionary Statements) ANSI LABELING (Z129.1): **CAUTION!** MODERATELY IRRITATES SKIN, EYES, AND RESPIRATORY TRACT. Avoid contact with skin or eyes. Avoid breathing vapors or mists. Do not taste or swallow. Wash thoroughly after handling. Wear gloves and goggles. Wear appropriate body protection and face-shield if operations will involve splashes or sprays. **FIRST-AID:** In case of contact with skin or eyes, flush immediately with plenty of water for at least 15 minutes. If inhaled, remove to fresh air. If ingested, do not induce vomiting. Get medical attention. **IN CASE OF FIRE:** Use water fog, dry chemical, CO<sub>2</sub>, or "alcohol" foam. **IN CASE OF SPILL:** Absorb spill with inert material and place in suitable container. Consult Material Safety Data Sheet for additional information.

### ADDITIONAL CANADIAN REGULATIONS:

CANADIAN DSL/NDL INVENTORY STATUS: The components of this product are listed on the DSL Inventory.

OTHER CANADIAN REGULATIONS: Not applicable.

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS: The components of this product are not on the CEPA Priority Substances Lists.

CANADIAN WHMIS CLASSIFICATION and SYMBOLS: Not applicable.

### EUROPEAN UNION INFORMATION FOR PRODUCT:

EU LABELING AND CLASSIFICATION: This product meets the following definitions, per the European Union Council Directives.

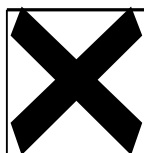
EU CLASSIFICATION: [Xi] Irritating. [N]: Dangerous for the Environment

EU RISK PHRASES: [R: 36/37/38]: Irritating to eyes, skin and respiratory system. [R: 51]: Toxic to aquatic organisms.

EU SAFETY PHRASES: [S: 1/2]: Keep out of the reach of children. (*This safety phrase can be omitted from the label when the substance or preparation is sold for industrial use only*). [S: 22]: In case of contact with eyes, rinse immediately with plenty of water.

[S: 45]: In case of accident, or if you feel unwell, seek medical advice immediately (show label where possible).

EUROPEAN UNION ANNEX II HAZARD SYMBOL:



EUROPEAN UNION INFORMATION FOR CONSTITUENTS: The following information is available for primary constituents in the components of this product.

#### Alcohol Ethoxylate:

EU EINECS/ELINCS NUMBER: Unlisted

EU CLASSIFICATION: An official classification for this substance has not been published in Commission Directives 93/72/EEC, 94/69EC, or 96/54EC.

#### Sodium Hydroxide:

EU EINECS/ELINCS NUMBER: 215-185-5

EU CLASSIFICATION: [C]: Corrosive

EU RISK PHRASES: [R: 35]: Causes severe burns.

EU SAFETY PHRASES: [S: 1/2-]: Keep out of the reach of children. (*This safety phrase can be omitted from the label when the substance or preparation is sold for industrial use only*). [S: 26]: In case of contact with eyes, rinse immediately with plenty of water and see medical advice. [S: 37/39]: Wear suitable gloves and eye/face protection. [S: 45]: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

## EUROPEAN UNION INFORMATION FOR CONSTITUENTS (continued):

### **Sodium Hypochlorite:**

**EU EINECS/ELINCS NUMBER:** 231-668-3

**EU CLASSIFICATION:** [C]: Corrosive; [N]: Dangerous for the Environment

**EU RISK PHRASES:** [R: 31]: Contact with acids liberates toxic gas. [R: 34]: Causes severe burns. [R: 50]: Very toxic to aquatic organisms.

**EU SAFETY PHRASES:** [S: 1/2-]: Keep out of the reach of children. (*This safety phrase can be omitted from the label when the substance or preparation is sold for industrial use only*). [S: 28]: After contact with skin, rinse immediately with plenty of water and see medical advice. [S: 45]: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). [S: 50]: Do not mix with acids. [S: 61]: Avoid release to the environment. Refer to special instructions/Safety data sheets.

## DATE OF PRINTING:

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. Star Brite assumes no responsibility for injury to the vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, Star Brite assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his use of the material.

## DEFINITIONS OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. Some of these which are commonly used include the following:

**CAS #:** This is the Chemical Abstract Service Number that uniquely identifies each constituent.

### **EXPOSURE LIMITS IN AIR:**

**CEILING LEVEL:** The concentration that shall not be exceeded during any part of the working exposure.

**LOQ:** Limit of Quantitation.

**MAK:** Federal Republic of Germany Maximum Concentration Values in the workplace.

**NE:** Not Established. When no exposure guidelines are established, an entry of NE is made for reference.

**NIC:** Notice of Intended Change.

**NIOSH CEILING:** The exposure that shall not be exceeded during any part of the workday. If instantaneous monitoring is not feasible, the ceiling shall be assumed as a 15-minute TWA exposure (unless otherwise specified) that shall not be exceeded at any time during a workday.

**NIOSH RELs:** NIOSH's Recommended Exposure Limits.

**PEL-Permissible Exposure Limit:** OSHA's Permissible Exposure Limits. This exposure value means exactly the same as a TLV, except that it is enforceable by OSHA. The OSHA Permissible Exposure Limits are based in the 1989 PELs and the June, 1993 Air Contaminants Rule (Federal Register: 58: 35338-35351 and 58: 40191). Both the current PELs and the vacated PELs are indicated. The phrase, "Vacated 1989 PEL," is placed next to the PEL that was vacated by Court Order.

**SKIN:** Used when there is a danger of cutaneous absorption.

### **EXPOSURE LIMITS IN AIR (continued):**

**STEL-Short Term Exposure Limit:** Short Term Exposure Limit, usually a 15-minute time-weighted average (TWA) exposure that should not be exceeded at any time during a workday, even if the 8-hr TWA is within the TLV-TWA, PEL-TWA or REL-TWA.

**TLV-Threshold Limit Value:** An airborne concentration of a substance that represents conditions under which it is generally believed that nearly all workers may be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour.

**TWA-Time Weighted Average:** Time Weighted Average exposure concentration for a conventional 8-hr (TLV, PEL) or up to a 10-hr (REL) workday and a 40-hr workweek.

**IDLH-Immediately Dangerous to Life and Health:** This level represents a concentration from which one can escape within 30-minutes without suffering escape-preventing or permanent injury.

**HAZARDOUS MATERIALS IDENTIFICATION SYSTEM HAZARD RATINGS:** This rating system was developed by the National Paint and Coating Association and has been adopted by industry to identify the degree of chemical hazards.

## HAZARDOUS MATERIALS IDENTIFICATION SYSTEM HAZARD RATINGS (continued):

### **HEALTH HAZARD:**

**0 (Minimal Hazard):** No significant health risk, irritation of skin or eyes not anticipated. *Skin Irritation:* Essentially non-irritating. PII or Draize = "0". *Eye Irritation:* Essentially non-irritating, or minimal effects which clear in < 24 hours [e.g. mechanical irritation]. Draize = "0". *Oral Toxicity LD<sub>50</sub> Rat* < 5000 mg/kg. *Dermal Toxicity LD<sub>50</sub>Rat or Rabbit* < 2000 mg/kg. *Inhalation Toxicity 4-hrs LC<sub>50</sub> Rat* < 20 mg/L; **1 (Slight Hazard):** Minor reversible injury may occur; slightly or mildly irritating. *Skin Irritation:* Slightly or mildly irritating. *Eye Irritation:* Slightly or mildly irritating. *Oral Toxicity LD<sub>50</sub> Rat* > 500-5000 mg/kg. *Dermal Toxicity LD<sub>50</sub>Rat or Rabbit* > 1000-2000 mg/kg. *Inhalation Toxicity LC<sub>50</sub> 4-hrs Rat* > 2-20 mg/L; **2 (Moderate Hazard):** Temporary or transitory injury may occur. *Skin Irritation:* Moderately irritating; primary irritant; sensitizer. PII or Draize > 0, < 5. *Eye Irritation:* Moderately to severely irritating and/or corrosive; reversible corneal opacity; corneal involvement or irritation clearing in 8-21 days. Draize > 0, ≤ 25. *Oral Toxicity LD<sub>50</sub> Rat* > 50-500 mg/kg. *Dermal Toxicity LD<sub>50</sub>Rat or Rabbit* > 200-1000 mg/kg. *Inhalation Toxicity LC<sub>50</sub> 4-hrs Rat* > 0.5-2 mg/L; **3 (Serious Hazard):** Major injury likely unless prompt action is taken and medical treatment is given; high level of toxicity; corrosive. *Skin Irritation:* Severely irritating and/or corrosive; may destroy dermal tissue, cause skin burns, dermal necrosis. PII or Draize > 5-8 with destruction of tissue. *Eye Irritation:* Corrosive, irreversible destruction of ocular tissue; corneal involvement or irritation persisting for more than 21 days. Draize > 80 with effects irreversible in 21 days. *Oral Toxicity LD<sub>50</sub> Rat* > 1-50 mg/kg. *Dermal Toxicity LD<sub>50</sub>Rat or Rabbit* > 20-200 mg/kg. *Inhalation Toxicity LC<sub>50</sub> 4-hrs Rat* > 0.05-0.5 mg/L; **4 (Severe Hazard):** Life-threatening; major or permanent damage may result from single or repeated exposure. *Skin Irritation:* Not appropriate. Do not rate as a "4", based on skin irritation alone. *Eye Irritation:* Not appropriate. Do not rate as a "4", based on eye irritation alone. *Oral Toxicity LD<sub>50</sub> Rat* ≤ 1 mg/kg. *Dermal Toxicity LD<sub>50</sub>Rat or Rabbit* ≤ 20 mg/kg. *Inhalation Toxicity LC<sub>50</sub> 4-hrs Rat* ≤ 0.05 mg/L.

### **FLAMMABILITY HAZARD:**

**0 (Minimal Hazard):** Materials that will not burn in air when exposure to a temperature of 815.5°C [1500°F] for a period of 5 minutes.; **1 (Slight Hazard):** Materials that must be pre-heated before ignition can occur. Material require considerable pre-heating, under all ambient temperature conditions before ignition and combustion can occur, Including: Materials that will burn in air when exposed to a temperature of 815.5°C (1500°F) for a period of 5 minutes or less; Liquids, solids and semisolids having a flash point at or above 93.3°C [200°F] (e.g. OSHA Class IIIB, or; Most ordinary combustible materials [e.g. wood, paper, etc.];

## DEFINITIONS OF TERMS (Continued)

### HAZARDOUS MATERIALS IDENTIFICATION SYSTEM HAZARD RATINGS (continued):

#### FLAMMABILITY HAZARD (continued):

**2** (Moderate Hazard-Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur. Materials in this degree would not, under normal conditions, form hazardous atmospheres in air, but under high ambient temperatures or moderate heating may release vapor in sufficient quantities to produce hazardous atmospheres in air, including: Liquids having a flash-point at or above 37.8°C [100°F]; Solid materials in the form of course dusts that may burn rapidly but that generally do not form explosive atmospheres; Solid materials in a fibrous or shredded form that may burn rapidly and create flash fire hazards (e.g. cotton, sisal, hemp; Solids and semisolids that readily give off flammable vapors.); **3** (Serious Hazard- Liquids and solids that can be ignited under almost all ambient temperature conditions. Materials in this degree produce hazardous atmospheres with air under almost all ambient temperatures, or, unaffected by ambient temperature, are readily ignited under almost all conditions, including: Liquids having a flash point below 22.8°C [73°F] and having a boiling point at or above 38°C [100°F] and below 37.8°C [100°F] [e.g. OSHA Class IB and IC]; Materials that on account of their physical form or environmental conditions can form explosive mixtures with air and are readily dispersed in air [e.g., dusts of combustible solids, mists or droplets of flammable liquids]; Materials that burn extremely rapidly, usually by reason of self-contained oxygen [e.g. dry nitrocellulose and many organic peroxides]); **4** (Severe Hazard-Materials that will rapidly or completely vaporize at atmospheric pressure and normal ambient temperature or that are readily dispersed in air, and which will burn readily, including: Flammable gases; Flammable cryogenic materials; Any liquid or gaseous material that is liquid while under pressure and has a flash point below 22.8°C [73°F] and a boiling point below 37.8°C [100°F] [e.g. OSHA Class IA; Material that ignite spontaneously when exposed to air at a temperature of 54.4°C [130°F] or below [e.g. pyrophoric]).

#### PHYSICAL HAZARD:

**0** (*Water Reactivity*: Materials that do not react with water. *Organic Peroxides*: Materials that are normally stable, even under fire conditions and will not react with water. *Explosives*: Substances that are Non-Explosive. *Unstable Compressed Gases*: No Rating. *Pyrophorics*: No Rating. *Oxidizers*: No "0" rating allowed. *Unstable Reactives*: Substances that will not polymerize, decompose, condense or self-react.); **1** (*Water Reactivity*: Materials that change or decompose upon exposure to moisture. *Organic Peroxides*: Materials that are normally stable, but can become unstable at high temperatures and pressures. These materials may react with water, but will not release energy. *Explosives*: Division 1.5 & 1.6 substances that are very insensitive explosives or that do not have a mass explosion hazard. *Compressed Gases*: Pressure below OSHA definition. *Pyrophorics*: No Rating. *Oxidizers*: Packaging Group III; *Solids*: any material that in either concentration tested, exhibits a mean burning time less than or equal to the mean burning time of a 3:7 potassium bromate/cellulose mixture and the criteria for Packing Group I and II are not met. *Liquids*: any material that exhibits a mean pressure rise time less than or equal to the pressure rise time of a 1:1 nitric acid (65%)/cellulose mixture and the criteria for Packing Group I and II are not met. *Unstable Reactives*: Substances that may decompose, condense or self-react, but only under conditions of high temperature and/or pressure and have little or no potential to cause significant heat generation or explosive hazard. Substances that readily undergo hazardous polymerization in the absence of inhibitors.); **2** (*Water Reactivity*: Materials that may react violently with water. *Organic Peroxides*: Materials that, in themselves, are normally unstable and will readily undergo violent chemical change, but will not detonate. These materials may also react violently with water. *Explosives*: Division 1.4 – Explosive substances where the explosive effect are largely confined to the package and no projection of fragments of appreciable size or range are expected. An external fire must not cause virtually instantaneous explosion of almost the entire contents of the package. *Compressed Gases*: Pressurized and meet OSHA definition but < 514.7 psi absolute at 21.1°C (70°F) [500 psig]. *Pyrophorics*: No Rating. *Oxidizers*: Packaging Group II *Solids*: any material that, either in concentration tested, exhibits a mean burning time of less than or equal to the mean burning time of a 2:3 potassium bromate/cellulose mixture and the criteria for Packing Group I are not met. *Liquids*: any material that exhibits a mean pressure rise time less than or equal to the pressure rise of a 1:1 aqueous sodium chlorate solution (40%)/cellulose mixture and the criteria for Packing Group I are not met.

### HAZARDOUS MATERIALS IDENTIFICATION SYSTEM HAZARD RATINGS (continued):

**2** (*continued*): *Unstable Reactives*: Substances that may polymerize, decompose, condense, or self-react at ambient temperature and/or pressure, but have a low potential for significant heat generation or explosion. Substances that readily form peroxides upon exposure to air or oxygen at room temperature); **3** (*Water Reactivity*: Materials that may form explosive reactions with water. *Organic Peroxides*: Materials that are capable of detonation or explosive reaction, but require a strong initiating source, or must be heated under confinement before initiation; or materials that react explosively with water. *Explosives*: Division 1.2 – Explosive substances that have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but do not have a mass explosion hazard. *Compressed Gases*: Pressure  $\geq$  514.7 psi absolute at 21.1°C (70°F) [500 psig]. *Pyrophorics*: No Rating. *Oxidizers*: Packing Group I *Solids*: any material that, in either concentration tested, exhibits a mean burning time less than the mean burning time of a 3:2 potassium bromate/cellulose mixture. *Liquids*: Any material that spontaneously ignites when mixed with cellulose in a 1:1 ratio, or which exhibits a mean pressure rise time less than the pressure rise time of a 1:1 perchloric acid (50%)/cellulose mixture. *Unstable Reactives*: Substances that may polymerize, decompose, condense or self-react at ambient temperature and/or pressure and have a moderate potential to cause significant heat generation or explosion.); **4** (*Water Reactivity*: Materials that react explosively with water without requiring heat or confinement. *Organic Peroxides*: Materials that are readily capable of detonation or explosive decomposition at normal temperature and pressures. *Explosives*: Division 1.1 & 1.2-explosive substances that have a mass explosion hazard or have a projection hazard. A mass explosion is one that affects almost the entire load instantaneously. *Compressed Gases*: No Rating. *Pyrophorics*: Add to the definition of Flammability "4". *Oxidizers*: No "4" rating. *Unstable Reactives*: Substances that may polymerize, decompose, condense or self-react at ambient temperature and/or pressure and have a high potential to cause significant heat generation or explosion.)

### NATIONAL FIRE PROTECTION ASSOCIATION HAZARD RATINGS:

HEALTH HAZARD: **0** (material that on exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials); **1** (materials that on exposure under fire conditions could cause irritation or minor residual injury); **2** (materials that on intense or continued exposure under fire conditions could cause temporary incapacitation or possible residual injury); **3** (materials that can on short exposure could cause serious temporary or residual injury); **4** (materials that under very short exposure could cause death or major residual injury).

FLAMMABILITY HAZARD: **0** Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand. **1** Materials that must be preheated before ignition can occur. Materials in this degree require considerable preheating, under all ambient temperature conditions, before ignition and combustion can occur. **2** Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur. Materials in this degree would not under normal conditions form hazardous atmospheres with air, but under high ambient temperatures or under moderate heating could release vapor in sufficient quantities to produce hazardous atmospheres with air. **3** Liquids and solids that can be ignited under almost all ambient temperature conditions. Materials in this degree produce hazardous atmospheres with air under almost all ambient temperatures or, though unaffected by ambient temperatures, are readily ignited under almost all conditions. **4** Materials that will rapidly or completely vaporize at atmospheric pressure and normal ambient temperature or that are readily dispersed in air and will burn readily.

INSTABILITY HAZARD: **0** Materials that in themselves are normally stable, even under fire conditions. **1** Materials that in themselves are normally stable, but that can become unstable at elevated temperatures and pressures. **2** Materials that readily undergo violent chemical change at elevated temperatures and pressures. **3** Materials that in themselves are capable of detonation or explosive decomposition or explosive reaction, but that require a strong initiating source or that must be heated under confinement before initiation. **4** Materials that in themselves are readily capable of detonation or explosive decomposition or explosive reaction at normal temperatures and pressures.

## DEFINITIONS OF TERMS (Continued)

**FLAMMABILITY LIMITS IN AIR:** Much of the information related to fire and explosion is derived from the **National Fire Protection Association (NFPA)**. **Flash Point** - Minimum temperature at which a liquid gives off sufficient vapors to form an ignitable mixture with air. **Autoignition Temperature:** The minimum temperature required to initiate combustion in air with no other source of ignition. **LEL** - the lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. **UEL** - the highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.

### **ECOLOGICAL INFORMATION:**

EC is the effect concentration in water. **BCF** = Bioconcentration Factor, which is used to determine if a substance will concentrate in lifeforms which consume contaminated plant or animal matter. **TL<sub>m</sub>** = median threshold limit; Coefficient of Oil/Water Distribution is represented by **log K<sub>ow</sub>** or **log K<sub>oc</sub>** and is used to assess a substance's behavior in the environment.

### **TOXICOLOGICAL INFORMATION:**

**Human and Animal Toxicology:** Possible health hazards as derived from human data, animal studies, or from the results of studies with similar compounds are presented. Definitions of some terms used in this section are: **LD<sub>50</sub>** - Lethal Dose (solids & liquids) which kills 50% of the exposed animals; **LC<sub>50</sub>** - Lethal Concentration (gases) which kills 50% of the exposed animals; **ppm** concentration expressed in parts of material per million parts of air or water; **mg/m<sup>3</sup>** concentration expressed in weight of substance per volume of air; **mg/kg** quantity of material, by weight, administered to a test subject, based on their body weight in kg. Other measures of toxicity include **TDLo**, the lowest dose to cause a symptom and **TCLo** the lowest concentration to cause a symptom; **TDo**, **LDLo**, and **LDo**, or **TC**, **TCo**, **LCLo**, and **LCo**, the lowest dose (or concentration) to cause lethal or toxic effects. **Cancer Information:** The sources are: **IARC** - the International Agency for Research on Cancer; **NTP** - the National Toxicology Program, **RTECS** - the Registry of Toxic Effects of Chemical Substances, **OSHA** and **CAL/OSHA**. IARC and NTP rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1 to 4. Subrankings (2A, 2B, etc.) are also used. **Other Information:** **BEI** - ACGIH Biological Exposure Indices, represent the levels of determinants which are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV.

### **REGULATORY INFORMATION:**

#### **U.S. and CANADA:**

**ACGIH:** American Conference of Governmental Industrial Hygienists, a professional association which establishes exposure limits.

This section explains the impact of various laws and regulations on the material. **EPA** is the U.S. Environmental Protection Agency. **NIOSH** is the National Institute of Occupational Safety and Health, which is the research arm of the U.S. Occupational Safety and Health Administration (**OSHA**). **WHMIS** is the Canadian Workplace Hazardous Materials Information System. **DOT** and **TC** are the U.S. Department of Transportation and the Transport Canada, respectively. Superfund Amendments and Reauthorization Act (**SARA**); the Canadian Domestic/Non-Domestic Substances List (**DSL/NDL**); the U.S. Toxic Substance Control Act (**TSCA**); Marine Pollutant status according to the **DOT**; the Comprehensive Environmental Response, Compensation, and Liability Act (**CERCLA or Superfund**); and various state regulations. This section also includes information on the precautionary warnings which appear on the material's package label. **OSHA** - U.S. Occupational Safety and Health Administration.

#### **EUROPEAN and INTERNATIONAL:**

**The DFG:** This is the Federal Republic of Germany's Occupation Health Agency, similar to the U.S. OSHA. **EU** is the European Union (formerly known as the **EEC**, European Economic Community). **EINECS:** This is the European Inventory of Now-Existing Chemical Substances. The **ARD** is the European Agreement Concerning the International Carriage of Dangerous Goods by Road and the **RID** are the International Regulations Concerning the Carriage of Dangerous Goods by Rail. **AICS** is the Australian Inventory of Chemical Substances. **MITI** is the Japanese Minister of International Trade and Industry