

**ATTACHMENT A**

Table 1.1 Eagle Humboldt Mill Water Treatment Plant Additives

Additive	Originally Permitted? (Y/N)	Status	SDS Attached? (Y/N)	Proposed Discharge Concentration (mg/L)	Discharge Frequency	Outfall Number	Type of Removal <sup>(1)</sup>	Additive Function	40-hr LC50 or EC50, Freshwater planktonic Crustacean	Toxicity test, Freshwater Aquatic Species
40% Ferric Sulfate Solution	Y	Not Being Used					N/A			
Hydrex 6701	Y	Not Being Used					N/A			
Hydrex 6131	Y	Not Being Used					N/A			
Sulfuric Acid	Y	Not Being Used					N/A			
Hydrex 6909	Y	Remains in listing	Y				No Change			
Sodium Hydroxide, 25%	Y	Remains in listing	Y				No Change			
Hydrex 6521	N	New	Y	<1	365 day/year 24 hr/day	001	(1)	Metal Precipitant	>100 mg/L	>100 mg/L
Hydrochloric Acid, 30-40%	N	New	Y	(2)	365 day/year 24 hr/day	001	(1)	pH Adjustment	>100 mg/L	282 mg/L
Sodium Hypochlorite, 12.5%	N	New	Y	(2)	365 day/year 24 hr/day	001	(1)	Filter Cleaner	(4)	(4)
Sodium Bisulfite Solution, 28-32%	N	New	Y	(2)	365 day/year 24 hr/day	001	(1)	Waste Neutralization	(4)	(4)
Hydrex 3250 (Ferric Chloride 20-40%)	N	New	Y	<1	365 day/year 24 hr/day	001	(1)	flocculant	27.9-46.5 mg/L	58.9 mg/L
Polymers <sup>(3)</sup>	Y	New	N	<1	365 day/year 24 hr/day	001	(1)	flocculant	>100 mg/L	>100 mg/L

Notes:

NA = Not Applicable

1 = Water Treatment additives are treated in the plant by precipitation and filtration or neutralization with an acid or base.

2 = pH adjustment chemicals will be neutralized prior to discharge.

3 = Two polymers, not yet selected, are slated for use in the solids removal equipment. Polymers used at Eagle's other operations have LC50 and EC50 >100 mg/L. Similar products will be used.

4 = Sodium hypochlorite is used to clean Ultra Filters during backwash events. This stream is taken to a tank which is neutralized by sodium bisulfite and returned to the influent process stream. No effluent of these chemicals is discharged.



# MSDS

## MATERIAL SAFETY DATA SHEET

24 Hour Emergency Telephone Number CHEMTREC 1-800-424-9300

SUNBELT CHEMICALS 71 HARGROVE GRADE PALM COAST, FLORIDA 32137

All non-emergency questions should be directed to Customer Service (1-386-446-4595) for assistance.

### 12.5% SODIUM HYPOCHLORITE SOLUTION

#### 1. Product Identification

**Synonyms:** chlorinating solution, swimming pool chlorine, a solution of chlorine in alkaline water.

**CAS Number:** 7681-52-9

**Product Name:** SMART Hypo 1250

**Part Number:** 1250

**UPC Code:** 017926012505

**Supplier GLN:** 00179264004142

**GTIN:** 00179260125058

#### 2. Composition/Information on ingredients

<u>Ingredient</u>	<u>CAS Number</u>	<u>Percent</u>	<u>Hazardous</u>
sodium hypochlorite (NaOCl)	7681-52-9	12.5%	yes
water	7732-18-5	90%	no

#### 3. Hazards Information

##### Emergency Overview

**WARNING, HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO EYES AND RESPIRATORY TRACT. CAUSES SUBSTANTIAL, BUT TEMPORARY EYE INJURY.**

##### Potential Health Effects

**Inhalation:** May cause irritation to the nose, throat and respiratory tract. Symptoms may include coughing and sore throat.

**Ingestion:** May cause nausea, vomiting and upset stomach.

**Skin Contact:** May irritate intact skin. May cause severe irritation to mucus membranes and broken skin.

**Eye Contact:** Eye contact may cause severe irritation and damage, especially at higher concentrations.

**Chronic Exposure:** A constant irritant to the eyes and throat. Low potential for sensitization after exaggerated exposure to broken skin or mucus membranes.

**Aggravation of Pre-existing Conditions:** Persons with impaired respiratory function, or hearts disorders (or disease) may be more susceptible to the effects of hypochlorite solutions.

**Note to Physician:** Consider oral administration of sodium thiosulfate solutions if sodium hypochlorite is ingested. Do not administer neutralizing agents, exothermic reaction may result and cause further damage.

#### 4. First Aid Measures

**Inhalation:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek immediate medical attention.

**Ingestion:** If swallowed DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Seek immediate medical attention.

**Skin Contact:** In case of contact with liquid, immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Seek immediate medical attention.

**Eye Contact:** Immediately flush eyes with plenty of flowing water for at least 15 minutes, while lifting upper and lower eyelids. Seek immediate medical attention.

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#### 5. Fire Fighting Measures

**NFPA ratings:** Health **3**                      Flammability **0**                      Reactivity **0**

**Fire:** Not considered to be a fire hazard. Releases oxygen when heated, causing increased severity of an existing fire.

**Explosion:** Not considered to be an explosion hazard.

**Fire Extinguishing Media:** Water or water spray to cool fire exposed containers. Use any means to extinguish surrounding fire.

**Special Information:** In the event of fire, wear full protective clothing and NIOSH approved self-contained breathing apparatus (SCBA), with full face shield, operated in positive pressure mode. Stay away from ends of tanks. Cool tanks and drums with water spray until well after fire is out.

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#### 6. Accidental Release Measures

Adequately ventilate area of leak or spill. Wear appropriate personal protective equipment (PPE), as specified in Section 8. Isolate hazard area to keep unprotected personnel from entering. Stop the leak if possible. Contain and recover liquid when possible. Absorb spilled liquid with an inert material, such as vermiculite, sand, or earth and place recovered material in an approved, compatible chemical waste container. Do not use combustible materials such as cardboard or saw dust as an absorbent. Do not flush spilled liquid to the sewer. EPA regulations require reporting spills and releases to the soil, air and water, in excess of the reportable quantity (100 lbs of solution), to the National Response Center, telephone number 1-800-424-8802. Reporting to the State Emergency Response Commission (SERC) warning point and local authorities (911) is also required. Notify CHEMTREC, for specific information, in the event of any transportation related spills or leaks. (1-800-424-9300)

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#### 7. Handling and Storage

Store in a cool, dry, ventilated storage area with good drainage. Protect from physical damage. Keep out of sunlight, away from direct heat, water and incompatible materials. Do not wash out container and use it for other purposes. Empty containers may be hazardous since they retain product residues of liquid and vapor. Observe all warnings and precautions stated on the container label. Wear personal protective equipment when handling, opening containers and using hypochlorite solutions.

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## 8. Exposure Control and Personal Protection

### Airborne Exposure Limits:

OSHA Permissible Exposure Limit (PEL)	0.5 ppm (TWA)	1 ppm (STEL) as chlorine
NIOSH Relative Exposure Level (REL)	unavailable	
ACGIH Threshold Limit Value (TLV)	1 ppm (TWA)	3 ppm (STEL) as chlorine
NIOSH Immediately Dangerous Level (IDLH)	unavailable	

**Ventilation:** A system of local and/or general exhaust is recommended to keep exposure below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion into occupied areas.

**Personal Respirators (NIOSH Approved):** If exposure limits are exceeded and engineering controls are not feasible, a full face respirator, with an acid gas cartridge, may be worn up to 50 times the permissible exposure limit (PEL). For emergencies or instances where the exposure levels are not known, use full face, positive pressure, air supplied respirator. **WARNING,** Air purifying respirators do not provide protection in oxygen deficient atmospheres.

**Skin Protection:** Rubber or neoprene gloves and additional protection including impervious boots, apron, or coveralls, as needed in areas of unusual exposure to prevent skin contact.

**Eye Protection:** Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick drench facilities (safety shower) in work areas.

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## 9. Physical and Chemical Properties

**Appearance:** Clear to yellowish liquid.

**Odor:** Bleach like odor.

**Solubility:** Infinitely soluble in water.

**Specific Gravity:** 1.19 – 1.2

**Percent Volatile:** >98%

**Boiling Point:** 180 °F decomposes slightly

**Vapor Density:** unavailable

**Vapor Pressure:** 17.5 @ 68 F

**Evaporation Rate:** < 1 (butyl acetate = 1)

**pH:** > 10

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## 10. Stability and Reactivity

**Stability:** Slowly decomposes on contact with air. Decomposition rate increases with concentration and temperature. Exposure to sunlight accelerates decomposition. Sodium hypochlorite solutions become less toxic with age.

**Hazardous Decomposition Products:** When heated to decomposition, emits toxic chlorine fumes and will react with water or steam to produce heat and toxic, corrosive fumes. Thermal decomposition results in the emission of chlorine oxides.

**Hazardous Polymerization:** Will not occur.

**Incompatibilities:** Ammonia (chloramines gas may evolve), amines, ammonium salts, acids, methanol, cellulose, reducing agents, oxidizable metals, and bisulfates.

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## 11. Toxicological Information

Lethal ingested dose (LD50) in rats: 8.91 g/kg

Not listed on the OSHA, NTP or IARC list of carcinogens.

## 12. Ecological Information

**Environmental Fate:** Decomposes in air and light to release chlorine gas, oxygen and sodium chloride solution (salt water).

**Environmental Toxicity:** Highly toxic to aquatic organisms.

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## 13. Disposal Considerations

Small leaks and spills may be flushed away with plenty of water. Whatever cannot be recovered or recycled should be handled as hazardous waste and sent to a RCRA approved waste facility. State and local disposal regulations may differ from federal regulations. Dispose of container and contents in accordance with federal, state and local laws.

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## 14. Transport Information

**Proper Shipping Name:** 1.3 gallons, or less, may be reclassified in accordance with DOT regulation 49 CFR 173.154, as;

ORM-D, CONSUMER COMMODITY

**Full Shipping Description:** HYPOCHLORITE SOLUTIONS, 8, UN1791, PGIII (> 1.3 gal)

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## 15. Regulatory Information

**Regulated Ingredient:** sodium hypochlorite (CAS # 7681-52-9)

**TSCA Inventory Listed:** No                      **CERCLA RQ:** 80 lbs of solution

**SARA Title III, Section 302:** Not listed      **TPQ:** NA

**SARA Title III, Section 312:** Subject to Toxic Chemical Inventory Reporting

**Acute:** Yes **Chronic:** No **Fire:** No **Pressure:** No **Reactivity:** No

**SARA Title III, Section 313:** Not subject to Toxic Chemical Release Inventory Reporting

**RCRA Hazardous Waste:** Not a listed Hazardous Waste. May be Characteristic Hazardous Waste, if pH is greater than 10.0

**Clean Air Act:** Not a Listed Hazardous Air Pollutant (HAP)

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## 16. Other Information

### Label Hazard Warning:

**WARNING, HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO EYES AND RESPIRATORY TRACT. CAUSES SUBSTANTIAL, BUT TEMPORARY EYE INJURY.**

**Label Precautions:** Do not get in eyes, on skin, or on clothing. Avoid breathing vapor or mist. Keep container closed when not in use. Use with adequate ventilation. Wash thoroughly after handling. KEEP OUT OF REACH OF CHILDREN.

**Label First Aid:** If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water, for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. SEEK MEDICAL ATTENTION.

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### 1. Product and Company Identification

**Material name** Hydrex 6521  
**Version #** 03  
**Issue date** 06-08-2012  
**Revision date** 05-08-2013  
**Supersedes date** 05-08-2013  
**Chemical description** Polymer anionic emulsion  
**CAS #** Mixture  
**Product use** Wastewater Treatment  
**Manufacturer**  
**Supplier** Veolia Water Solutions & Technologies  
**Address** 945 South Brown School Road  
Vandalia, OH 45377  
United States of America  
**Contact Person** Hydrex Product Manager  
**Telephone** +1 (800) 875-4075  
**Fax** +1 (937) 890-9925  
**e-mail** crown.msds@veoliawater.com  
**Global Emergency Contact** +1-760-476-3962 (Code: 333239)

### 2. Hazards identification

#### Potential health effects

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

**Eyes** Contact may irritate or burn eyes. Avoid contact with eyes. Do not get this material in contact with eyes.

**Skin** Avoid contact with the skin. Slight irritation.

**Inhalation** Avoid breathing dust/fume/gas/mist/vapors/spray.

**Ingestion** Do not ingest.

**Target organs** Central nervous system. Eyes. Respiratory system. Skin.

**Chronic effects** Conjunctiva. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.

**Signs and symptoms** Irritant effects. Skin irritation.

**Potential environmental effects** Not expected to be harmful to aquatic organisms.

### 3. Composition / Information on Ingredients

Components	CAS #	Percent
DISTILLATES, (PETROLEUM), HYDROTREATED LIGHT	64742-47-8	20 - 40
Other components below reportable levels		60 - 80

**Composition comments** Anionic hydro-soluble polymer (emulsion).

### 4. First Aid Measures

#### First aid procedures

**Eye contact** 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 immediately. Rinse immediately with plenty of water, also under the eyelids. Get medical attention if irritation develops and persists.

<b>Skin contact</b>	Wash off immediately with soap and plenty of water. Get medical attention if irritation develops and persists. Wash off with warm water and soap.
<b>Inhalation</b>	If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Move to fresh air.
<b>Ingestion</b>	Rinse mouth thoroughly. If ingestion of a large amount does occur, call a poison control center immediately. Product is not considered toxic in small amounts.
<b>Notes to physician</b>	Symptoms may be delayed.
<b>General advice</b>	If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

## 5. Fire Fighting Measures

<b>Flammable properties</b>	The product is not flammable. No unusual fire or explosion hazards noted.
<b>Extinguishing media</b>	
<b>Suitable extinguishing media</b>	Water. Water spray. Foam. Powder. Carbon dioxide (CO2).
<b>Protection of firefighters</b>	
<b>Specific hazards arising from the chemical</b>	Material can be slippery when wet.
<b>Fire fighting equipment/instructions</b>	Not available.

## 6. Accidental Release Measures

<b>Personal precautions</b>	Keep unnecessary personnel away. Local authorities should be advised if significant spillages cannot be contained. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak. Keep upwind. Keep out of low areas. Slippery when wet.
<b>Environmental precautions</b>	Do not contaminate water.
<b>Methods for containment</b>	Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use water spray to reduce vapors or divert vapor cloud drift. This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways.
<b>Methods for cleaning up</b>	Should not be released into the environment.  Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water. Scrub the area with detergent and water.  Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.  Never return spills in original containers for re-use. For waste disposal, see section 13 of the MSDS.

## 7. Handling and Storage

<b>Handling</b>	Avoid contact with skin and eyes. Avoid release to the environment. Handle an open container with care. Mix and prepare in a place with efficient exhaust ventilation. When using do not smoke.
<b>Storage</b>	Store in a well-ventilated place. Keep container tightly closed. Keep away from food, drink and animal feeding stuffs. Keep out of the reach of children. Use care in handling/storage. Store in a dry place. Store in closed original container at temperatures between 0°C and 30°C. Do not allow material to freeze.



## 8. Exposure Controls / Personal Protection

### Occupational exposure limits

#### US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
DISTILLATES, (PETROLEUM), HYDROTREATED LIGHT (CAS 64742-47-8)	TWA	100 mg/m3

### Engineering controls

Ventilation should effectively remove and prevent buildup of any aerosols or mists generated from the handling of this product. 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.

### Personal protective equipment

#### Eye / face protection

Before any handling, wear protective glasses side-shields complying with the NF EN 166. Eye wash fountain is recommended.

#### Skin protection

Avoid contact with the skin. Wear appropriate chemical resistant clothing.

#### Respiratory protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Use a particulate filter respirator for particulate concentrations exceeding the Occupational Exposure Limit.

#### General hygiene considerations

Do not get in eyes. Avoid contact with skin. Avoid contact with clothing. Keep away from food and drink. Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical & Chemical Properties

Appearance	Viscous
Physical state	Liquid.
Form	Liquid
Odor	Aliphatic.
Melting point/Freezing point	Not applicable.
Flash point	Not applicable.
Viscosity	1200 cP
Other data	
Density	1.05 g/cm <sup>3</sup>
pH in aqueous solution	6 - 8

## 10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions.
Conditions to avoid	None under normal conditions.
Incompatible materials	This product may react with oxidizing agents.
Hazardous decomposition products	At thermal decomposition temperatures, carbon monoxide and carbon dioxide Nitrogen oxides (NOx).
Possibility of hazardous reactions	Hazardous polymerization does not occur.

## 11. Toxicological Information

### Toxicological data

Product	Species	Test Results
Hydrex 6521 (CAS Mixture)		
Acute		
Inhalation		
LC50	Rat	8000 mg/l, 4 hours, estimated

Product	Species	Test Results
<i>Oral</i> LD50	Rat	> 5000 mg/kg

\* Estimates for product may be based on additional component data not shown.

<b>Sensitization</b>	Not a skin sensitizer.
<b>Local effects</b>	Contact may irritate or burn eyes.
<b>Chronic effects</b>	Prolonged exposure may cause chronic effects. Not expected to be hazardous by WHMIS criteria.
<b>Carcinogenicity</b>	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
<b>Mutagenicity</b>	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
<b>Neurological effects</b>	Hazardous by OSHA criteria.
<b>Further information</b>	Symptoms may be delayed.

## 12. Ecological Information

### Ecotoxicological data

Product	Species	Test Results
Hydrex 6521 (CAS Mixture)		
Algae	IC50	Algae > 100 mg/l, 72 hours
Crustacea	LC50	Daphnia > 100 mg/l, 48 hours
<b>Aquatic</b>		
Fish	LC50	Danio (Danio) > 100 mg/l, 96 hours

\* Estimates for product may be based on additional component data not shown.

<b>Ecotoxicity</b>	Not expected to be harmful to aquatic organisms.
<b>Environmental effects</b>	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
<b>Aquatic toxicity</b>	Not expected to be harmful to aquatic organisms.
<b>Persistence and degradability</b>	Not readily degradable. Transformation due to hydrolysis not expected to be significant. Some components are not degraded by hydrolysis. The product contains substances which are not expected to be biodegradable.

### Bioaccumulation / Accumulation

## 13. Disposal Considerations

<b>Disposal instructions</b>	Do not allow this material to drain into sewers/water supplies. This product, in its present state, when discarded or disposed of, is not a hazardous waste according to Federal regulations (40 CFR 261.4 (b)(4)). Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste. Dispose in accordance with all applicable regulations.
<b>Waste from residues / unused products</b>	Dispose of in accordance with local regulations.
<b>Contaminated packaging</b>	Empty containers should be taken to an approved waste handling site for recycling or disposal.

## 14. Transport Information

### DOT

Not regulated as dangerous goods.

### IATA

Not regulated as dangerous goods.

## 15. Regulatory Information

### US federal regulations

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.

CERCLA/SARA Hazardous Substances - Not applicable.

### Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Not listed.

### Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Not regulated.

### DEA Exempt Chemical Mixtures Code Number

Not regulated.

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

Not regulated.

### CERCLA (Superfund) reportable quantity

None

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

#### Hazard categories

Immediate Hazard - Yes  
Delayed Hazard - Yes  
Fire Hazard - No  
Pressure Hazard - No  
Reactivity Hazard - No

#### SARA 302 Extremely hazardous substance

No

#### SARA 311/312 Hazardous chemical

Yes

### 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)	No
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. Massachusetts RTK - Substance List

DISTILLATES, (PETROLEUM), HYDROTREATED LIGHT (CAS 64742-47-8)

#### US. Pennsylvania RTK - Hazardous Substances

DISTILLATES, (PETROLEUM), HYDROTREATED LIGHT Listed.  
(CAS 64742-47-8)

#### US. Rhode Island RTK

Not regulated.

## 16. Other Information

### Further information

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

### HMIS® ratings

Health: 1\*  
Flammability: 1  
Physical hazard: 0

### NFPA ratings

Health: 1  
Flammability: 1  
Instability: 0

### Disclaimer

Veolia Water Solutions & Technologies is not able to anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use and or non respect of Veolia Water Solutions & Technologies' requirement.

### This data sheet contains changes from the previous version in section(s):

Regulatory Information: United States  
HazReg Data: North America

### 1. Identification

**Product name** Hydrex 6909  
**Supplier** VWS SEA Singapore  
**Address** No. 5 Loyang Way 1  
 Singapore 508706  
**Contact Person** Hydrex Product Manager  
**Telephone** + 65 6546 1110  
**Fax** + 65 6546 2553  
**e-mail** vwsai.hydrex@veoliawater.com  
**Global Emergency Contact** +1-760-476-3960 (Code: 333239)

#### Recommended use and Limitations on use

**Recommended use** Wastewater Metal Precipitant

### 2. Hazards identification

#### GHS classification

**Physical hazards** Not classified.

**Health hazards** Not classified.

**Environmental hazards** Not classified.

#### GHS label elements

#### Pictograms



**Signal word** Warning

**Hazard statement** None.

**Precautionary statement** None.

### 3. Composition/information on ingredients

**Substance or mixture** Mixture

#### Chemical property

Chemical name	CAS Number	Concentration (%)
Polyethyleneimine dithiocarbamate	189326-02-1	15 - 30
Other components below reportable levels		70 - < 80

### 4. First aid measures

**Inhalation** Move to fresh air. Call a physician if symptoms develop or persist.  
**Skin contact** Rinse skin with water/shower. Get medical attention if irritation develops and persists.  
**Eye contact** Rinse with water. Get medical attention if irritation develops and persists.  
**Ingestion** Rinse mouth. If ingestion of a large amount does occur, call a poison control center immediately.  
**Most important symptoms/effects, acute and delayed** Not available.  
**Personal protection for first-aid responders** Not available.  
**Notes to physician** Not available.

### 5. Fire-fighting measures

**Extinguishing media** Water fog.  
**Extinguishing media to avoid** Water. Do not use water jet as an extinguisher, as this will spread the fire.

<b>Specific hazards during fire fighting</b>	None.
<b>Special fire fighting procedures</b>	None.
<b>Protection of fire-fighters</b>	Move containers from fire area if you can do so without risk.

## 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures</b>	Keep unnecessary personnel away. Local authorities should be advised if significant spillages cannot be contained.
<b>Environmental precautions</b>	Prevent further leakage or spillage if safe to do so.
<b>Spill cleanup methods</b>	<p>Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.</p> <p>Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.</p> <p>Never return spills in original containers for re-use. For waste disposal, see section 13 of the MSDS.</p>

## 7. Handling and storage

### Handling

<b>Precautions</b>	Use care in handling/storage.
<b>Safe handling advice</b>	Not available.

### Storage

<b>Suitable storage conditions</b>	Store in original tightly closed container.
<b>Incompatible materials</b>	None known.
<b>Safe packaging materials</b>	Keep in original container.

## 8. Exposure controls/personal protection

### Control parameters/Occupational exposure limits

### Appropriate engineering control measures

### Personal protective equipment

<b>Respiratory protection</b>	No personal respiratory protective equipment normally required. If ventilation is insufficient, suitable respiratory protection must be provided.
<b>Skin protection</b>	Avoid contact with the skin. Normal work clothing (long sleeved shirts and long pants) is recommended.
<b>Eye/face protection</b>	Wear safety glasses with side shields (or goggles).
<b>Thermal hazards</b>	Not available.
<b>Hygiene measures</b>	Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

### Appearance

<b>Physical state</b>	Liquid.
<b>Form</b>	Liquid
<b>Color</b>	Red.

**Odor** Rotten-egg like.

**pH** 10 - 11.5

**Melting point/freezing point** < 19.4 °F (< -7 °C)

**Boiling point, initial boiling point, and boiling range** 212 °F (100 °C)

**Density** 1.05 - 1.15 g/cm<sup>3</sup>

**Solubility** 100 g/g Complete in water

### Other data

**Specific gravity** 1.05 - 1.15

## 10. Stability and reactivity

<b>Reactivity</b>	Strong acids. Strong oxidizing substances.
<b>Stability</b>	Material is stable under normal conditions.
<b>Conditions to avoid</b>	Temperatures above 35 °C
<b>Incompatible materials</b>	None.
<b>Hazardous decomposition products</b>	Sulfur oxides Carbon oxides. Nitrogen oxides (NOx).
<b>Possibility of hazardous reactions</b>	Not available.

## 11. Toxicological information

<b>Acute toxicity</b>	Not available.
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<b>Product</b>	<b>Test Results</b>
Hydrex 6909 (Mixture)	Acute Oral LD50 Rat: > 5000 mg/kg Presumed Non-Toxic Dermal LD50 99999 Presumed Non-Toxic Inhalation LD50 99999

\* Estimates for product may be based on additional component data not shown.

<b>Routes of exposure</b>	Not available.
<b>Symptoms</b>	Not available.
<b>Carcinogenicity</b>	Not classified.
<b>Chronic effects</b>	Not available.
<b>Relevant negative data</b>	Not available.
<b>Other information</b>	This product has no known adverse effect on human health.

## 12. Ecological information

### Ecotoxicological data

<b>Product</b>	<b>Test Results</b>
Hydrex 6909 (Mixture)	EC50 Daphnia: 100 mg/l 48.00 hours IC50 Algae: > 10 mg/l 72.00 hours LC50 Fathead minnow (Pimephales promelas): > 100 mg/l 96.00 hours LC50 Fish: 100 mg/l 96.00 hr

\* Estimates for product may be based on additional component data not shown.

<b>Ecotoxicity</b>	Not expected to be harmful to aquatic organisms.
<b>Persistence and degradability</b>	The product is not readily biodegradable.
<b>Bioaccumulation</b>	Not available.
<b>Mobility</b>	Not available.
<b>Other hazardous effects</b>	Not available.

## 13. Disposal considerations

<b>Disposal methods/information</b>	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Special precautions</b>	Not available

## 14. Transport information

### ADR

Not regulated as dangerous goods.

### IATA

Not regulated as dangerous goods.

**IMDG**

Not regulated as dangerous goods.

**SEA (Annex II of MARPOL 73/78 and the IBC Code)**      None.

**15. Regulatory information**

**Applicable regulations**      None.

**Montreal Protocol**

Not applicable.

**Rotterdam Convention**

Not applicable.

**Stockholm Convention**

Not applicable.

**16. Other information**

**References**      Not available.

**Issued by**

Hydrex Global Platform - Veolia Water Solutions & Technologies

**Prepared by**

Hydrex Global Platform Authoring Team

**Disclaimer**      The information in the sheet was written based on the best knowledge and experience currently available.

**Issue date**      06-12-2012

**Revision date**      06-12-2012

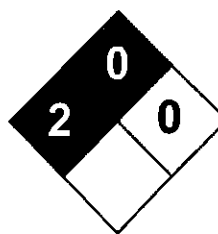
**Key/legend**      Not applicable.

**HS Code(s)**      2930.20.0900





**Science Lab.com**  
Chemicals & Laboratory Equipment



Health	2
Fire	0
Reactivity	0
Personal Protection	

## Material Safety Data Sheet

### Sodium Hydroxide, 25% MSDS

#### Section 1: Chemical Product and Company Identification

**Product Name:** Sodium Hydroxide, 25%

**Catalog Codes:** SLS4210

**CAS#:** Mixture.

**RTECS:** Not applicable.

**TSCA:** TSCA 8(b) inventory: Sodium hydroxide; Water

**CI#:** Not applicable.

**Synonym:**

**Chemical Name:** Not applicable.

**Chemical Formula:** Not applicable.

**Contact Information:**

Sciencelab.com, Inc.

14025 Smith Rd.

Houston, Texas 77396

US Sales: 1-800-901-7247

International Sales: 1-281-441-4400

Order Online: ScienceLab.com

**CHEMTREC (24HR Emergency Telephone), call:**

1-800-424-9300

**International CHEMTREC, call:** 1-703-527-3887

**For non-emergency assistance, call:** 1-281-441-4400

#### Section 2: Composition and Information on Ingredients

**Composition:**

Name	CAS #	% by Weight
Sodium hydroxide	1310-73-2	25
Water	7732-18-5	75

**Toxicological Data on Ingredients:** Sodium hydroxide LD50: Not available. LC50: Not available.

#### Section 3: Hazards Identification

**Potential Acute Health Effects:**

Very hazardous in case of skin contact (corrosive, irritant), of eye contact (irritant), of ingestion. Hazardous in case of inhalation. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

**Potential Chronic Health Effects:**

Non-corrosive for skin. Non-irritant for skin. Non-sensitizer for skin. Non-permeator by skin. Non-irritating to the eyes. Non-hazardous in case of ingestion. Non-hazardous in case of inhalation. CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe

skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

#### Section 4: First Aid Measures

**Eye Contact:**

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Finish by rinsing thoroughly with running water to avoid a possible infection. Cold water may be used.

**Skin Contact:**

If the chemical got onto the clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical got on the victim's exposed skin, such as the hands : Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cold water may be used. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

**Serious Skin Contact:**

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

**Inhalation:** Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

**Serious Inhalation:**

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. **WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

**Ingestion:**

Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

**Serious Ingestion:** Not available.

#### Section 5: Fire and Explosion Data

**Flammability of the Product:** Non-flammable.

**Auto-Ignition Temperature:** Not applicable.

**Flash Points:** Not applicable.

**Flammable Limits:** Not applicable.

**Products of Combustion:** Not available.

**Fire Hazards in Presence of Various Substances:** Not applicable.

**Explosion Hazards in Presence of Various Substances:**

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

**Fire Fighting Media and Instructions:** Not applicable.

**Special Remarks on Fire Hazards:** Not available.

**Special Remarks on Explosion Hazards:** Not available.

#### Section 6: Accidental Release Measures

**Small Spill:**

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of acetic acid.

**Large Spill:**

Corrosive liquid. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of acetic acid. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

## Section 7: Handling and Storage

**Precautions:**

Keep container dry. Do not breathe gas/fumes/ vapour/spray. Never add water to this product In case of insufficient ventilation, wear suitable respiratory equipment If you feel unwell, seek medical attention and show the label when possible. Avoid contact with skin and eyes Keep away from incompatibles such as acids.

**Storage:**

Alkalis may be stored in heavy duty gauge steel containers. Corrosive materials should be stored in a separate safety storage cabinet or room.

## Section 8: Exposure Controls/Personal Protection

**Engineering Controls:**

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

**Personal Protection:**

Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

**Personal Protection in Case of a Large Spill:**

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:**

Sodium hydroxide CEIL: 2 (mg/m<sup>3</sup>) from ACGIH [1995] Consult local authorities for acceptable exposure limits.

## Section 9: Physical and Chemical Properties

**Physical state and appearance:** Liquid.

**Odor:** Odorless.

**Taste:** Alkaline. Bitter. (Strong.)

**Molecular Weight:** Not applicable.

**Color:** Clear Colorless.

**pH (1% soln/water):** Basic.

**Boiling Point:** The lowest known value is 100°C (212°F) (Water).

**Melting Point:** Not available.

**Critical Temperature:** Not available.

**Specific Gravity:** Weighted average: 1.15 (Water = 1)

**Vapor Pressure:** The highest known value is 17.535 mm of Hg (@ 20°C) (Water).

**Vapor Density:** The highest known value is 0.62 (Air = 1) (Water).

**Volatility:** Not available.

**Odor Threshold:** Not available.

**Water/Oil Dist. Coeff.:** Not available.

**Ionicity (in Water):** Not available.

**Dispersion Properties:** See solubility in water.

**Solubility:** Easily soluble in cold water.

### Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Not available.

**Incompatibility with various substances:** Extremely reactive or incompatible with acids.

**Corrosivity:**

Highly corrosive in presence of aluminum. Slightly corrosive to corrosive in presence of glass.

**Special Remarks on Reactivity:** Not available.

**Special Remarks on Corrosivity:** Not available.

**Polymerization:** No.

### Section 11: Toxicological Information

**Routes of Entry:** Eye contact. Inhalation. Ingestion.

**Toxicity to Animals:**

LD50: Not available. LC50: Not available.

**Chronic Effects on Humans:** The substance is toxic to lungs, mucous membranes.

**Other Toxic Effects on Humans:**

Very hazardous in case of skin contact (corrosive, irritant), of ingestion. Hazardous in case of inhalation.

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:** Not available.

**Special Remarks on other Toxic Effects on Humans:** Not available.

### Section 12: Ecological Information

**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The product itself and its products of degradation are not toxic.

**Special Remarks on the Products of Biodegradation:** Not available.

### Section 13: Disposal Considerations

**Waste Disposal:**

### Section 14: Transport Information

**DOT Classification:** CLASS 8: Corrosive liquid.

**Identification :** Sodium hydroxide, solution (Sodium hydroxide) : UN1824 PG: II

**Special Provisions for Transport:** Not available.

### Section 15: Other Regulatory Information

**Federal and State Regulations:**

Pennsylvania RTK: Sodium hydroxide Massachusetts RTK: Sodium hydroxide TSCA 8(b) inventory: Sodium hydroxide; Water

**Other Regulations:** OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

**Other Classifications:**

**WHMIS (Canada):**

CLASS D-2A: Material causing other toxic effects (VERY TOXIC). CLASS E: Corrosive liquid.

**DSCL (EEC):** R35- Causes severe burns.

**HMIS (U.S.A.):**

**Health Hazard:** 2

**Fire Hazard:** 0

**Reactivity:** 0

**Personal Protection:**

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

**Health:** 2

**Flammability:** 0

**Reactivity:** 0

**Specific hazard:**

**Protective Equipment:**

Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield.

### Section 16: Other Information

**References:** Not available.

**Other Special Considerations:** Not available.

**Created:** 10/10/2005 12:05 PM

**Last Updated:** 05/21/2013 12:00 PM

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### 1. Product and Company Identification

**Material name** Hydrex 3250  
**Version #** 04  
**Issue date** 06-11-2012  
**Revision date** 07-08-2013  
**Supersedes date** 01-03-2013  
**CAS #** Mixture  
**Product use** Wastewater Flocculant and Odor Control  
**Manufacturer**  
**Supplier** Veolia Water Solutions & Technologies  
**Address** 945 South Brown School Road  
Vandalia, OH 45377  
United States of America  
**Contact Person** Hydrex Product Manager  
**Telephone** +1 (800) 875-4075  
**Fax** +1 (937) 890-9925  
**e-mail** crown.msds@veoliawater.com  
**Global Emergency Contact** +1-760-476-3962 (Code: 333239)

### 2. Hazards identification

**Emergency overview** WARNING  
Corrosive.

**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. Do not get this material in contact with eyes.

**Skin** Causes skin burns. Do not get this material in contact with skin.

**Inhalation** Causes burns. Prolonged inhalation may be harmful. Do not breathe dust/fume/gas/mist/vapors/spray.

**Ingestion** Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus and possibly the digestive tract. Do not ingest.

**Potential environmental effects** Components of this product are hazardous to aquatic life. May cause long-term adverse effects in the environment.

### 3. Composition / Information on Ingredients

Components	CAS #	Percent
FERRIC CHLORIDE	7705-08-0	20 - 40
Other components below reportable levels		60 - 80

### 4. First Aid Measures

#### First aid procedures

**Eye contact** 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 immediately.

**Skin contact** 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.

**Inhalation** Move to fresh air. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. 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 immediately.

**Ingestion** IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Never give anything by mouth to a victim who is unconscious or is having convulsions. Rinse mouth thoroughly. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't 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.

**Notes to physician** In case of shortness of breath, give oxygen. Keep victim warm.

**General advice** Immediate medical attention is required. In case of shortness of breath, give oxygen. Keep victim warm. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Do not use mouth-to-mouth method if victim ingested the substance.

## 5. Fire Fighting Measures

**Flammable properties** The product is not flammable. No unusual fire or explosion hazards noted.

### Extinguishing media

**Suitable extinguishing media** Dry chemical, CO<sub>2</sub>, sand, earth, water spray or regular foam.

### Protection of firefighters

**Protective equipment and precautions for firefighters** Wear self-contained breathing apparatus and protective clothing.

**Fire fighting equipment/instructions** Containers close to fire should be removed or cooled with water. By heating and fire, toxic vapors/gases may be formed.

## 6. Accidental Release Measures

**Personal precautions** Keep unnecessary personnel away. Local authorities should be advised if significant spillages cannot be contained. Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering them.

**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. This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways.

**Methods for cleaning up** Should not be released into the environment.

**Large Spills:** Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

**Small Spills:** Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills in original containers for re-use. For waste disposal, see section 13 of the MSDS.

## 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 get this material on clothing. Wear personal protective equipment. Do not use in areas without adequate ventilation. Avoid prolonged exposure. Wash thoroughly after handling. Avoid release to the environment. Handle an open container with care.

### Storage

Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep out of the reach of children.



## 8. Exposure Controls / Personal Protection

### Occupational exposure limits

#### US. ACGIH Threshold Limit Values

Components	Type	Value
FERRIC CHLORIDE (CAS 7705-08-0)	TWA	1 mg/m <sup>3</sup>

#### US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
FERRIC CHLORIDE (CAS 7705-08-0)	TWA	1 mg/m <sup>3</sup>

### Engineering controls

Ventilation should effectively remove and prevent buildup of any aerosols or mists generated from the handling of this product. 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.

### Personal protective equipment

#### Eye / face protection

Eye wash fountain is recommended.

#### Skin protection

Avoid contact with the skin. Wear appropriate chemical resistant clothing.

#### Respiratory protection

Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Use a particulate filter respirator for particulate concentrations exceeding the Occupational Exposure Limit. Wear a disposable respiratory equipment against droplets and which complies with NF EN 149, category FFP2.

#### General hygiene considerations

Do not get in eyes. Avoid contact with skin. Avoid contact with clothing. Keep away from food and drink. Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical & Chemical Properties

Physical state	Liquid.
Form	Liquid
Color	Orange to Brown
Odor	Acid odor
pH	< 2
Boiling point	221 - 230 °F (105 - 110 °C)
Melting point/Freezing point	10.4 °F (-12 °C)
Solubility (water)	Soluble
Other data	
Density	> 1.40 g/cm <sup>3</sup>

## 10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions.
Conditions to avoid	None under normal conditions.
Incompatible materials	Incompatible with bases. Oxidizing materials. Metals.
Hazardous decomposition products	Hydrogen chloride.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

## 11. Toxicological Information

### Toxicological data

Product	Species	Test Results
Hydrex 3250 (CAS Mixture)		
<b>Acute</b>		
<i>Dermal</i>		
LD50	Rabbit	> 20000 mg/kg
<i>Inhalation</i>		
LC50	Rat	312000 ppm
<i>Oral</i>		
LD50	Rat	1184 mg/kg

\* Estimates for product may be based on additional component data not shown.

<b>Acute effects</b>	Causes burns.
<b>Chronic effects</b>	Prolonged inhalation may be harmful.
<b>Carcinogenicity</b>	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
<b>Skin corrosion/irritation</b>	Hazardous by OSHA criteria.

## 12. Ecological Information

### Ecotoxicological data

Product	Species	Test Results
Hydrex 3250 (CAS Mixture)		
Crustacea	EC50 Daphnia	27.9 - 46.5 mg/l, 48 hours
Fish	LC50 Fish	58.9167 mg/l, 96 hours, estimated

\* Estimates for product may be based on additional component data not shown.

<b>Ecotoxicity</b>	Components of this product are hazardous to aquatic life.
<b>Environmental effects</b>	Harmful to aquatic organisms.
<b>Persistence and degradability</b>	Not available.

## 13. Disposal Considerations

<b>Waste codes</b>	D002: Waste Corrosive material [pH <=2 or =>12.5, or corrosive to steel]
<b>Disposal instructions</b>	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Incinerate the material under controlled conditions in an approved incinerator. 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>	Not applicable.
<b>Contaminated packaging</b>	Empty containers should be taken to an approved waste handling site for recycling or disposal.

## 14. Transport Information

### DOT

#### Basic shipping requirements:

<b>UN number</b>	UN2582
<b>Proper shipping name</b>	Ferric chloride, solution
<b>Hazard class</b>	8
<b>Packing group</b>	III
<b>Additional information:</b>	
<b>Special provisions</b>	B15, IB3, T4, TP1
<b>Packaging exceptions</b>	154
<b>Packaging non bulk</b>	203
<b>Packaging bulk</b>	241

**IATA**

**UN number** UN2582  
**UN proper shipping name** Ferric chloride solution  
**Transport hazard class(es)** 8  
**Packing group** III  
**ERG code** 8L

**IMDG**

**UN number** UN2582  
**UN proper shipping name** FERRIC CHLORIDE SOLUTION  
**Transport hazard class(es)** 8  
**Packing group** III  
**EmS** F-A, S-B

**DOT****IATA; IMDG****15. Regulatory Information****US federal regulations**

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.

**Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number**

Not listed.

**Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))**

Not regulated.

**DEA Exempt Chemical Mixtures Code Number**

Not regulated.

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

Not regulated.

**CERCLA (Superfund) reportable quantity**

FERRIC CHLORIDE: 1000

**Superfund Amendments and Reauthorization Act of 1986 (SARA)****Hazard categories**

Immediate Hazard - Yes  
Delayed Hazard - No  
Fire Hazard - No  
Pressure Hazard - No  
Reactivity Hazard - No

**SARA 302 Extremely hazardous substance** No  
**SARA 311/312 Hazardous chemical** No

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

FERRIC CHLORIDE (CAS 7705-08-0) Listed.

**US. Massachusetts RTK - Substance List**

FERRIC CHLORIDE (CAS 7705-08-0)

**US. Pennsylvania RTK - Hazardous Substances**

FERRIC CHLORIDE (CAS 7705-08-0) Listed.

**US. Rhode Island RTK**

FERRIC CHLORIDE (CAS 7705-08-0)

**16. Other Information**

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

**HMIS® ratings** Health: 3  
Flammability: 0  
Physical hazard: 0  
Personal protection: D

**NFPA ratings** Health: 3  
Flammability: 0  
Instability: 0  
Special hazards: COR

**Disclaimer** Veolia Water Solutions & Technologies is not able to anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use and or non respect of Veolia Water Solutions & Technologies' requirement.

**This data sheet contains changes from the previous version in section(s):** Product and Company Identification: Alternate Trade Names  
Regulatory Information: United States

# SAFETY DATA SHEET

# OxyChem<sup>®</sup>



## Hydrochloric Acid (HCl) (All Grades)

MSDS No.: M34514

Rev. Date: 2010-Feb-01

Rev. Num.:05

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Company Identification:** Occidental Chemical Corporation  
5005 LBJ Freeway  
P.O. Box 809050  
Dallas, Tx 75380-9050

**24 Hour Emergency Telephone Number:** 1-800-733-3665 or 1-972-404-3228 (U.S.); 32.3.575.55.55 (Europe); 1800-033-111 (Australia)

**To Request an MSDS: Customer Service:** MSDS@oxy.com or 1-972-404-3245  
1-800-752-5151 or 1-972-404-3700

**Trade Name:** Hydrochloric Acid (HCl)

**Synonyms:**

- Muriatic Acid
- HCl Solution
- Aqueous hydrogen chloride

**Product Use:** Process chemical, Metal cleaning, Water purification, Petroleum industry

### 2. HAZARDS IDENTIFICATION

#### EMERGENCY OVERVIEW:

**Color:** Colorless  
**Physical State:** Liquid  
**Appearance:** Clear  
**Odor:** Irritating, Pungent, Sharp  
**Signal Word:** Danger

**MAJOR HEALTH HAZARDS:** CAUSES BURNS TO THE RESPIRATORY TRACT, SKIN AND EYES. CAUSES PERMANENT EYE DAMAGE. DO NOT GET IN EYES, ON SKIN, OR ON CLOTHING.

**PHYSICAL HAZARDS:** May splatter or generate heat when mixed with water. Contact with metals may evolve flammable hydrogen gas.

**PRECAUTIONARY STATEMENTS:** Do not breathe vapor or mist. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Wash thoroughly after handling. Use only with adequate ventilation.

## Hydrochloric Acid (HCl) (All Grades)

MSDS No.: M34514

Rev. Date: 2010-Feb-01

Rev. Num.:05

### 2. HAZARDS IDENTIFICATION

\*\*\*\*\*

**POTENTIAL HEALTH EFFECTS:**

**Inhalation:** May cause irritation (possibly severe), chemical burns, and pulmonary edema.

**Skin contact:** May cause irritation (possibly severe) and chemical burns.

**Eye contact:** May cause irritation (possibly severe), chemical burns, eye damage, and blindness.

**Ingestion:** Not a likely route of exposure.

**Target Organs Affected:** Respiratory System, Skin, Eye

**Chronic Effects:** Repeated or prolonged exposure to dilute solutions may result in dermatitis. Discoloration of the teeth may occur as a result of long term exposure.

**Interaction with Other Chemicals Which Enhance Toxicity:** None known

**Medical Conditions Aggravated by Exposure:** None known

**See Section 11: TOXICOLOGICAL INFORMATION**

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component	Concentration (by weight %)	CAS - No.
Water	63 - 91	7732-18-5
Hydrogen chloride	9 - 36	7647-01-0

### 4. FIRST AID MEASURES

**INHALATION:** If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. If respiration or pulse has stopped, have a trained person administer basic life support (Cardio-Pulmonary Resuscitation and/or Automatic External Defibrillator) and CALL FOR EMERGENCY SERVICES IMMEDIATELY.

**SKIN CONTACT:** Immediately flush contaminated areas with water. Remove contaminated clothing, jewelry, and shoes immediately. Wash contaminated areas with soap and water. Thoroughly clean and dry contaminated clothing and shoes before reuse. GET MEDICAL ATTENTION IMMEDIATELY.

**EYE CONTACT:** Immediately flush eyes with a directed stream of water for at least 15 minutes, forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissues. Washing eyes within several seconds is essential to achieve maximum effectiveness. GET MEDICAL ATTENTION IMMEDIATELY.

**INGESTION:** Not a likely route of exposure.

## Hydrochloric Acid (HCl) (All Grades)

MSDS No.: M34514

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### 4. FIRST AID MEASURES

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### 5. FIRE-FIGHTING MEASURES

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**Fire Hazard:** Negligible fire hazard.

**Extinguishing Media:** Use media appropriate for surrounding fire

**Fire Fighting:** Keep unnecessary people away, isolate hazard area and deny entry. Wear NIOSH approved positive-pressure self-contained breathing apparatus operated in pressure demand mode. Move container from fire area if it can be done without risk. Cool non-leaking containers with water. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

**Sensitivity to Mechanical Impact:** Not sensitive.

**Sensitivity to Static Discharge:** Not sensitive.

**Flash point:** Not flammable

**Hazardous Combustion Products:** Hydrogen chloride, Chlorine, Hydrogen gas

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### 6. ACCIDENTAL RELEASE MEASURES

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**Occupational Release:**

Remove sources of ignition. Wear appropriate personal protective equipment recommended in Section 8 of the MSDS. Stop leak if possible without personal risk. Consider evacuation of personnel located downwind if material is leaking. Shut off ventilation system if needed. Completely contain spilled material with dikes, sandbags, etc. Neutralize with soda ash or dilute caustic soda. Collect with appropriate absorbent and place into suitable container. Liquid material may be removed with a properly rated vacuum truck. Keep out of water supplies and sewers. This material is acidic and may lower the pH of the surface waters with low buffering capacity. Releases should be reported, if required, to appropriate agencies.

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### 7. HANDLING AND STORAGE

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**Storage Conditions:** Store and handle in accordance with all current regulations and standards. Store in rubber-lined steel, acid-resistant plastic or glass containers. Keep container tightly closed. Store in a cool, dry area. Store in a well-ventilated area. Keep away from heat, sparks and open flames. Keep separated from incompatible substances. Do not store in aluminum container or use aluminum fittings or transfer lines. Protect from physical damage. Dike and vent storage tanks.

**Handling Procedures:** Avoid breathing vapor or mist. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. When mixing, slowly add to water to minimize heat generation and spattering.

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## Hydrochloric Acid (HCl) (All Grades)

MSDS No.: M34514

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### 7. HANDLING AND STORAGE

### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**OSHA Regulatory Exposure limit(s):**

Hazardous Component	CAS - No.	OSHA Final PEL TWA	OSHA Final PEL STEL	OSHA Final PEL Ceiling
Hydrogen chloride	7647-01-0	----	----	5 ppm 7 mg/m <sup>3</sup>

**Non-Regulatory Exposure Limit(s):**

The Non-Regulatory OSHA limits shown in the table are the Vacated 1989 PEL's (vacated by 58 FR 35338, June 30, 1993).

Hazardous Component	CAS - No.	ACGIH TWA	ACGIH STEL	ACGIH Ceiling	OSHA TWA (Vacated)	OSHA STEL (Vacated)	OSHA Ceiling (Vacated)
Hydrogen chloride	7647-01-0	----	----	2 ppm	----	----	5 ppm 7 mg/m <sup>3</sup>

**ENGINEERING CONTROLS:** Use closed systems when possible. Provide local exhaust ventilation where vapor or mist may be generated. Ensure compliance with applicable exposure limits.

**PERSONAL PROTECTIVE EQUIPMENT:**

**Eye Protection:** Wear chemical safety goggles with a faceshield to protect against eye and skin contact when appropriate. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

**Skin and Body Protection:** Wear chemical resistant clothing and rubber boots when potential for contact with the material exists. Always place pants legs over boots.

**Hand Protection:** Wear appropriate chemical resistant gloves

**Protective Material Types:** Nitrile, Neoprene, Butyl rubber, Polyvinyl chloride (PVC), Responder®, Trelchem®, Tychem®

Hazardous Component	Immediately Dangerous to Life/ Health (IDLH)
Hydrogen chloride	50 ppm IDLH

**Respiratory Protection:** A NIOSH approved full-face respirator equipped with acid gas cartridges (appropriate for hydrogen chloride) may be permissible under certain circumstances where airborne concentrations of hydrogen chloride are expected to exceed exposure limits, or when symptoms have been observed that are indicative of overexposure. When the level may be above the IDLH, use an SCBA or pressure-demand supplied air with an auxiliary self-contained escape pack. Pressure-demand SCBA (self-contained breathing apparatus) must be used when there is a potential for uncontrolled release or unknown concentrations. A respiratory protection program that meets 29 CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator.



## Hydrochloric Acid (HCl) (All Grades)

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### 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State:</b>	Liquid
<b>Appearance:</b>	Clear
<b>Color:</b>	Colorless
<b>Odor:</b>	Irritating, Pungent, Sharp
<b>Odor Threshold</b>	0.3 ppm (causes olfactory fatigue)
<b>Molecular Weight:</b>	36.46
<b>Molecular Formula:</b>	HCl
<b>Flash point:</b>	Not flammable
<b>Boiling Point/Range:</b>	140 - 221°F (60 - 105 °C)
<b>Freezing Point/Range:</b>	-29 to 5 °F (-34 to -15 °C)
<b>Vapor Pressure:</b>	14.6 - 80 mmHg @ 20°C
<b>Vapor Density (air=1):</b>	1.3 @ 20°C
<b>Specific Gravity (water=1):</b>	1.05 - 1.18
<b>Density:</b>	8.75 - 9.83 lbs/gal
<b>Water Solubility:</b>	100%
<b>pH:</b>	2 (0.2% solution)
<b>Volatility:</b>	9 - 36% by volume
<b>Evaporation Rate (ether=1):</b>	< 1.00 (butyl acetate=1)

### 10. STABILITY AND REACTIVITY

<b>Reactivity/ Stability:</b>	Stable at normal temperatures and pressures.
<b>Conditions to Avoid:</b>	Avoid heat, flames, sparks and other sources of ignition. Avoid contact with water. Will react with some metals forming flammable hydrogen gas. Hydrogen chloride may react with cyanide, forming lethal concentrations of hydrocyanic acid. Avoid contact with incompatible materials.
<b>Incompatibilities/ Materials to Avoid:</b>	Metals, Alkalis, Oxidizing agents, Mercuric sulfate, Perchloric acid, Carbides of calcium, cesium, rubidium, Acetylides of cesium and rubidium, Phosphides of calcium and uranium, Lithium silicide
<b>Hazardous Decomposition Products:</b>	Chlorine, Hydrogen chloride, Hydrogen gas
<b>Hazardous Polymerization:</b>	Will not occur

### 11. TOXICOLOGICAL INFORMATION

<b>Standard Draize (Eye):</b>	rabbit-eye mild
<b>Standard Draize (Skin):</b>	human-skin mild

#### TOXICITY DATA:

**Hydrochloric Acid (HCl) (All Grades)**

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**11. TOXICOLOGICAL INFORMATION**

Hazardous Component	LD50 Oral	LC50 Inhalation	LD50 Dermal
Hydrogen chloride	700 mg/kg (Rat) 900 mg/kg (Rabbit)	3124 ppm (1 hr-Rat)	5010 mg/kg (Rabbit)

**TOXICITY:**

Inhalation will cause severe irritation and possible burns with coughing and choking. If inhaled deeply, edema and hemorrhage of the lungs may occur. Prolonged exposure may cause discoloration and/or erosion of teeth. Contact with eyes causes immediate severe irritation with possible burns, permanent visual impairment, or total loss of sight. Skin contact with this material may cause severe irritation and corrosion of tissue. Ingestion may cause immediate burns of the mouth, esophagus, and stomach. Ingestion may cause intense pain, nausea, vomiting, bleeding, circulating collapse, shock and death.

**CARCINOGENICITY:** This product is not classified as a carcinogen by NTP, IARC or OSHA.

**12. ECOLOGICAL INFORMATION****ECOTOXICITY DATA:**

LC50 *Gambusia affinis*: 282 mg/L 96 h  
 LC50 goldfish: 178 mg/L (1 to 2 hour survival time)  
 LC50 bluegill: 3.6 mg/L 48 h  
 LC50 shrimp: 100 – 330 mg/L

**FATE AND TRANSPORT:**

**BIODEGRADATION:** This material is inorganic and not subject to biodegradation.

**PERSISTENCE:** This material is believed not to persist in the environment. This material is believed to exist in the disassociated state in the environment. If released to soil, hydrogen chloride will sink into the soil. The acid will dissolve some soil material (in particular, anything with a carbonate base) and will be somewhat neutralized. The remaining portion is thought to transport downward to the water table. If released to water, it dissociates almost completely and will be neutralized by natural alkalinity and carbon dioxide.

**BIOCONCENTRATION:** This material is not expected to bioconcentrate in organisms.

**ADDITIONAL ECOLOGICAL INFORMATION:** This material has exhibited toxicity to terrestrial organisms. May decrease pH of waterways and adversely affect aquatic life.

**13. DISPOSAL CONSIDERATIONS**

## Hydrochloric Acid (HCl) (All Grades)

MSDS No.: M34514

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### 13. DISPOSAL CONSIDERATIONS

Reuse or reprocess, if possible. Dispose in accordance with all applicable regulations. May be subject to disposal regulations: U.S. EPA 40 CFR 261. Hazardous Waste Number(s): D002

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### 14. TRANSPORT INFORMATION

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#### U.S.DOT 49 CFR 172.101:

**PROPER SHIPPING NAME:** Hydrochloric acid solution  
**DOT UN NUMBER:** UN1789  
**HAZARD CLASS/ DIVISION:** 8  
**PACKING GROUP:** II  
**LABELING:** 8  
**REQUIREMENTS:**  
**DOT RQ (lbs):** RQ 5,000 Lbs. (Hydrochloric acid)

#### CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

**SHIPPING NAME:** Hydrochloric acid solution  
**UN NUMBER:** UN1789  
**CLASS:** 8  
**PACKING/RISK GROUP:** II

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### 15. REGULATORY INFORMATION

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#### U.S. REGULATIONS

**OSHA REGULATORY STATUS:**

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200) (US).

**CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):**

If a release is reportable under CERCLA section 103, notify the state emergency response commission and local emergency planning committee. In addition, notify the National Response Center at (800) 424-8802 or (202) 426-2675.

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## Hydrochloric Acid (HCl) (All Grades)

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Hydrogen chloride	5000 lb (final RQ)
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**EPCRA EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.30):**

If a release is reportable under EPCRA, notify the state emergency response commission and local emergency planning committee. If the TPQ is met, facilities are subject to reporting requirements under EPCRA Sections 311 and 312.

Hydrogen chloride	5000 lb (EPCRA RQ) (liquid)	500 lb (TPQ) (gas only)
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**EPCRA SECTIONS 311/312 HAZARD CATEGORIES (40 CFR 370.21):**

Acute Health Hazard, Reactive Hazard

**EPCRA SECTION 313 (40 CFR 372.65):**

The following chemicals are listed in 40 CFR 372.65 and may be subject to Community Right-to Know Reporting requirements.

Hydrogen Chloride (Hydrochloric Acid)	Listed - Aerosol form only
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**OSHA PROCESS SAFETY (PSM) (29 CFR 1910.119):**

Not regulated

### NATIONAL INVENTORY STATUS

**U.S. INVENTORY STATUS (TSCA):** All components are listed or exempt

**TSCA 12(b):** This product is not subject to export notification

**CANADIAN DOMESTIC SUBSTANCE LIST (DSL/NDSL):** All components are listed.

### STATE REGULATIONS

	Hydrogen chloride
California Proposition 65 Cancer WARNING:	Not Listed
California Proposition 65 CRT List - Male reproductive toxin:	Not Listed
California Proposition 65 CRT List - Female reproductive toxin:	Not Listed
Massachusetts Right to Know Hazardous Substance List	Listed
New Jersey Right to Know Hazardous Substance List	sn 1012; sn 2909 (gas only)
New Jersey Special Health Hazards Substance List	corrosive
New Jersey - Environmental Hazardous Substance List	Listed
Pennsylvania Right to Know Hazardous Substance List	Listed
Pennsylvania Right to Know Special Hazardous Substances	Not Listed
Pennsylvania Right to Know Environmental Hazard List	Listed
Rhode Island Right to Know Hazardous Substance List	Listed

### CANADIAN REGULATIONS

## Hydrochloric Acid (HCl) (All Grades)

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

	Hydrogen chloride
Canada - CEPA Schedule I - Toxic Substance list	Not Listed
WHMIS Classification:	E

### 16. OTHER INFORMATION

**Disclaimer:**

This information is intended solely for the use of individuals trained in the NFPA and/or HMIS systems.

HMIS: (SCALE 0-4) (Rated using National Paint & Coatings Association HMIS: Rating Instructions, 2nd Edition)

Health: 3                      Flammability: 0                      Reactivity: 1

NFPA 704 - Hazard Identification Ratings (SCALE 0-4)

Health: 3                      Flammability: 0                      Reactivity: 1

**IMPORTANT:**

The information presented herein, while not guaranteed, was prepared by technical personnel and is true and accurate to the best of our knowledge. NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, OR WARRANTY OR GUARANTY OF ANY OTHER KIND, EXPRESS OR IMPLIED, IS MADE REGARDING PERFORMANCE, SAFETY, SUITABILITY, STABILITY OR OTHERWISE. This information is not intended to be all-inclusive as to the manner and conditions of use, handling, storage, disposal and other factors that may involve other or additional legal, environmental, safety or performance considerations, and OxyChem assumes no liability whatsoever for the use of or reliance upon this information. While our technical personnel will be happy to respond to questions, safe handling and use of the product remains the responsibility of the customer. No suggestions for use are intended as, and nothing herein shall be construed as, a recommendation to infringe any existing patents or to violate any Federal, State, local or foreign laws.

OSHA Standard 29 CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, material safety data sheets, training and access to written records. We request that you, and it is your legal duty to, make all information in this Material Safety Data Sheet available to your employees.

### 1. Product and Company Identification

**Material name** Hydrex 1321  
**Version #** 01  
**Revision date** 07-13-2011  
**CAS #** Mixture  
**Product use** Oxygen Scavenger  
**Manufacturer**  
**Supplier** Crown Solutions  
**Address** 945 South Brown School Road  
 Vandalia, OH 45377  
 United States of America  
**Contact Person** Hydrex Product Manager  
**Telephone** +1 (800) 875-4075  
**Fax** +1 (937) 890-9925  
**e-mail** crown.msds@veoliawater.com  
**Global Emergency Contact** +1-760-476-3962 (Code: 333239)

### 2. Hazards Identification

**Emergency overview** DANGER  
 Corrosive. Causes skin and eye burns. Harmful in contact with eyes. 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. Eye contact may result in corneal injury. Risk of serious damage to eyes. Do not get this material in contact with eyes.
- Skin** Causes skin burns. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis. Avoid contact with the skin.
- Inhalation** Causes burns. Prolonged inhalation may be harmful. Avoid breathing dust/fume/gas/mist/vapors/spray.
- Ingestion** 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. Do not ingest.

**Target organs** Eyes,, Respiratory system Skin.

**Chronic effects** Conjunctiva. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.

**Signs and symptoms** Corneal damage. Conjunctivitis. Irritation of eyes and mucous membranes. Defatting of the skin. Skin irritation. Rash.

**Potential environmental effects** Components of this product are hazardous to aquatic life. May cause long-term adverse effects in the environment.

### 3. Composition / Information on Ingredients

Components	CAS #	Percent
SODIUM BISULFITE	7631-90-5	20 - 40
Other components below reportable levels		60 - 80

## 4. First Aid Measures

### First aid procedures

- Eye contact** 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 immediately.
- Skin contact** Wash off with warm water and soap. For minor skin contact, avoid spreading material on unaffected skin. Get medical attention if irritation develops and persists.
- Inhalation** Move to fresh air. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. 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 immediately.
- Ingestion** Rinse mouth thoroughly. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't 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 ingestion of a large amount does occur, call a poison control center immediately.

### Notes to physician

In case of shortness of breath, give oxygen. Symptoms may be delayed.

### General advice

Immediate medical attention is required. In case of shortness of breath, give oxygen. Keep victim warm. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

## 5. Fire Fighting Measures

### Flammable properties

The product is not flammable. No unusual fire or explosion hazards noted.

### Extinguishing media

#### Suitable extinguishing media

Water fog. Dry chemical, CO<sub>2</sub>, sand, earth, water spray or regular foam.

### Fire fighting equipment/instructions

In the event of fire, cool tanks with water spray.

### Hazardous combustion products

May include oxides of nitrogen.

## 6. Accidental Release Measures

### Personal precautions

Keep unnecessary personnel away. Local authorities should be advised if significant spillages cannot be contained. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak. Keep upwind. Keep out of low areas.

### 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, sewer, basements or confined areas.

### Methods for cleaning up

Should not be released into the environment.

**Large Spills:** Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

**Small Spills:** Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills in original containers for re-use. For waste disposal, see section 13 of the MSDS.

## 7. Handling and Storage

### Handling

Do not get this material in contact with eyes. Avoid contact with skin. Do not use in areas without adequate ventilation. Avoid prolonged exposure. Wash thoroughly after handling. Avoid release to the environment. Handle an open container with care.

### Storage

Store in a well-ventilated place. Keep container tightly closed. Keep away from food, drink and animal feeding stuffs. Keep out of the reach of children. Use care in handling/storage.

## 8. Exposure Controls / Personal Protection

### Occupational exposure limits

#### ACGIH

#### Components

#### Type

#### Value

SODIUM BISULFITE (7631-90-5)

TWA

5 mg/m<sup>3</sup>

#### Engineering controls

Ensure adequate ventilation, especially in confined areas.

#### Personal protective equipment

##### Eye / face protection

Do not get in eyes. Chemical goggles are recommended. Eye contact MUST be prevented by means of suitable personal protection equipment. Eye wash fountain and emergency showers are recommended.

##### Skin protection

Do not get this material in contact with skin. Do not get this material on clothing. Wear appropriate chemical resistant clothing. Structural firefighters protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations. Chemical resistant gloves. Apron and long sleeves are recommended.

##### Respiratory protection

Do not breathe dust/fume/gas/mist/vapors/spray. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

##### General hygiene considerations

When using, do not eat, drink or smoke. Do not get in eyes. Do not get this material in contact with skin. Do not get this material on clothing. Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical & Chemical Properties

#### Physical state

Liquid.

#### Form

Liquid

#### pH

3.5 - 4.5

#### Boiling point

219 °F (104 °C)

#### Solubility (water)

100 % complete

#### Specific gravity

1.32 - 1.38

## 10. Chemical Stability & Reactivity Information

#### Chemical stability

Material is stable under normal conditions.

#### Conditions to avoid

None under normal conditions.

#### Incompatible materials

Not available.

#### Hazardous decomposition products

Nitrogen oxides (NO<sub>x</sub>). Sulfur oxides. Sulphur oxides.

#### Possibility of hazardous reactions

Hazardous polymerization does not occur.

## 11. Toxicological Information

### Toxicological data

#### Product

#### Test Results

Hydrex 1321 (Mixture)

Acute Oral LD50 Rat: 5.26 g/kg calculated

Acute Other LD50 Dog: 642.11 mg/kg calculated

Acute Other LD50 Mouse: 342.11 mg/kg calculated

Acute Other LD50 Rabbit: 1.76 mg/kg calculated

Acute Other LD50 Rat: 302.63 mg/kg calculated

#### Components

#### Test Results

SODIUM BISULFITE (7631-90-5)

Acute Oral LD50 Rat: 2 g/kg

\* Estimates for product may be based on additional component data not shown.

#### Acute effects

Causes burns.

Material name: Hydrex 1321

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<b>Local effects</b>	Components of the product may be absorbed into the body through the skin. Contact may irritate or burn eyes.
<b>Chronic effects</b>	Hazardous by OSHA criteria. Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.
<b>Carcinogenicity</b>	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
<b>ACGIH Carcinogens</b>	
SODIUM BISULFITE (CAS 7631-90-5)	A4 Not classifiable as a human carcinogen.
<b>IARC Monographs. Overall Evaluation of Carcinogenicity</b>	
SODIUM BISULFITE (CAS 7631-90-5)	3 Not classifiable as to carcinogenicity to humans.
<b>Skin corrosion/irritation</b>	Hazardous by OSHA criteria.

## 12. Ecological Information

### Ecotoxicological data

Product	Test Results
Hydrex 1321 (Mixture)	LC50 Daphnia: 205.26 mg/l 72.00 hours calculated LC50 Daphnia: 213.16 mg/l 96.00 hours calculated LC50 Fish: 631.58 mg/l 96.00 hours calculated
Components	Test Results
SODIUM BISULFITE (7631-90-5)	LC50 Water flea (Daphnia magna): 82 mg/l 96.00 hours LC50 Western mosquitofish (Gambusia affinis): 240 mg/l 96.00 hours

\* Estimates for product may be based on additional component data not shown.

<b>Ecotoxicity</b>	Components of this product are hazardous to aquatic life.
<b>Environmental effects</b>	Harmful to aquatic organisms.
<b>Bioaccumulative potential</b>	Not available.
<b>Persistence and degradability</b>	Not available.

## 13. Disposal Considerations

<b>Disposal instructions</b>	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Incinerate the material under controlled conditions in an approved incinerator. 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>	Not applicable.
<b>Contaminated packaging</b>	Empty containers should be taken to an approved waste handling site for recycling or disposal.
<b>Waste codes</b>	D002: Waste Corrosive material [pH <=2 or >=12.5, or corrosive to steel]

## 14. Transport Information

### DOT

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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### Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2))

Not regulated

### DEA Essential Chemical Code Number

Not regulated

### Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Not regulated

Material name: Hydrex 1321

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**DEA Exempt Chemical Mixtures Code Number**

Not regulated

**CERCLA (Superfund) reportable quantity**

SODIUM BISULFITE: 5000

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

**Hazard categories**  
 Immediate Hazard - Yes  
 Delayed Hazard - Yes  
 Fire Hazard - No  
 Pressure Hazard - No  
 Reactivity Hazard - No

**Section 302 extremely hazardous substance** No

**Section 311 hazardous chemical** Yes

**Clean Water Act (CWA)** Hazardous substance

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

SODIUM BISULFITE (CAS 7631-90-5) Listed.

**16. Other Information**

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

**HMIS® ratings**  
 Health: 2\*  
 Flammability: 0  
 Physical hazard: 0

**NFPA ratings**  
 Health: 2  
 Flammability: 0  
 Instability: 0

**Disclaimer** Veolia Water Solutions & Technologies is not able to anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use and or non respect of Veolia Water Solutions & Technologies' requirement.

**Issue date** 07-13-2011

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Material name: Hydrex 1321

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