# Addendum to the Seneca Sustainable Energy, LLC Cleaner Air Oregon Cleaner Air Oregon Level-3 Risk Assessment

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In March 2021, Seneca Sustainable Energy LLC, ("Seneca", "SSE" or "the facility") submitted a Level-3 Cleaner Air Oregon (CAO) risk assessment for its wood-fired electrical cogeneration power plant in Lane County, Oregon. The facility has a location of latitude of N 44° 6' 58'' and a longitude of W 123° 10' 44'' (UTM NAD 1983 zone 10 coordinates of 485668 Easting and 4884771 Northing). The site is in the Eugene Urban Growth Boundary, but outside the city of Eugene, south of East Enid Road and east of Highway 99.

In November 2021 the CAO rules were revised and the list of activities determined to be Categorically Exempt Toxic Emission Units (CETEUs) changed. The original list of CETEUs was established using the list of Categorically Insignificant Activities (CIA) in OAR 340-200-0020(23) but with the rule changes certain activities on the CIA list could not longer be considered CETEUs. LRAPA requested that Seneca evaluate operations at the cogeneration power plant to determine if there are activities occurring that may no longer be exempt. Two such activities occur at the facility: cooling towers and maintenance and testing of a diesel-fired emergency generator.

### Cooling Tower

The Safety Data Sheets (SDSs) for the water treatment chemicals currently used in the cooling tower at the facility are attached to this memorandum. Some of the water treatment chemicals contain sodium hydroxide or sulfuric acid. These chemicals will completely disassociate in water and not be emitted as TACs. Sodium hypochlorite (bleach) is used in the cooling towers. This chemical will disassociate in water to form hypochlorite ion and will not be emitted as a TAC.

One water treatment chemical, (5296STR) contains an organic phosphonate chemical (1-25%) and phosphoric acid (<0.1%). The phosphoric acid will completely disassociate in water and not be emitted as a TAC however both chemicals could be considered the TAC "phosphorus and compounds". Seneca uses up to 5 gallons per day of 5296STR and in the unlikely event that 100% of this material is emitted in the cooling tower drift loss an upper bound daily and annual emission rate of "phosphorus and compounds", reported as elemental phosphorus, can be calculated at follows.

(5 gal/day)x(9.99 lb/gal) = 50 lb/day

25% organic phosphonate (CAS # 2809-21-4):

(0.25)(50)((2)(31)/(206.02)) = 3.8 lb/day elemental P.

0.1% H3PO4

(0.001)(50)(31/98) = 0.02 lb/day elemental P.

Total Daily "Phosphorus and Compounds: = 3.82 lb/day

Total Annual "Phosphorus and Compounds: = 1,394.3 lb/yr

Phosphorus and Compounds does not have a Risk Based Concentration (RBC) listed in OAR 340-245-8040 Table 4 and does not need to be included in a source risk assessment. The risk assessment for the emergency generator is provided below.

# **Emergency Generator Risk Assessment**

The location of the emergency generator is shown in Figure 1. The stack parameters are:

- X-Coordinate: 485662.2 m (UTM NAD 1983, Zone 10)
- Y-Coordinate: 4884826.0 m
- Elevation: 114.5 m
- Height 3.05 m
- Exhaust temperature: 790.4 K
- Exhaust velocity: 77.89 m/s
- Exhaust diameter: 0.2 m
- Maximum fuel usage: 72.2 gallons/hr
- Maximum daily usage: 4 hours/day

There are three additional TACs, unique to diesel exhaust, which were not assessed with the cogeneration plant emissions. Of the three, only 1,3-Butadiene has an Acute RBC. Table 1 shows the emission factors and daily emissions for the emergency generator. Table 2 shows the emergency generator target organ fractions. Table 3 shows the acute risk from the COGEN (steady state and start-up) and emergency generator.

Table 3 shows the acute risk is less than 1 for both the steady and start-up configurations using the nervous systems and respiratory target organs, which are the primary target organs. This analysis is very conservative as it sums the maximum TEU risk regardless of location and day. In fact, the TEU maximum impacts occur on different days and at different locations. Thus, the actual contribution from the emergency generator to the COGEN maximum impact is likely small.

# Figure 1: Site Layout Drawing

(TEU-1 is identified by the yellow arrow, the the emergency generator by the blue arrow)



		Emission Factor*	Daily Emissions
CAS	Compound	lbs/1000 gal	lb/day
71-43-2	Benzene	0.1863	0.05380344
106-99-0	1,3-Butadiene	0.2174	0.06278512
7440-43-9	Cadmium and compounds	0.0015	0.0004332
50-00-0	Formaldehyde	1.7261	0.49849768
18540-29-9	Chromium VI, chromate, and dichromate particulate	0.0001	0.00002888
7440-38-2	Arsenic and compounds	0.0016	0.00046208
7439-92-1	Lead and compounds	0.0083	0.00239704
C365	Nickel and compounds	0.0039	0.00112632
91-20-3	Naphthalene	0.0197	0.00568936
C401	PAHs (excluding Naphthalene)	0.0362	0.01045456
50-32-8	Benzo[a]pyrene[1]	3.55E-05	1.02524E-05
75-07-0	Acetaldehyde	0.7833	0.22621704
107-02-8	Acrolein	0.0339	0.00979032
7664-41-7	Ammonia	2.9	0.83752
7440-50-8	Copper and compounds	0.0041	0.00118408
100-41-4	Ethyl benzene	0.0109	0.00314792
110-54-3	Hexane	0.0269	0.00776872
7647-01-0	Hydrochloric acid	0.1863	0.05380344
7439-96-5	Manganese and compounds	0.0031	0.00089528
7439-97-6	Mercury and compounds	0.002	0.0005776
7782-49-2	Selenium and compounds	0.0022	0.00063536
108-88-3	Toluene	0.1054	0.03043952
1330-20-7	Xylene (mixture), including m-xylene, o-xylene, p-xylene	0.0424	0.01224512
C200	Diesel exhaust particulates	33.5	9.6748

# Table 1. Emergency Generator Emissions Factors and Daily Emissions

\* Emission factors from ODES 2020 ATEI Combustion EF Tool

[1] AP-42 Table 3.4-4. The lb/MMBtu emission factor in AP-42 is converted to units of lb/kgal based on 137,000 Btu/gal

Target Organ	Acute
Kidney	0.00
Liver	0.00
Blood	0.00
Endo	0.00
Muscular	0.00
Eyes	0.02
Skin	0.01
Nervous	0.07
Cardio	0.00
Immune	0.12
Respiratory	0.44
Gastro	0.00
Developmental	0.39
Reproductive	0.08

# Table 2. Emergency Generator Target Organ Fractions

# Table 3. Steady State and Start-up Acute Risk with Emergency Generator

Risk Type	Exposure	Risk	Target Organ Fraction	Calculated Risk	Rounded Risk	Comm. Eng. RAL	Source Permit RAL
Nervous System	n Acute Risk						
COGEN Steady	y State	0.12	0.64	0.077			
Emergency Ger	nerator	0.09	0.07	0.006			
Total Risk				0.083	0.1	1	0.5
COGEN Startuj	2	0.83	0.88	0.730			
Emergency Ger	nerator	0.09	0.07	0.006			
Total Risk				0.736	1	1	0.5
<b>Respiratory</b> A	cute Risk						
COGEN Steady	v State	0.12	0.13	0.015			
Emergency Ger	nerator	0.09	0.44	0.040			
Total Risk				0.055	0.1	1	0.5
COGEN Startuj	2	0.83	0.05	0.042			
Emergency Ger	nerator	0.09	0.44	0.040			
Total Risk				0.082	0.1	1	0.5

Seneca Sustainable Energy Risk Summary

Attachment - Cooling Tower Water Treatment Chemical Safety Data Sheets





Northstar Chemical, Inc.

# **SULFURIC ACID (93 – 98%)**

SDS No: 30393	Revision Date: 6-19-2015
1. CHEMICAL PRODUCT AND CON	IPANY IDENTIFICATION
TRADE NAME (AS LABELED):	NORTHSTAR SULFURIC ACID (93 – 98%)
CHEMICAL NAME/CLASS:	Sulfuric Acid Solution
PRODUCT USE:	Neutralization, battery acid
SUPPLIER/MANUFACTURER'S NAM ADDRESS:	ME: Northstar Chemical, Inc. Corporate Office 14200 S.W. Tualatin-Sherwood Rd. Sherwood, OR 97140
BUSINESS PHONE:	888-793-9476
EMERGENCY PHONE:	<b>CHEMTREC</b> : 800-424-9300
DATE OF PREPARATION:	December 29, 2014
Si usted no entiende las Hojas de Infor	macion de Seguridad sobre Materials, busque a alguien para que se la
(If you do not understand the	Safety Data Sheet, find someone to explain it to you in detail.)
2. HAZARD IDENTIFICATION	

Physical hazards	May be corrosive to metals Reacts violently with water	Category 1	
Health hazards	Skin corrosion/irritation Serious eye damage/irritation Acute toxicity, Inhalation Specific target organ toxicity, single exposure Chronic Exposure	Category 1 Category 1 Category 2 Category 3 Category 2	respiratory tract irritation
Environmental hazards	Hazardous to the aquatic environment, acute short term hazard Hazardous to the aquatic environment, long –term hazard	Category 3 Category 2	

THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

#### LABEL ELEMENTS:

Signal Word: DANGER!



Hazard Statement:	Causes severe skin burns and serious eye damage. May cause respiratory irritation. May cause damage to teeth through prolonged and repeated exposure to sulfuric acid mists. Fatal if inhaled. May be corrosive to metals. Harmful to aquatic life.
Precautionary Statement:	
Prevention:	Wear protective gloves, protective clothing, and eye and face protection. Wash exposed skin thoroughly after handling. Store and use only in a well-ventilated area. Keep containers tightly closed. In case of inadequate ventilation, wear respiratory protection. Do not breathe mist. Avoid release to the environment. Absorb spillage.
Response:	IF IN EYES: Rinse continuously with water for several minutes. Continue rinsing and immediately call a poison centre/doctor. Specific treatment is urgent. IF ON SKIN: Take off immediately all contaminated clothing. Rinse skin with water or shower. For large area burns, immediately call a poison centre/doctor. Wash contaminated clothing before reuse. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF SWALLOWED: Rinse mouth. DO NOT induce vomiting. Get medical attention if you feel unwell.Store in corrosion resistant container with a resistant inner liner.
Storage:	Store in a well-ventilated place and away from water. Keep container tightly closed.
Disposal:	Dispose of contents/container in accordance with local/regional/national/international regulations.

**Emergency Overview:** A strong mineral acid present as a colorless and odorless oily liquid when pure but may appear yellow to dark brown when impure. Extremely corrosive to all body tissues, causing rapid tissue destruction and serious chemical burns. Skin or eye contact requires immediate first aid. Can decompose at high temperatures, forming toxic gases such as Sulphur oxides. Non-flammable but reacts violently with water, generating large amounts of heat with potential for spattering of the acid. Can react with combustible materials to generate heat and ignition. Reacts with most metals, particularly when diluted with water, to form flammable hydrogen gas which may create an explosion hazard. It is highly toxic to aquatic organisms and plant life.

**Potential Health Effects:** Sulfuric acid is not very volatile and workplace exposures are therefore primarily due to accidental splashes or to processes or actions that generate an acid mist. It is extremely corrosive to all body tissues, causing rapid tissue destruction and serious chemical burns on contact with the skin or eyes. Skin or eye contact requires immediate first aid. Inhalation of sulfuric acid mist or fumes may produce irritation of the nose, throat and respiratory tract. High levels of acid mist are also irritating to the skin and eyes. Chronic inhalation of acid mist may cause pitting and erosion of tooth enamel. Sulfuric acid, per se, is not listed as a carcinogen by OSHA, NTP, IARC, or the ACGIH. However, IARC, the ACGIH and the NTP have concluded there is sufficient evidence that occupational exposure to strong inorganic acid mists containing sulfuric acid is carcinogenic or potentially carcinogenic to humans (see Toxicological Information, Section 11).

**Potential Environmental Effects:** Sulfuric acid is highly toxic to aquatic organisms and terrestrial plant life; however, it does not bio accumulate or bio concentrate through the food chain (see Ecological Information, Section 12).

# 3. COMPOSITION / INFORMATION ON INGREDIENTS

Components	CAS Number	Concentration
Water	7732-18-5	1-7 %
Sulfuric acid	7664-93-9	93-99 %

# **4. FIRST-AID MEASURES**

<i>Symptoms:</i> Burning, pain, blurring. Avoid direct contact. Wear chemical protective gloves, if necessary. Quickly and gently blot excess acid off face. Immediately flush the contaminated eye(s) with lukewarm, gently flowing water, for at least 30 minutes, while holding the eyelid(s) open. If a contact lens is present, DO NOT delay irrigation or attempt to remove the lens. Neutral saline solution may be used as soon as it is available. <b>DO NOT INTERRUPT FLUSHING</b> . If necessary, continue flushing during transport to emergency care facility. Take care not to rinse contaminated water into the unaffected eye or onto the face. Quickly transport victim to an emergency care facility.
<i>Symptoms:</i> Burning, pain, ulceration. Avoid direct contact. Wear chemical protective clothing if necessary. As quickly as possible, remove contaminated clothing, shoes and leather goods (e.g., watchbands, belts), under shower if possible. Flush with lukewarm, gently flowing water for at least 30 minutes. <b>DO NOT INTERRUPT FLUSHING.</b> For acid splashes over large areas of the body transport quickly to an emergency care facility. If necessary, and if it can be done safely, continue flushing during transport to emergency care facility. Completely decontaminate clothing, shoes and leather goods before reuse or discard.
<i>Symptoms:</i> Nose throat and lung irritation, coughing, wheezing. Take precautions to ensure your own safety before attempting rescue (e.g., wear appropriate protective equipment, use the buddy system). Remove source of exposure or move person from exposure area to fresh air and keep comfortable for breathing. Call a Poison Centre/doctor or seek medical attention if you feel unwell.
<i>Symptoms:</i> Burning pain in mouth and throat. Have victim rinse mouth thoroughly with water. <b>DO NOT</b> <b>INDUCE VOMITING.</b> If vomiting occurs naturally, have person lie on their side in the recovery position. Have victim rinse mouth with water again. Quickly transport victim to an emergency care facility and bring a copy of this SDS.
Victims of chemical exposure must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take a copy of label and SDS to health professional with victim.
Treat symptomatically and provide supportive therapy as indicated. Do NOT give acidic antidotes such as juice, soft drink, vinegar, etc. This product contains materials that may cause severe pneumonitis if aspirated. If ingestion has occurred less than 2 hours earlier, carry out careful gastric lavage; use endotracheal cuff if available, to prevent aspiration. Observe patient for respiratory difficulty from aspiration pneumonitis. Give artificial resuscitation and appropriate chemotherapy if respiration is depressed. Following exposure the patient should be kept under medical review for at least 48 hours as delayed pneumonitis may occur. Pulmonary edema is likely and may be delayed. Steroid therapy, if given early, may be effective in preventing or alleviating edema.

# 5. FIRE-FIGHTING MEASURES

Fire and Explosion Hazards:	Sulfuric acid is not flammable or combustible. However, fires may result from the heat generated by contact of concentrated sulfuric acid with combustible materials. Sulfuric acid reacts with most metals, especially when diluted with water, to produce hydrogen gas, which can accumulate to explosive concentrations inside confined spaces. It reacts violently with water and organic materials evolving a considerable amount of heat and is very hazardous when in contact with carbides, cyanides, and sulfides.
Extinguishing Media:	Use dry chemical or carbon dioxide extinguishers to extinguish small fires in surrounding combustible materials. Use water spray or fog to cool fire-exposed containers and to knock down large fires. Use water streams only if absolutely necessary and DO NOT USE WATER DIRECTLY ON ACID as a violent reaction may occur resulting in spattering of the acid. Do not release runoff from fire control methods to sewers or waterways.
Fire Fighting:	Fire fighters must be fully trained and wear full protective clothing including an approved, self- contained breathing apparatus which supplies a positive air pressure within a full face-piece mask. For fires close to a spill or where vapors are present, use acid-resistant personal protective equipment.

# 6. ACCIDENTAL RELEASE MEASURES

Procedures for Cleanup:	Control source of release if possible to do so safely. Contain spill, isolate hazard area, and deny entry to unauthorized personnel. Prevent from entering sewage or drainage systems and bodies of water. Dike area around spill and pump uncontaminated acid back to process if possible. Neutralize spilled material with alkali such as sodium carbonate or sodium bicarbonate, soda ash, lime or limestone granules. If neutralized with lime rock or soda ash, good ventilation is required during neutralization because of the release of carbon dioxide gas. Allow to stand for 1-2 hours to complete neutralization, then absorb any liquid in solid absorbent such as vermiculite or clay absorbents. Place spilled material in suitable (corrosion resistant) labeled containers for final disposal. Treat or dispose of waste spilled material and/or contaminated absorbent material in accordance with all local, regional and national regulations.
Personal Precautions:	Acid resistant protective clothing and gloves. Sleeves and pant legs should be worn outside, not tucked into gloves and rubber boots. Use close-fitting safety goggles or a combination of safety goggles and a face shield where splashing is a possibility. Respiratory protection equipment should be worn where exposure to hazardous levels of mist or fume is possible.
Environmental Precautions:	This product has the potential to pose ecological risks to organisms in both aquatic and terrestrial environments. Discharge of the product to soil and water should be prevented. Prevent spillage from entering sewers or natural watercourses.

# 7. HANDLING and STORAGE

**Personal precautions, protective equipment and emergency procedures:** Wear appropriate personal protective equipment. Do not get in eyes, on skin or on clothing. Wash hands after handling this product. Do not eat or drink while handling this material. Remove contaminated clothing immediately. Discard contaminated clothing items, or launder before re-use. Inform anyone handling such contaminated laundry of the hazards associated with this product. Use ventilation and other engineering controls to minimize potential exposure to this product. All employees who handle this material should be trained to handle it safely. Avoid breathing mists or sprays generated by this product. Use in a well-ventilated location.

**For Non-Bulk Containers:** Open containers slowly, on a stable surface. Containers of this product must be properly labeled. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Material should be stored in secondary containers, or in a diked area, as appropriate. Store containers away from incompatible chemicals. Keep container tightly closed when not in use. Wash thoroughly after using this material. Storage areas should be made of fire-resistant materials. If appropriate, post warning signs in storage and use areas. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. Empty containers may contain residual liquid, therefore, empty containers should be handled with care.

**Bulk Containers:** All tanks and pipelines which contain this material must be labeled. Perform routine maintenance on tanks or pipelines which contain this product. Report all leaks immediately to the proper personnel.

**Tank Car Shipments:** Tank cars carrying this product should be loaded and unloaded in strict accordance with tank-car manufacturer's recommendation and all established on-site safety procedures. Appropriate personal protective equipment must be used (see Section 8, Engineering Controls and Personal Protective Equipment.). All loading and unloading equipment must be inspected, prior to each use. Loading and unloading operations must be attended, at all times. Tank cars must be level, brakes must be set or wheels must be locked or blocked prior to loading or unloading. Tank car (for loading) or storage tank (for unloading) must be verified to be correct for receiving this product and be properly prepared, prior to starting the transfer operations. Hoses must be verified to be clean and free of incompatible chemicals, prior to connection to the tank car or vessel. Valves and hoses must be verified to be in the correct positions, before starting transfer operations. A sample (if required) must be taken and verified (if required) prior to starting transfer operations. All lines must be blown-down and purged before disconnecting them from the tank car or vessel.

**Protective Practices During Maintenance of Contaminated Equipment:** Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Always use this product in areas where adequate ventilation is provided. Decontaminate equipment before maintenance begins by a triple-rinse with water followed, if necessary, by using sodium bicarbonate and an additional rinse. Collect all rinsates and dispose of according to applicable Federal, State, or local procedures.

# 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

Occupational	Exposure	Guidelines:
<b>•</b> • • • • • • • • • •		

 Component
 ACGIH

 Sulfuric Acid
 0.2 mg.

 fraction
 fraction

ACGIH TLV 0.2 mg/m<sup>3</sup> Thoracic fraction OSHA PEL 1 mg/m<sup>3</sup> NIOSH REL 1 mg/m<sup>3</sup>

NOTE: OEGs for individual jurisdictions may differ from those given above. Check with local authorities for the applicable OEGs in your jurisdiction.

ACGIH - American Conference of Governmental Industrial Hygienists; OSHA - Occupational Safety and Health Administration; NIOSH - National Institute for Occupational Safety and Health. TLV . Threshold Limit Value, PEL . Permissible Exposure Limit, REL . Recommended Exposure Limit.

NOTE: The selection of the necessary level of engineering controls and personal protective equipment will vary depending upon the conditions of use and the potential for exposure. The following are therefore only general guidelines that may not fit all circumstances. Control measures to consider include:

**Engineering Controls**: If required use a corrosion-resistant ventilation system separate from other exhaust ventilation systems to ensure that there is no potential for overexposure to sprays, or mists of this product and that exposures are below those in section 2 (Composition and Information on Ingredients). Ensure eyewash/safety shower stations are available near areas where this product is used.

#### Individual protection measures, such as personal protective equipment

- Eye/Face Protection: Splash goggles or safety glasses. Face-shields are recommended when the operation can generate splashes, sprays or mists.
- Skin Protection: Wear appropriate gloves for routine industrial use. Use appropriate gloves for spill response, as stated in Section 6 of this SDS (Accidental Release Measures). Use body protection appropriate for task. Cover-all, rubber aprons, or chemical protective clothing made from natural rubber are generally acceptable, depending upon the task.
- Respiratory Protection: Maintain airborne contaminant concentrations below exposure limits listed in Section 2 (Composition and Information on Ingredients). If respiratory protection is needed, use only protection authorized in 29 CFR 1910.134, or applicable State regulations. If adequate ventilation is not available or if there is potential for airborne exposure above the exposure limits (listed in Section 2) a respirator may be worn up to respirator exposure limitations, check with respirator equipment manufactures recommendations/limitations. For a higher level of protection use positive pressure supplied air respiration protection or Self Contained Breathing Apparatus or if oxygen levels are below 19.5% or are unknown.
- Considerations: Always practice good personal hygiene. Refrain from eating, drinking, or smoking in work areas. Thoroughly wash hands before eating, drinking, or smoking.

# 9. PHYSICAL and CHEMICAL PROPERTIES

clear, oily and viscous
pungent
approximately 1 mg/m <sup>3</sup>
<1
-29°C (-20°F) for 93%; -1°C (30°F) for 98%
276 - 281°C (529 - 538°F).
not flammable
< 0.3 mmHg
3.4
1.835 – 1.844 (at 20°C)
15.3 lbs/gal
completely soluble.
not available

# **10. STABILITY and REACTIVITY**

Reactivity:	Reacts violently with water, organic substances and alkali solutions to generate heat and hazardous mists.
Chemical stability:	Stable at room temperature
Possibility of hazardous reactions:	This product reacts with bases, reducing agents, alkali metals, carbides, cyanides, sulfides and metal powders.
Conditions to avoid:	Avoid exposure or contact to extreme temperatures, ignition sources and incompatible chemicals.
Incompatible materials:	This product reacts with bases, reducing agents, alkali metals, carbides, cyanides, sulfides and metal powders. Do not mix this product with sodium hypochlorite, sodium bisulfite, chlorine sanitizers or chlorinated cleaners – a deadly gas can be formed. Corrosive to metals and releases hydrogen gas.
Hazardous decomposition products:	Decomposition possible if heated and in contact with sources of ignition. Thermal decomposition products of this solution can include carbon monoxide, carbon dioxide and oxides of sulfur.

# **11. TOXICOLOGICAL INFORMATION**

### Information on likely routes of exposure

Ingestion	Harmful if swallowed. May cause permanent damage to the digestive tract. Causes gastrointestinal tract burns. May cause perforation of the stomach, bleeding, edema of the glottis, necrosis and scarring, and sudden circulatory collapse (similar to acute inhalation). It may also cause systemic toxicity with acidosis.
Inhalation:	May cause severe irritation of the respiratory tract and mucous membranes with sore throat, coughing, shortness of breath, and delayed lung edema. Causes chemical burns to the respiratory tract. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and brochi, chemical pneumonitis, and pulmonary edema. May also affect teeth (erosion of enamel).
Skin Contact:	Causes severe skin irritation and burns.
Eye Contact:	Causes severe eye irritation and burns. May cause irreversible eye damage.
Toxicity Data:	$LD_{50}$ (oral, rat) = 2140 mg/kg $LC_{50}$ (inhalation, rat) = 510 mg/m <sup>3</sup> for 2 hrs

#### Information on toxicological effects

Carcinogenicity:The IARC has concluded that occupational exposure to strong inorganic acid mists<br/>containing sulfuric acid is carcinogenic to man, causing cancer of the larynx. Although no<br/>direct link has been established between exposure to sulfuric acid and cancer in man,<br/>exposure to any mist or aerosol during the use of this product should be avoided.Sensitization:No component of this product is known to be a sensitizer.Reproductive Toxicity:Slightly embryo toxic in rabbits (a minor, rare skeletal variation). The animals were 3<br/>exposed to 5 and 20 mg/m for 7 hrs/day throughout pregnancy. Slight maternal toxicity<br/>was present at the highest dose in both species.

Mutagenicity:	Cytogenic analysis (hamster) ovaries 4 mmol/L
Embryotoxicity:	This product is not reported to produce embryo toxic effects in humans.
Teratogenicity:	This product is not reported to cause teratogenic effects in humans.

### **Chronic Potential Health Effects:**

Inhalation:	Prolonged or repeated inhalation may affect behavior (muscle contraction or spasticity), urinary system (kidney damage), and cardiovascular system, heart and respiratory system/lungs (pulmonary edema, lung damage), teeth (dental discoloration, erosion).
Skin:	Prolonged or repeated skin contact may cause dermatitis (skin allergy).

# **12. ECOLOGICAL INFORMATION**

Eco toxicity:

Sulfuric acid is highly toxic to aquatic organisms and terrestrial plant life; however, it does not bio accumulate or bio concentrate through the food chain. This product is harmful to aquatic life in very low concentrations. May be dangerous if the product enters water intake. Fish toxicity: 2.8 ug/L 96 hrs LC50 rainbow trout.

The product must be transported and stored properly to prevent run off water from a rain event, which can adversely affect flora and fauna.

# 13. DISPOSAL CONSIDERATIONS

Disposal Instructions:Waste disposal must be in accordance with appropriate Federal, State, and local<br/>regulations. This product, if unaltered by use, may be disposed of by treatment at a<br/>permitted facility or as advised by your local hazardous waste regulatory authority.Do not wash down drain or allow to reach natural watercourses. Dispose of neutralized<br/>waste consistent with regulatory requirements. If neutralized with lime rock or soda ash,<br/>good ventilation is required during neutralization because of the release of carbon dioxide<br/>gas.EPA Waste Code:D002 (Characteristic, Corrosivity), applicable to wastes consisting only of this solution.

# 14. TRANSPORTATION INFORMATION

This material is hazardous as defined by 49 CFR 172.101 by the U.S. Department of Transportation.

PROPER SHIPPING U.S. DOT .		Sulfuric Acid
TRANSPORT CANADA CLASSI	FICATION	Class 8 Packing Group II
U.S. DOT CLASSIFICATION		Class 8 Packing Group II (RQ) – 1,000 lbs.
PRODUCT IDENTIFICATION NU	JMBER	UN1830
MARINE POLLUTANT		No
IMO CLASSIFICATION		Class 8
North American Emergency Res	oonse Guide Book (2012)	Guide 137
Marine Pollutant:	This product does not contain any c Transportation to be Marine Pollutan	components that are designated by the Department of ts. (49 CFR 172.101, Appendix B).
Canada Transportation of	-	

Dangerous Goods Regulations: This material is considered dangerous goods. Use the above information for the preparation of Canadian Shipments.

# **15. REGULATORY INFORMATION**

This product is considered a Hazardous Chemical by the OSHA Hazard Communication Standard, 29 CFR 1910.1200

SARA Reporting Requirements: The components of this product subject to the reporting requirements of Section 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act are as follows.

COMPONENT	SARA 302	SARA 304	SARA 311/312	SARA 313
	Extremely Hazardous Substance		Hazardous Chemical	TRI Reporting
Sulfuric Acid	Yes	Yes	Yes	Yes

**SARA 313:** Sulfuric Acid (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size): De minimis % Limit = 1.0

SARA Threshold Planning Quantity: Sulfuric Acid = 1000 lbs.

TSCA Inventory Status: The components of this product are listed on the TSCA Inventory.

CERCLA Reportable Quantity (RQ): Sulfuric Acid = 1000 lbs.

Other Federal Regulations: Not applicable.

State Regulatory Information: Components of this product are covered under specific State regulations, as denoted below:

New Jersey - Special Health Hazard Substance List and Environmental Hazardous Substance Minnesota, Florida, Rhode Island - Hazardous Substance California - Director's List of Hazardous Substances Massachusetts - Extraordinarily Hazardous Substance List

California Proposition 65:

This material may contain detectable quantities of the following chemicals, known to the State of California to cause cancer, birth defects or other reproductive harm, and which may be subject to the warning requirements of California Proposition 65: Strong Inorganic Acid Mists containing Sulfuric Acid (type of toxicity = cancer)

NFPA 704 Rating:



- (Minimal)
- 1 (Slight)

0

- 2 (Moderate)
- 3 (Serious)
- 4 (Severe)

# **16. OTHER INFORMATION**

# **DEFINITIONS OF TERMS**

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

**CAS** #: This is the Chemical Abstract Service Number which uniquely identifies each constituent. It is used for computer-related searching.

#### EXPOSURE LIMITS IN AIR:

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

TLV - Threshold Limit Value - an airborne concentration of a substance which 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 Time Weighted Average (TWA), the 15-minute Short Term Exposure Limit, and the instantaneous Ceiling Level. Skin adsorption effects must also be considered.

**OSHA** - U.S. Occupational Safety and Health Administration.

**PEL - Permissible Exposure Limit** - 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 which was vacated by Court Order.

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. The DFG - MAK is the Republic of Germany's Maximum Exposure Level, similar to the U.S. PEL. 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). NIOSH issues exposure guidelines called Recommended Exposure Levels (RELs). When no exposure guidelines are established, an entry of NE is made for reference.

#### HAZARD RATINGS:

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: Health Hazard: 0 (minimal acute or chronic exposure hazard); 1 (slight acute or chronic exposure hazard); 2 (moderate acute or significant chronic exposure hazard); 3 (severe acute exposure hazard; onetime over-exposure can result in permanent injury and may be fatal); 4 (extreme acute exposure hazard; onetime over-exposure can be fatal). Flammability Hazard: 0 (minimal hazard); 1 (materials that require substantial pre-heating before burning); 2 (combustible liquid or solids; liquids with a flash point of 38-93°C [100-200°F]); 3 (Class IB and IC flammable liquids with flash points below 38°C [100°F]); 4 (Class IA flammable liquids with flash points below 23°C [73°F] and boiling points below 38°C [100°F]). Reactivity Hazard: 0 (normally stable); 1 (material that can become unstable at elevated temperatures or which can react slightly with water); 2 (materials that are unstable but do not detonate or which can react violently with water); 3 (materials that can detonate when initiated or which can react explosively with water); 4 (materials that can detonate at normal temperatures or pressures).

NATIONAL FIRE PROTECTION ASSOCIATION: <u>Health Hazard</u>: 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). <u>Flammability Hazard and Reactivity Hazard</u>: Refer to definitions for "Hazardous Materials Identification System".

#### FLAMMABILITY LIMITS IN AIR:

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

#### TOXICOLOGICAL INFORMATION:

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: LD50 - 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. Data from several sources are used to evaluate the cancer-causing potential of the material. 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 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 death. BEI - 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:**

This section explains the impact of various laws and regulations on the material. **EPA** is the U.S. Environmental Protection Agency. **WHMIS** is the Canadian Workplace Hazardous Materials Information System. **DOT** and **TC** are the U.S. Department of Transportation and the Transport Canada, respectively. Other acronyms used are: <u>Superfund Amendments and Reauthorization Act</u> (SARA); the <u>Toxic Substance Control Act</u> (TSCA); Marine Pollutant status according to the DOT; California's Safe Drinking Water Act (Proposition 65); the <u>Comprehensive Environmental Response, Compensation, and Liability Act</u> (CERCLA or Superfund); and various state regulations. This section also includes information on the precautionary warnings which appear on the materials package label.



Northstar Chemical, Inc.

# Sodium Hypochlorite Solution (5 – 12.5%)

SAFETY DATA SHEET Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards

Revision Date: 12-04-2014 SDS No: 50513 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION TRADE NAME (AS LABELED): **STARCHLOR (5 - 12.5%)** CHEMICAL NAME/CLASS: Hypochlorous acid salt PRODUCT USE: Bleach, disinfectant, waste water treatment additive Northstar Chemical, Inc. SUPPLIER/MANUFACTURER'S NAME: ADDRESS: **Corporate Office** 14200 S.W. Tualatin-Sherwood Rd. Sherwood, OR 97140 **BUSINESS PHONE:** 888-793-9476 CHEMTREC: 800-424-9300 **EMERGENCY PHONE:** DATE OF PREPARATION: December 4, 2014 Si usted no entiende las Hojas de Informacion de Seguridad sobre Materials, busque a alguien para que se la explique a usted en detalle. (If you do not understand the Safety Data Sheet, find someone to explain it to you in detail.)

# 2. HAZARD IDENTIFICATION

Physical hazards	Corrosive to metals	Category 1	
Health hazards	Skin corrosion/irritation Serious eye damage/irritation Specific target organ toxicity, single exposure	Category 1 Category 1 Category 3	respiratory tract irritation
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 1	
	Hazardous to the aquatic environment, long –term hazard	Category 2	

THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

#### LABEL ELEMENTS:

#### Signal Word: DANGER



skin corrosion and burns eye damage corrosive to metals





**Hazard Statement:** May be corrosive to metals. Causes servere skin burns and eye damage. May cause respiratory irritation. Very toxic to aquatic life.

#### **Precautionary Statement:**

Prevention:	Wear protective gloves/protective clothing/eye protection/face protection. Do not breathe dust/fume/gas/mist/vapors/spray. Wash hands thoroughly after handling. Avoid release to the environment.
Response:	IF SWALLOWED: Rinse mouth. DO NOT induce vomiting. IF ON SKIN: Immediately take off all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before re-use. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call POISON CENTER or doctor/physician. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing. Collect spillage.
Storage:	Store in a well ventilated place. Store locked up. Keep container tightly closed.
Disposal:	Dispose of contents/container in accordance with local/regional/national/international regulations.

# 3. COMPOSITION / INFORMATION ON INGREDIENTS

Components	CAS Number	Concentration
Water	7732-18-5	>60 %
Sodium hypochlorite	7681-52-9	5-20 %

### **4. FIRST-AID MEASURES**

- Inhalation If vapors, mists, or sprays of this product are inhaled, remove victim to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Remove or cover gross contamination to avoid exposure to rescuers. Do not give anything by mouth to an unconscious person.
- Skin Contact Rinse skin immediately with plenty of water for 15-20 minutes. Take off contaminated clothing, taking care not to contaminate eyes. Washing with large amounts of clean water should continue until affected skin surface no longer feels slippery. Victim must seek medical attention. Call a poison control center or doctor for treatment advice.

# 4. FIRST-AID MEASURES (CONTINUED)

Eye contact	If this product enters the eyes, open victim's eyes while under gentle running water. Use sufficient force to open eyelids. Have victim "roll" eyes. <u>Minimum</u> flushing is for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Do not attempt to neutralize. Oils or ointments should not be used at this time. Call a poison control center or doctor for treatment advice. Victim must seek immediate medical attention.
Ingestion	Call a poison control center or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control center or doctor. Have person sip a glass of water if able to swallow. Never induce vomiting or give diluents (milk or water) to someone who is <u>unconscious</u> , <u>having convulsions</u> , or <u>unable to swallow</u> . If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more water.
General Information:	Victims of chemical exposure 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 victim.
Note to Physicians:	Treat symptomatically and provide supportive therapy as indicated. Do NOT give acidic antidotes such as juice, soft drink, vinegar, etc. This product contains materials that may cause severe pneumonitis if aspirated. If ingestion has occurred less than 2 hours earlier, carry out careful gastric lavage; use endotracheal cuff if available, to prevent aspiration. Observe patient for respiratory difficulty from aspiration pneumonitis. Give artificial resuscitation and appropriate chemotherapy if respiration is depressed. Following exposure the patient should be kept under medical review for at least 48 hours as delayed pneumonitis may occur. Pulmonary edema is likely and may be delayed. Steroid therapy, if given early, may be effective in preventing or alleviating edema.

# **5. FIRE-FIGHTING MEASURES**

HAZCHEM or Emergency Action Code: 2X

FLASH POINT, °C (method):	Not flammable.
Suitable extinguishing media:	Water spray, foam, dry chemical, carbon dioxide, Halon, any "ABC" class.
Specific hazards arising from the chemical:	Gases hazardous to health may be formed during fire.
Special protective equipment and Precautions for fire-fighters:	Reaction with nitrogen compounds, chloroorganic compounds, or easily oxidizable compounds (reducing agents) may be explosive. This material is non-flammable but is decomposed by heat and light, causing a pressure build-up, which could result in an explosion. When heated, it may release chlorine gas. Vigorous reaction with oxidizable or organic materials may result in fire. Contact with aluminum, tin or zinc will result in the generation of heat and release of hydrogen gas. Run-off from fire control may cause pollution. Keep fire-exposed containers cool with water spray to prevent rupture due to excessive heat. High pressure water hose may spread product from broken containers increasing contamination. If involved in a fire, this product may decompose to produce a variety of compounds (i.e. chlorine, sodium oxide, oxygen). Emergency responders must wear the proper personal protective equipment suitable for the situation to which they are responding. Products of combustion are irritating to the respiratory tract and may cause breathing difficulty. Symptoms may be delayed several hours or longer depending upon the extent of exposure. Incipient fire responders should wear eye protection. Structural fire fighters must wear Self-Contained Breathing Apparatus and full protective equipment. Move fire-exposed containers, if it can be done without risk to firefighters. If possible, prevent run-off water from entering storm drains, bodies

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of water, or other environmentally sensitive areas. If necessary, discard or decontaminate fire response equipment using water and sodium bicarbonate before returning such equipment to service.

# 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective Equipment and emergency procedures:	Use impermeable gloves, specific for the material handled, goggles, face shield, and appropriate body protection. In the event of a large release, use impermeable gloves, specific for the material handled, chemically resistant suit and boots, and hard-hat. Self Contained Breathing Apparatus or respirator may be required where engineering controls are not adequate or conditions for potential exposure exist. When respirators are required, Select NIOSH/MSHA approved based on actual or potential airborne concentrations in accordance with latest OSHA and/or ANSI recommendations.
Environmental precautions:	Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a spill, clear the affected area, protect people, and respond with trained personnel.
Methods and materials for containment and cleaning up:	Absorb spilled liquid with polypads or other suitable absorbent materials. Neutralize residue with sodium bicarbonate and water rinse. Decontaminate the area thoroughly. Test area with litmus paper to confirm neutralization. Place all spill residue in a suitable container. Dispose of in accordance with Federal, State, and local hazardous waste disposal regulations (see Section 13, Disposal Considerations).
	<b>Deactivation For Small Spills:</b> ypochlorite can be broken down by covering it with a reducing agent such as sodium sulfite or sodium thiosulfate.

# 7. HANDLING and STORAGE

Precautions for safe handling:

Wear appropriate personal protective equipment. Do not get in eyes, on skin or on clothing. Wash hands after handling this product. Do not eat or drink while handling this material. Remove contaminated clothing immediately. Discard contaminated clothing items, or launder before re-use. Inform anyone handling such contaminated laundry of the hazards associated with this product. Use ventilation and other engineering controls to minimize potential exposure to this product.

All employees who handle this material should be trained to handle it safely. Avoid breathing mists or sprays generated by this product. Use in a well-ventilated location.

**For Non-Bulk Containers:** Open containers slowly, on a stable surface. Containers of this product must be properly labeled. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Material should be stored in secondary containers, or in a diked area, as appropriate. Store containers away from incompatible chemicals. Keep container tightly closed when not in use. Wash thoroughly after using this material. Storage areas should be made of fire-resistant materials. If appropriate, post warning signs in storage and use areas. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. Empty containers may contain residual liquid, therefore, empty containers should be handled with care.

**Bulk Containers:** All tanks and pipelines which contain this material must be labeled. Perform routine maintenance on tanks or pipelines which contain this product. Report all leaks immediately to the proper personnel.

**Tank Car Shipments:** Tank cars carrying this product should be loaded and unloaded in strict accordance with tank-car manufacturer's recommendation and all established on-site safety procedures. Appropriate personal protective equipment must be used (see Section 8, Engineering Controls and Personal Protective Equipment.). All loading and unloading equipment must be inspected, prior to each use. Loading and unloading operations must be attended, at all times. Tank cars must be level, brakes must be set or wheels must be locked or blocked prior to loading or unloading. Tank car (for loading) or storage tank (for unloading) must be verified to be correct for receiving this product and be properly prepared, prior to starting the transfer operations. Hoses must be verified to be clean and free of incompatible chemicals, prior to connection to the tank car or vessel. Valves and hoses must be

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verified to be in the correct positions, before starting transfer operations. A sample (if required) must be taken and verified (if required) prior to starting transfer operations. All lines must be blown-down and purged before disconnecting them from the tank car or vessel.

Protective Practices During Maintenance of Contaminated Equipment: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Always use this product in areas where adequate ventilation is provided. Decontaminate equipment before maintenance begins by a triple-rinse with water followed, if necessary, by using sodium bicarbonate and an additional rinse. Collect all rinsates and dispose of according to applicable Federal, State, or local procedures.

# 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

**Engineering Controls**: If required use a corrosion-resistant ventilation system separate from other exhaust ventilation systems to ensure that there is no potential for overexposure to sprays, or mists of this product and that exposures are below those in section 2 (Composition and Information on Ingredients). Ensure eyewash/safety shower stations are available near areas where this product is used.

#### Individual protection measures, such as personal protective equipment

- Eye/Face Protection: Splash goggles or safety glasses. Face-shields are recommended when the operation can generate splashes, sprays or mists.
- Skin Protection: Wear appropriate gloves for routine industrial use. Use appropriate gloves for spill response, as stated in Section 6 of this MSDS (Accidental Release Measures). Use body protection appropriate for task. Cover-all, rubber aprons, or chemical protective clothing made from natural rubber are generally acceptable, depending upon the task.
- Respiratory Protection: Maintain airborne contaminant concentrations below exposure limits listed in Section 2 (Composition and Information on Ingredients). If respiratory protection is needed, use only protection authorized in 29 CFR 1910.134, or applicable State regulations. If adequate ventilation is not available or if there is potential for airborne exposure above the exposure limits (listed in Section 2) a respirator may be worn up to respirator exposure limitations, check with respirator equipment manufactures recommendations/limitations. For a higher level of protection use positive pressure supplied air respiration protection or Self Contained Breathing Apparatus or if oxygen levels are below 19.5% or are unknown.

# 9. PHYSICAL and CHEMICAL PROPERTIES

light-yellow to green liquid solution
pungent with a strong chlorine-like smell
0.06 ppm (detection), for Chlorine.
11-13
-13.6°C (7.5°F).
decomposes above 40°C (104°F).
not flammable
similar to water.
12 mmHg.
not available
1.212 (at 20°C)
completely soluble.
not available.
decomposes above 40°C (104°F).
not available
Litmus paper will turn blue-purple upon contact with this solution.

# 10. STABILITY and REACTIVITY

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Reactivity:	This product is non-reactive at under recommended storage conditions.
Chemical stability:	Stable at room temperature
Possibility of hazardous reactions:	This product reacts with strong acids producing heat and chlorine gas, which is toxic.
Conditions to avoid:	Avoid exposure or contact to extreme temperatures and incompatible chemicals.
Incompatible materials:	Reacts with strong acids to produce heat and chlorine gas. Other incompatibles include organic material, cellulose, oxidizable materials, ammonia, urea, ammonium salts, ethyleneimine, cyanides, nitrogen compounds, alcohols, metals, and metal oxides. Reacts with metals to produce flammable hydrogen gas. Metal and metal oxide catalysts decompose hypochlorites, evolving oxygen and often causing explosions. May react explosively with nitrogen containing compounds or form chloroamines, which are explosive. Alkaline hypochlorite solutions may react explosively with some chloroorganic compounds.
Hazardous decomposition products:	Chlorine, sodium oxide, oxygen, oxides of chlorine, sodium chlorate, and hydrogen

# **11. TOXICOLOGICAL INFORMATION**

#### Information on likely routes of exposure

Ingestion	May be harmful if swallowed.
Inhalation:	Causes respiratory irritation.
Skin Contact:	Causes skin burns.
Eye Contact:	Causes severe eye damage.

### Information on toxicological effects

- Carcinogenicity: The major components of this product are not found on the following lists: FEDERAL OSHA Z LIST, NTP, IARC, CAL/OSHA; and are therefore not considered to be, nor suspected to be, cancer-causing agents by these agencies.
- Sensitization: Sodium Hypochlorite, a component of this product, is a sensitizer. Prolonged or repeated skin contact can result in the development of rashes, welts, and other allergy-like symptoms. This product is severely irritating and corrosive to contaminated tissue.

Reproductive Toxicity: This product is not reported to cause reproductive effects in humans.

- Mutagenicity: This product is not reported to produce mutagenic effects in humans. Sodium hypochlorite caused mutations in several short-term studies using bacteria and cultured mammalian cells. The significance of these tests is unclear. It was not mutagenic in tests (chromosome aberration and micronucleus) on live animals.
- Embryotoxicity: This product is not reported to produce embryotoxic effects in humans.
- Teratogenicity: This product is not reported to cause teratogenic effects in humans.

Toxicity Data: Additional toxicology information for components greater than 1 percent in concentration is provided below.

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#### SODIUM HYPOCHLORITE: Eye effects-Rabbit, adult 10 mg Moderate irritation effects Microsomal Mutageniticity Assay-Salmonella typhimurium 1 mg/plate Cytogenetic Analysis-Human: lymphocyte, 100 ppm/24 hours Oral-Woman TDLo: 1 g/kg: Central nervous system effects, Blood pressure effects, Intravenous-Man TDLo: 45 mg/kg: Pulmonary system effects Oral-Mouse LD<sub>50</sub>: 5800 mg/kg Oral-Rat LD<sub>50</sub>: 8910 mg/kg

Medical Conditions Aggravated by Exposure: Skin disorders can be aggravated by over-exposure to this product. Inhalation of this products mists may aggravate respiratory conditions.

# **12. ECOLOGICAL INFORMATION**

Ecotoxicity

This product is harmful or fatal to plant and animal life if this product is released into the environment. Refer to Section 11 (Toxicological Information) for further data on the effects of this product's components on test animals. This product can substantially raise the pH of an aquatic environment and can be extremely toxic to fish and aquatic plants. As with all chemicals, work practices should be aimed at eliminating environmental releases.

Product		Species	Test Results
Sodium Hypochlorite			
Aquatic – Fish	LC50 (48 hr)	rainbow trout	0.07 mg/L
	LC50 (96 hr)	fathead minnow	5.9 mg/L
Invertebrate and Microbial Toxicity		LOEC Oncorhynchus kisutch	0.02 mg/L

**Bioaccumulative potential**: The components of this product are relatively stable in the environment; they may degrade, after time, into other organic and inorganic constituents. Additional environmental data are available as follows:

**SODIUM HYPOCHLORITE:** Water solubility =  $29.4 \text{ g/} 100 \text{ mL} (25 \square \text{C})$ .

# 13. DISPOSAL CONSIDERATIONS

Disposal Instructions: 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 Code: D002 (Characteristic, Corrosivity), applicable to wastes consisting only of this solution.

# **14. TRANSPORTATION INFORMATION**

This material is hazardous as defined by 49 CFR 172.101 by the U.S. Department of Transportation.

#### DOT

Proper Shipping Name	Hypochlorite Solution
Hazard Class Number and Description	8 (corrosive material)
UN Identification Number	UN 1791
Packing Group and Description	III (least danger among regulated goods)
DOT Labels/Placards Required	Corrosive
North American Emergency Response Guide Book (2012)	Guide 154

Marine Pollutant:

This product does not contain any components which are designated by the Department of Transportation to be Marine Pollutants. (49 CFR 172.101, Appendix B).

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Canada Transportation of Dangerous Goods Regulations:

This material is considered dangerous goods. Use the above information for the preparation of Canadian Shipments.

# **15. REGULATORY INFORMATION**

This product is considered a Hazardous Chemical by the OSHA Hazard Communication Standard, 29 CFR 1910.1200

SARA Reporting Requirements: The components of this product subject to the reporting requirements of Section 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act are as follows.

COMPONENT	SARA 302	SARA 304	SARA 311/312	SARA 313
	Extremely Hazardous Substance		Hazardous Chemical	TRI Reporting
Sodium Hypochlorite	No	Yes	Yes	No

### SARA Threshold Planning Quantity: Not applicable.

TSCA Inventory Status: The components of this product are listed on the TSCA Inventory.

**CERCLA Reportable Quantity (RQ)**: Sodium Hypochlorite = 100 lbs.

Other Federal Regulations: Not applicable.

State Regulatory Information: Components of this product are covered under specific State regulations, as denoted below:

 Illinois
 Toxic
 Substance
 List:
 Sodium
 New Jersey
 Right to
 Know Hazardous
 North Dakota - List of Hazardous
 North Dakota - List of Hazardous
 Reportable Quantities:
 Sodium Hypochlorite.

California Proposition 65: No component of this product is on the California Proposition 65 lists.

### Label Information:

If this product is used for the purpose of a pesticide it would be a violation of federal law to use this product in a manner inconsistent with its labeling. Call NORTHSTAR to see if your required use is covered by our label. The following labeling section is taken from our pesticide label but has no directions for use. It does not constitute a pesticide label. It is for information only.

Labeling: KEEP OUT OF REACH OF CHILDREN - DANGER - PELIGRO

**Hazards to Humans and Domestic Animals**: DANGER: Corrosive - may cause severe skin or chemical bums to broken skin. Causes eye damage. May be fatal if swallowed. Avoid breathing vapors. Do not get in eyes, on skin, or on clothing. Wear goggles or face shield and rubber gloves when handling this product. Wash hands after handling. Vacate poorly ventilated areas as soon as possible. Do not return until odors have dissipated.

**Environmental Hazards**: This pesticide is toxic to fish and aquatic organisms. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NDPES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

**Physical or Chemical Hazards**: STRONG OXIDIZIING AGENT: Mix only with water according to label directions. Mixing this product with chemicals (e.g. ammonia. acids, detergents, etc.) or organic matter (e.g. urine, feces, etc.) will release chlorine gas which is irritating to eyes, lungs and mucous membranes.

**Storage and Disposal**: Store this product in a cool dry area, away from direct sunlight and heat to avoid deterioration. In case of spill, flood areas with large quantities of water. Product or rinsates that cannot be used should be diluted with water before disposal in sanitary sewer (see Environmental Hazards). Do not contaminate food or feed by storage, disposal or cleaning of equipment.

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If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice. Call a poison control center or doctor for further treatment advice.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

If swallowed: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor.

If inhaled: If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Do not give anything by mouth to an unconscious person.

Note to Physician: Probable mucosal damage may contraindicate the use of gastric lavage.

In case of fire: Use dry chemical, CO<sub>2</sub>, or alcohol foam. In case of spill: Neutralize residue with sodium bicarbonate and rinse area. Place in suitable container. Refer to MSDS for additional information.

Target Organs: Skin, eyes and respiratory system.

Corrosive Material



NFPA 704 Rating:



- 0 (Minimal) 1 (Slight)
- 2 (Moderate)
- (Serious)
- 3 4
- (Severe)

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# **16. OTHER INFORMATION**

# **DEFINITIONS OF TERMS**

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

**CAS** #: This is the Chemical Abstract Service Number which uniquely identifies each constituent. It is used for computer-related searching.

#### EXPOSURE LIMITS IN AIR:

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

TLV - Threshold Limit Value - an airborne concentration of a substance which 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 Time Weighted Average (TWA), the 15-minute Short Term Exposure Limit, and the instantaneous Ceiling Level. Skin adsorption effects must also be considered.

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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. The DFG - MAK is the Republic of Germany's Maximum Exposure Level, similar to the U.S. PEL. 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). NIOSH issues exposure guidelines called Recommended Exposure Levels (RELs). When no exposure guidelines are established, an entry of NE is made for reference.

#### HAZARD RATINGS:

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: <u>Health Hazard</u>: 0 (minimal acute or chronic exposure hazard); 1 (slight acute or chronic exposure hazard); 2 (moderate acute or significant chronic exposure hazard); 3 (severe acute exposure hazard; onetime over-exposure can result in permanent injury and may be fatal); 4 (extreme acute exposure hazard; onetime over-exposure can be fatal). <u>Flammability Hazard</u>: 0 (minimal hazard); 1 (materials that require substantial pre-heating before burning); 2 (combustible liquid or solids; liquids with a flash point of 38-93°C [100-200°F]); 3 (Class IB and IC flammable liquids with flash points below 38°C [100°F]); 4 (Class IA flammable liquids with flash points below 38°C [100°F]); 1 (material that can become unstable at elevated temperatures or which can react slightly with water); 2 (materials that are unstable but do not detonate or which can react explosively with water); 3 (materials that can detonate when initiated or which can react explosively with water); 4 (materials that can become unstable at elevated temperatures or detonate or which can react explosively with water); 4 (materials that can become unstable that are unstable but do not detonate or which can react violently with water); 3 (materials that can detonate when initiated or which can react propertures or pressures).

NATIONAL FIRE PROTECTION ASSOCIATION: <u>Health Hazard</u>: 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 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 and Reactivity Hazard: Refer to definitions for "Hazardous Materials Identification System".

#### FLAMMABILITY LIMITS IN AIR:

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

#### TOXICOLOGICAL INFORMATION:

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: LD50 - 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/m3 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. Data from several sources are used to evaluate the cancer-causing potential of the material. 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 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 death. BEI - 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:**

This section explains the impact of various laws and regulations on the material. **EPA** is the U.S. Environmental Protection Agency. **WHMIS** is the Canadian Workplace Hazardous Materials Information System. **DOT** and **TC** are the U.S. Department of Transportation and the Transport Canada, respectively. Other acronyms used are: <u>Superfund Amendments and Reauthorization Act</u> (SARA); the <u>Toxic Substance Control Act</u> (TSCA); Marine Pollutant status according to the **DOT**; California's Safe Drinking Water Act (**Proposition 65**); the <u>Comprehensive Environmental Response, Compensation, and Liability Act</u> (CERCLA or Superfund); and various state regulations. This section also includes information on the precautionary warnings which appear on the materials package label.



# **SECTION I - IDENTIFICATION**

Product Name: UN/ID No. Synonyms: Chemical Family: Formula: Product Description: 5296STR UN1760 Cooling Water Treatment Water Treatment Blend Proprietary Tower Treatment

### **SECTION II – HAZARDS IDENTIFICATION**

Appearance: Light Straw

Physical state: Liquid

Odor: Odorless

#### Classification

Skin Corrosion/ Irritation	Category 1	Sub-Category C
Serious Eye Damage/Eye Irritation	Category 1	
Corrosive to metals	Category 1	
Acute Toxicity (oral)	Category 5	
Skin Sensitization	Category 1	

<u>Signal Word</u>

Danger



### **Hazard Statements**

Causes severe skin burns Causes serious eye damage May be harmful if swallowed May cause allergic reaction

**Precautionary Statements - Prevention** 

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Do not breathe dust/fumes/gas/mist/vapors/spray Wash face, hands and any exposed skin thoroughly after handling Wear protective gloves/ protective clothing/eye protection/face protection

### Precautionary Statements – Response Immediately call poison center or physician

*If IN EYES*: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

*If ON SKIN (or hair)*: Immediately remove all contaminated clothing. Rinse skin with water. Wash contaminated clothes before reuse.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

IF SWALLOWED: If person is conscious, give large quantities of water to drink. Do not induce vomiting

#### **Precautionary Statements – Storage**

Keep only in original container. Store only in corrosive resistant container. Store locked up in closed, properly labeled containers.

#### **Precautionary Statements – Disposal**

Dispose of contents in accordance with national and local regulations.

#### SECTION III - COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No	Weight -%
Sodium Hydroxide	1310-73-2	20-30%
Sodium Tolyltriazole	29385-43-1	1-10%
Organic phosphonate	2809-21-4	1-25%
Phosphoric acid	7664-38-2	< 0.1%
Dye	proprietary	proprietary
Water	7732-18-5	balance

\*\*If chemical name/CAS No is "proprietary" and/or Weight-% is listed as a range, the specific chemical identity and/or percentage of composition has been withheld as a trade secret\*\*

# SECTION IV – FIRST-AID MEASURES

#### **First Aid Measures**

*EYE CONTACT* Remove contact lenses. Gently flush the eyes and surrounding areas, including under the eyelids, with lukewarm water for 15 minutes. If irritation persists, seek medical attention.

*SKIN* Remove contaminated clothing Wipe material from the skin. Rinse the affected area *CONTACT* with large amounts of water for 15 minutes. If irritation persists, seek medical attention.

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- *INHALATION* Immediate first aid is not likely to be required. If irritation occurs, remove to fresh air. Immediately remove material from eyes, skin, and clothing.
  - *INGESTION* If person is conscious, give large quantities of water to drink. Do not induce vomiting. Call a physician.

#### Most important symptoms and effects

*SYMPTOMS* Irritation to nose, throat, and respiratory tract from prolonged inhalation, which can in turn produce nausea. Vomiting may also occur. Mild irritation to severe burns to the eyes and skin is possible with prolonged exposure.

#### Indication of any immediate medical attention and special treatment needed

NOTES TO PHYSICIAN None.

# **SECTION V – FIRE FIGHTING MEASURES**

#### Suitable Extinguishing Media

Non-combustible. Employ extinguishing media appropriate to surrounding materials.

#### **Unsuitable Extinguishing Media**

Not determined

#### **Specific Hazards Arising From Chemical**

Thermal decomposition may release carbon dioxide and carbon monoxide. Product is nonflammable as supplied. It may splatter if the temperature exceeds the boiling point. Dried polymer films are capable of burning.

#### **Protective Equipment and Precautions for Firefighters**

Wear NIOSH-approved self-contained breathing apparatus. Use water spray to keep containers cool and to knock down fumes

### SECTION VI – ACCIDENTAL RELEASE MEASURES

#### Personal precautions, protective equipment and emergency procedures

*Personal Precautions* Wear chemical goggles, and an approved dust respirator if dusts are generated. Coveralls, apron, boots, and gloves should be worn as necessary to prevent contact. Use local exhause to control dusts and make sure eyewash fountains and safety showers are easily accessable.

Environmental Precautions Use personal protective equipment as required

#### Methods and material for containment and cleaning up

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Methods for containment	Prevent further leakage or spillage if safe to do so.	
Methods for clea	an-up	In case of spillage, absorb with inert material and dispose of in accordance with applicable regulations. Absorb spillage to prevent material damage.

### **SECTION VII – HANDLING AND STORAGE**

#### **Precautions for Safe Handling**

Advice on Safe	Wash thouroughly after handling. Use personal protection recommended
Handling	in Section 8. Do not breathe dust/fumes/gas/mist/vapor/spray

#### Conditions for safe storage, including any incompatibilities

Storage conditions	Protect against heat and moisture. Keep containers closed.
Incompatible Materials	Substances which react with water. Strongly acidic materials.

# SECTION VIII – EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Exposure guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Sodium Hydroxide	Ceiling: 2 mg/m <sup>3</sup>	TWA: $2 \text{ mg/m}^3$	IDLH: 10 mg/m <sup>3</sup>
1310-73-2		(vacated) Ceiling: 2 mg/m <sup>3</sup>	Ceiling: 2 mg/m <sup>3</sup>

#### Appropriate Engineering controls

Engineering Conrols Apply technical measures to comply with the occupational exposure limits

#### Individual protection measures, such as personal protective equipment

Eye/Face Protection	Wear eye/face protection such as safety glasses.		
Skin and Body Protection	Neoprene, rubber, or PVC gloves with gauntlets, boots, apron, and long sleeves.		
Respiratory Protection	NIOSH approved respirator		
General Hygiene considerations	Avoid contact with skin, eyes and clothing. After handling this product, wash hands before eating, drinking, or smoking. If contact occurs, remove		

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contaminated clothing. If needed, take first aid action shown on section 4 of this SDS. Launder contamincated clothing before reuse.

# SECTION IX – PHYSICAL AND CHEMICAL PROPERTIES

#### Information on basic physical and chemical properties

Physical State Appearance Color	Liquid Light straw liquid Light straw	Odor Odor Threshold	Odorless Not determined
<u>Property</u>	Values	Remarks - Method	
рН	11.4 to 12.4	1% solution	
pH	>13	neat	
Melting Point/Freezing Point	Not determined/≈32°F		
<b>Boiling Point/Boiling Range</b>	>212°F		
Flash Point	Non-combustible		
Evaporation Rate	1		
Flammability (Solid, Gas)	Non-flammable		
Upper Flammability Limits	Not applicable		
Lower Flammability Limits	Not applicable		
Vapor Pressure	Not determined		
Vapor Density	Not determined		
Specific Gravity	1.197		
Water Solubility	Complete		
Solubility in other Solvents	Not determined		
Partition Coefficient	Not determined		
Auto-ignition Temperature	Neither flammable nor explosive		
Decomposition Temperature	Not determined		
Kinematic Viscosity	Not determined		
Dynamic Viscosity	Not determined		
Explosive Properties	Not determined		
Oxidizing Properties	vidizing Properties Not determined		
Density	9.99 lbs./gal		

# SECTION X - STABILITY AND REACTIVITY

#### **Reactivity**

Not reactive under normal conditions

#### **Chemical Stability**

Stable under recommended storage conditions

#### **Possibility of Hazardous Reactions**

None under normal processing

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#### **Conditions to Avoid**

Contact with incompatible materials

#### **Incompatible Materials**

Substances which react with water. Strongly acidic materials.

#### **Hazardous Decomposition Products**

Carbon dioxide and carbon monoxide

# SECTION XI – TOXICOLOGICAL INFORMATION

#### Information on likely routes of exposure

Eye contact	Causes severe eye damage
Skin contact	Causes severe skin burns. May cause allergic skin reaction.
Inhalation	Avoid breathing vapors or mists
Ingestion	Ingestion may cause irritation

### **Component Information**

Chemical Name Oral LD50		Dermal LD50	Inhalation LC50
Sodium Hydroxide	_	_	_
1310-73-2			
Etidronic acid	1979 mg/kg (rot)	>6,000 mg/kg (rabbit)	
2809-21-4	1878 liig/kg (lat)	61 mg/kg intravenous (mouse)	
Sodium Tolyltriazole	920 mg/kg (Male Rat)		
29385-43-1	640 mg/kg (Female Rat)	-	-

#### Information on Physical, Chemical, and toxicological effects

*Symptoms* Please section 4

#### Delayed and immediate effects as well as chronic effects from short and long-term exposure

*Carcinogenicity* This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP

### Numerical measures of toxicity

Not determined

# SECTION XII – ECOLOGICAL INFORMATION

#### **Ecotoxicity**

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

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### **Component Information**

Chemical Name	Algae/aquatic	Fish	Toxicity to	<b>Crustacea</b>
Sodium Hydroxide 1310-73-2	-	-	-	-
Etidronic acid 2809-21-4		LC50 868 mg/L (96h) bluegill		EC50 527 mg/L (48h)
Sodium Tolyltriazole 29385-43-1	-	LC50 191.2mg/l (96h) bluegill sunfish	-	LC50 245.7 mg/l (48h)

#### Persistence/Degradability

Not determined

#### **Bioaccumulation**

Not determined

### **Other Adverse Effects**

Not determined

# SECTION XIII – DISPOSAL CONSIDERATIONS

#### Waste Treatment Methods

Disposal of Wastes	Disposal should be in accordance with applicable regional, national, and local laws and regulations
Contaminated Packaging	Disposal should be in accordance with applicable regional, national, and local laws and regulations

# SECTION XIV – TRANSPORT INFORMATION

Note
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Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances

#### DOT

UN/ID Number	UN1760
Proper Shipping Name	Corrosive liquid, N.O.S. (Contains Sodium Hydroxide and
	SodiumTolyltriazole)
Hazard Class	8
Packing Group	III

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# SECTION XV – REGULATORY INFORMATION

# **US FEDERAL REGULATIONS**

#### **CERCLA**

Chemical Name	<b>Reportable quantity (RQ)</b>
Sodium Hydroxide	RQ 1000 lb final RQ
1310-73-2	RQ 454 kg final RQ

# SARA 313

SECTION XVI – OTHER INFORMATION				
<u>HMIS</u>	<b>Health Hazards</b> 3	<b>Flammability</b> 0	<b>Instability</b> 0	<b>Personal Protection</b> C
Issue Date: Revision Date:	June 28, 2019			
<b>Revision Note:</b>	GHS SDS			

### **Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportaion, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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