

## Safety Data Sheet

### Section 1. Identification

**Product name** : BriteGuard™ BLUE 1 L  
**Product code** : 425065  
**Uses advised against** : Consumer, private households, general public  
**Product type** : Liquid.  
**Validation date** : 1/23/2014.

Manufacturer - Supplier	Telephone no.:	Fax no.	Emergency phone:
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Cookson Enthone Chemistry Trading (Shanghai) Co., Ltd. Rm 201, No.388 of Muhua North Road, Fengxian District, Shanghai	Tel: 86-21-6390 0600	Fax: 86-21-50912810	Tel: 0532-8388 9090 (24- hour)
Enthone Chemistry A Division of Cookson Singapore Pte Ltd 26 Tuas West Road Singapore 638382	Tel: (65) 6861 1773	Fax: (65) 68611145	Tel: (65) 6861 1773
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### Section 2. Hazards identification

**Classification of the substance or mixture** : OXIDIZING LIQUIDS - Category 2  
 ACUTE TOXICITY: ORAL - Category 3  
 ACUTE TOXICITY: INHALATION - Category 1  
 SKIN CORROSION/IRRITATION - Category 1A  
 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1  
 RESPIRATORY SENSITIZATION - Category 1  
 SKIN SENSITIZATION - Category 1

## Section 2. Hazards identification

GERM CELL MUTAGENICITY - Category 1B  
CARCINOGENICITY - Category 1A  
TOXIC TO REPRODUCTION [Fertility] - Category 1B  
TOXIC TO REPRODUCTION [Unborn child] - Category 1B  
SPECIFIC TARGET ORGAN TOXICITY [respiratory tract] - Category 2  
SPECIFIC TARGET ORGAN TOXICITY [Respiratory tract irritation] - Category 3  
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1  
AQUATIC TOXICITY (ACUTE) - Category 2  
AQUATIC TOXICITY (CHRONIC) - Category 2

### GHS label elements

#### Symbol



#### Signal word

: Danger

#### Hazard statements

: May intensify fire; oxidizer.  
Fatal if inhaled.  
Toxic if swallowed.  
Causes severe skin burns and eye damage.  
May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
May cause an allergic skin reaction.  
May cause genetic defects.  
May cause cancer.  
May damage fertility or the unborn child.  
May cause damage to organs. (respiratory tract)  
May cause respiratory irritation.  
Causes damage to organs through prolonged or repeated exposure.  
Toxic to aquatic life with long lasting effects.

THIS PRODUCT CONTAINS A FLUORIDE COMPOUND. SYMPTOMS MAY BE DELAYED. AVOID EXPOSURE. SEEK MEDICAL ATTENTION IMMEDIATELY IF EXPOSURE IS SUSPECTED.

#### Precautionary statements

##### Prevention

: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust or mist. Wash thoroughly after handling. Use personal protective equipment as required. Wear protective gloves. Wear protective clothing. Wear eye/face protection. Wear respiratory protection. Keep away from heat. Take any precaution to avoid mixing with incompatibles. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Keep out of reach of children. Do not eat, drink or smoke when using this product. Do not breathe vapor. Contaminated work clothing should not be allowed out of the workplace. If medical advice is needed, have product container or label at hand.

##### Response

: Fluoride Compounds: SYMPTOMS MAY BE DELAYED: Clinical signs and symptoms may not appear for up to 24 hours. Concentrations as low as 2% may cause symptoms with prolonged skin contact. When exposure is suspected, immediate medical attention is critical to minimize damage. May be fatal if absorbed through the skin, inhaled or ingested. Immediately contact emergency response personnel. Get medical attention immediately. In addition to the basic first aid procedures outlined below, it is highly recommended that emergency procedures be established by your company's physician, to be used in case of fluorine poisoning. This procedures may include the administration by qualified personnel of antidotes such as Aqueous Hyamine, Zephiran Chloride, or Calcium Gluconate Solutions for treating affected skin, as well as use of Pontocaine Hydrochloride Solution for eye application.

## Section 2. Hazards identification

Immediately call a POISON CENTER or doctor/physician. IF SWALLOWED: Rinse mouth. Do not induce vomiting unless directed to do so by medical personnel. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash with plenty of soap and water. Wash contaminated clothing before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. IF exposed or concerned: Get medical attention/advice. If experiencing respiratory symptoms call a POISON CENTER or doctor/physician. Collect spillage.

- Storage** : Store locked up. Store away from combustibles.
- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.

**Other hazards which do not result in classification** : Not available.

## Section 3. Composition/information on ingredients

**Substance/mixture** : Mixture

Ingredient name	%	CAS number
Inorganic acid	40-50	-
Chromate salt.	1-10	-
ammonium bifluoride	1-10	1341-49-7
hexchrome salt 1	1-10	-
sulphuric acid	1-10	7664-93-9

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

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

## Section 4. First aid measures

### Description of necessary first aid measures

- Inhalation** : Sensitizer to lungs. Sensitized persons may subsequently show asthmatic symptoms when exposed to atmospheric concentrations well below the OEL. In the event of any complaints or symptoms, avoid further exposure. Get medical attention immediately. If it is suspected that mists are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Move exposed person to fresh air. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Keep person warm and at rest. If unconscious, place in recovery position and get medical attention immediately. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Ingestion** : Get medical attention immediately. Chemical burns must be treated promptly by a physician. Move exposed person to fresh air. Wash out mouth with water. Keep person warm and at rest. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Remove dentures if any. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. If unconscious, place in recovery position and get medical attention immediately. Never give anything by mouth to an unconscious person. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by

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## **Section 4. First aid measures**

medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs.

Follow company first aid procedures for fluoride exposure which may include having victim drink a 10% calcium gluconate solution with 8 to 10 oz. Of water for dilution of material in stomach.

### **Skin contact**

- : Get medical attention immediately. Chemical burns must be treated promptly by a physician. Provide a readily-accessible eyewash facility and quick-drench safety shower. In case of contact, immediately flush skin with plenty of water for at least 30 minutes while removing contaminated clothing and shoes. Continue to rinse for at least 15 minutes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Remove contaminated clothing and shoes. Sensitizer to skin Sensitization may result in dermatitis. In the event of any complaints or symptoms, avoid further exposure. Wash contaminated clothing before reuse. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Follow company first aid procedures for fluoride exposure which may include soaking the affected area with iced 0.2% water solution of hyamine 1622 or iced 0.13% solution of zepharin. If soaking is not possible, compresses soaked in one of these solutions may be applied, changing them every 2 minutes. For sensitive areas (lips, mouth, etc.) A 2.5% calcium gluconate jelly may be used. Seek immediate medical attention.

### **Eye contact**

- : Get medical attention immediately. Chemical burns must be treated promptly by a physician. Check for and remove any contact lenses. Immediately flush eyes with running water for at least 30 minutes, keeping eyelids open.

Washing eyes within several seconds of exposure is essential to minimize damage. Follow company first aid procedures for fluoride exposure which may include applying one or two drops of a 0.5% pontocaine hydrochloride solution into the affected eye(s) if a physician is not immediately available. Do not use any skin treatment preparations for burns to the eye(s).

### **Over-exposure signs/symptoms**

See section 11 for more detailed information on health effects and symptoms.

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

#### **Specific treatments**

- : Fluoride Compounds: SYMPTOMS MAY BE DELAYED: Clinical signs and symptoms may not appear for up to 24 hours. Concentrations as low as 2% may cause symptoms with prolonged skin contact. When exposure is suspected, immediate medical attention is critical to minimize damage. May be fatal if absorbed through the skin, inhaled or ingested. Immediately contact emergency response personnel. Get medical attention immediately. In addition to the basic first aid procedures outlined below, it is highly recommended that emergency procedures be established by your company's physician, to be used in case of fluorine poisoning. This procedures may include the administration by qualified personnel of antidotes such as Aqueous Hyamine, Zephiran Chloride, or Calcium Gluconate Solutions for treating affected skin, as well as use of Pontocaine Hydrochloride Solution for eye application.

#### **Notes to physician**

- : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

#### **Protection of first-aiders**

- : No action shall be taken involving any personal risk or without suitable training. If it is suspected that mists are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Personnel should wear protective clothing. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

## Section 5. Fire-fighting measures

### Extinguishing media

- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
- Not suitable** : None known.
- Specific hazards arising from the chemical** : Oxidizing material. May intensify fire. In a fire or if heated, a pressure increase will occur and the container may burst. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:  
nitrogen oxides  
sulfur oxides  
halogenated compounds  
metal oxide/oxides
- Special precautions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
- Remark** : Not available.

## Section 6. Accidental release measures

- Personal precautions, protective equipment and emergency procedures** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.
- Methods and materials for containment and cleaning up**
- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Do not absorb in sawdust or other combustible material. It may lead to a fire risk when it dries out. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Do not absorb in sawdust or other combustible material. It may lead to a fire risk when it dries out. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

## Section 7. Handling and storage

### Precautions for safe handling

: Avoid exposure - obtain special instructions before use. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not get in eyes or on skin or clothing. Put on appropriate personal protective equipment (see section 8). Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. May cause sensitization by inhalation. Skin sensitizer. Persons with a history of skin sensitization problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Avoid exposure during pregnancy. Do not breathe vapor or mist. Do not ingest. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Be sure area is equipped with all necessary emergency equipment including fire extinguishers, and spill response materials. Keep away from combustible materials. Empty containers retain product residue and can be hazardous. Do not reuse product container. Avoid release to the environment. Do not breathe gas, fumes or vapor.

### Conditions for safe storage, including any incompatibilities

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

## Section 8. Exposure controls/personal protection

### Control parameters

Ingredient name	Exposure limits
Inorganic acid	<p><b>ACGIH TLV (United States, 3/2012).</b>                      STEL: 10 mg/m<sup>3</sup> 15 minute(s).                      STEL: 4 ppm 15 minute(s).                      TWA: 5.2 mg/m<sup>3</sup> 8 hour(s).                      TWA: 2 ppm 8 hour(s).</p>
Chromate salt.	<p><b>ACGIH TLV (United States, 3/2012).</b>                      TWA: 0.05 mg/m<sup>3</sup>, (measured as Cr)                      8 hour(s). Form: Soluble</p>
ammonium bifluoride	<p><b>ACGIH TLV (United States, 3/2012). Notes: as F</b>                      TWA: 2.5 mg/m<sup>3</sup>, (as F) 8 hour(s).</p>
hexchrome salt 1	<p><b>ACGIH TLV (United States, 9/2004). Notes: Substance identified by other sources as a suspected or confirmed human carcinogen. NOC = not otherwise classified. 1994-1995 Adoption Substances for which the TLV is higher than the OSHA Permissible Exposure Limit (PEL) and/or the NIOSH Recommended Exposure Limit (REL). See CFR 58(124) :36338-33351, June 30, 1993, for revised OSHA PEL. Identifies substances identified in the BEI documentation for Methemoglobin inducers (for which methemoglobin is the principle toxicity) and organophosphorous cholinesterase inhibitors are part of this notation. Refers to Appendix A -- Carcinogens.</b></p>

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## Section 8. Exposure controls/personal protection

sulphuric acid

TWA: 0.05 mg/m<sup>3</sup> 8 hour(s). Form: Soluble  
**ACGIH TLV (United States, 3/2012). Notes: measured as Cr**

TWA: 0.05 mg/m<sup>3</sup>, (measured as Cr)  
8 hour(s). Form: Soluble

**ACGIH TLV (United States, 3/2012). Notes: Refers to Appendix A -- Carcinogens. Thoracic fraction. See Appendix C, paragraph B. Thoracic Particulate Mass TLVs (TPM-TLVs) for those materials that are hazardous when deposited anywhere within the lung airways and the gas-exchange region. Sulfuric acid contained in strong inorganic acid mists ACGIH 2004 Adoption**

TWA: 0.2 mg/m<sup>3</sup> 8 hour(s).

**Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

**Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

**Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### Individual protection measures

**Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed.

**Respiratory protection** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

**Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. The user must check that the final choice of type of glove selected for handling this product is the most appropriate and takes into account the particular conditions of use, as included in the user's risk assessment.

**Eye protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. Avoid contact with eyes. Use safety eyewear designed to protect against splash of liquids.

**Skin protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Avoid contact with skin and clothing. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

## **Section 9. Physical and chemical properties**

<b>Physical state</b>	: Liquid.
<b>Color</b>	: reddish
<b>Odor</b>	: Pungent.
<b>Odor threshold</b>	: Not available.
<b>pH</b>	: Not available.
<b>Melting point</b>	: Not available.
<b>Boiling point</b>	: >100°C (>212°F)
<b>Flash point</b>	: Not available.
<b>Burning time</b>	: Not applicable.
<b>Burning rate</b>	: Not applicable.
<b>Evaporation rate</b>	: <1 (butyl acetate = 1)
<b>Flammability (solid, gas)</b>	: Not available.
<b>Lower and upper explosive (flammable) limits</b>	: Not available.
<b>Vapor pressure</b>	: Not available.
<b>Vapor density</b>	: Not available.
<b>Relative density</b>	: 1.3
<b>Solubility</b>	: Easily soluble in the following materials: cold water and hot water.
<b>Octanol/water partition coefficient</b>	: Not available.
<b>Decomposition temperature</b>	: Not available.
<b>Auto-ignition temperature</b>	: Not available.
<b>Viscosity</b>	: Not available.

## **Section 10. Stability and reactivity**

<b>Chemical stability</b>	: The product is stable.
<b>Possibility of hazardous reactions</b>	: Hazardous reactions or instability may occur under certain conditions of storage or use. Conditions may include the following: contact with combustible materials Reactions may include the following: risk of causing or intensifying fire
<b>Conditions to avoid</b>	: Drying on clothing or other combustible materials may cause fire. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Avoid release to the environment.
<b>Incompatibility with various substances</b>	: Reactive with oxidizing agents, combustible materials, organic materials, alkalis.
<b>Hazardous decomposition products</b>	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
<b>Hazardous polymerization</b>	: Under normal conditions of storage and use, hazardous polymerization will not occur.

## **Section 11. Toxicological information**

<b>Routes of entry</b>	: Dermal contact. Eye contact. Inhalation. Ingestion.
<b><u>Potential health effects</u></b>	



## Section 11. Toxicological information

**Inhalation** : Fatal if inhaled. May cause damage to organs following a single exposure if inhaled. May cause respiratory irritation. May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure. Adverse symptoms may include the following: respiratory tract irritation coughing Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels. Sensitized persons may subsequently show asthmatic symptoms when exposed to atmospheric concentrations well below the OEL. May cause cancer if inhaled. Risk of cancer depends on duration and level of exposure. May cause damage to organs through prolonged or repeated exposure if inhaled.

Fluoride Compounds: Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract. Symptoms include: burning sensation, coughing, wheezing and breathing difficulties, shortness of breath, headache, nausea or vomiting, pulmonary edema. Severe over-exposure can result in death.

**Ingestion** : Toxic if swallowed. May cause burns to mouth, throat and stomach. May cause cancer if swallowed. Risk of cancer depends on duration and level of exposure. May cause damage to organs through prolonged or repeated exposure if swallowed.

Fluoride Compounds: Symptoms include: necrotic lesions, hemorrhagic gastritis, pancreatitis

**Skin** : Causes severe burns. Skin Sensitizer: May cause an allergic skin reaction. Fluoride compounds are highly corrosive and readily penetrates the skin causing destruction of deep tissue layers, including bone. Pain may be delayed for up to 24 hours following exposure to concentrations of 1-50% and is often not reported until tissue damage is extreme. Concentrations greater than 50% cause immediate burning, redness and tissue damage. Without immediate medical attention, tissue destruction may continue for days and result in limb loss or death. The extent of burns depends on the concentration, temperature and duration of contact with the acid. Systemic fluoride toxicity can cause hypocalcemia, hypomagnesemia, hyperkalemia, pulmonary edema, metabolic acidosis, ventricular arrhythmias and possible death.

**Eyes** : Causes serious eye damage. Direct contact with the eyes can cause irreversible damage, including blindness.

### Chronic toxicity

**Carcinogenicity** : May cause cancer. Risk of cancer depends on duration and level of exposure.

**Mutagenicity** : Contains material which can cause heritable genetic effects.

**Teratogenicity** : May damage the unborn child.

**Fertility effects** : May damage fertility or the unborn child.

### Specific target organ toxicity

Name	Category	Route of exposure	Target organs
Chromate salt.	Category 3	Not determined	Respiratory tract irritation
hexchrome salt 1	Category 1	Not determined	respiratory tract

### Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Chromate salt.	Category 1	Not determined	Not determined

### Numerical measures of toxicity

#### Acute toxicity estimates

## Section 11. Toxicological information

Route		ATE value		
Oral		200.8 mg/kg		
Dermal		8800 mg/kg		
Inhalation (vapors)		0.1977 mg/l		

Product/ingredient name	Result	Species	Dose	Exposure
Inorganic acid	LC50 Inhalation Vapor	Rat	130 mg/m <sup>3</sup>	4 hours
	LDLo Oral	Human	430 mg/kg	-
Chromate salt.	LD50 Oral	Rat	50 mg/kg	-
	LDLo Dermal	Guinea pig	335 mg/kg	-
hexchrome salt 1	LDLo Oral	Child	50 mg/kg	-
	LD50 Oral	Rat	52 mg/kg	-
sulphuric acid	LD50 Oral	Rat	80 mg/kg	-
	LC50 Inhalation Vapor	Mouse	320 mg/m <sup>3</sup>	2 hours
	LC50 Inhalation Vapor	Mouse	160 mg/m <sup>3</sup>	4 hours
	LC50 Inhalation Vapor	Rat	510 mg/m <sup>3</sup>	2 hours
	LD50 Oral	Rat	2140 mg/kg	-
	LD50 Oral	Rat	2140 mg/kg	-

**Additional information:**  
**Mutagenicity**

**Sulphuric acid:** The International Agency for Research on Cancer (IARC) classified "strong inorganic acid mists containing sulfuric acid" as a Category 1 carcinogen, a substance that is "carcinogenic to humans". This classification is for strong inorganic acid mists only and does not apply to sulfuric acid or sulfuric acid solutions.

Strong inorganic acid mists containing sulfuric acid are also listed by The National Toxicology Program (NTP) as known human carcinogens. This limits the classification to sulfuric acid aerosols and does not extend to the liquid product, unless the acid is used under conditions that result in the formation of mists or aerosols. Fuming acid is covered by the classification.

Under normal conditions, the manufacture of this product is not expected to produce strong inorganic mists containing sulfuric acid.

Product/ingredient name	Test	Experiment	Result
Chromate salt.	-	In vitro; Bacteria	Positive
	-	In vitro; Mammalian-Animal; Somatic	Positive
hexchrome salt 1	-	In vitro; Bacteria	Positive
	-	In vitro; Mammalian-Human; Somatic	Positive
	-	In vivo; Mammalian-Animal	Positive

**Reproductive toxicity**

Product/ingredient name	Maternal toxicity	Fertility	Developmental toxin	Species	Dose	Exposure
Chromate salt.	-	Equivocal	-	Rat - Male	Intraperitoneal: 20 mg/kg TDLo	-

## Section 12. Ecological information

**Ecotoxicity** : This material is toxic to aquatic life with long lasting effects.

### Aquatic and terrestrial toxicity

Product/ingredient name	Test	Result		
Inorganic acid	-	Acute LC50 180000 ug/L Marine water	Crustaceans - Green or European shore crab - Carcinus maenas - Adult	48 hours
hexchrome salt 1	-	Acute EC50 0.76 mg/L	Daphnia	48 hours
	-	Acute LC50 28 mg/L	Fish	96 hours
	-	Acute LC50 44 mg/L	Fish	96 hours
sulphuric acid	-	Acute LC50 42500 ug/L Marine water	Crustaceans - Aesop shrimp - Pandalus montagui - Adult	48 hours
	-	Acute LC50 42000 ug/L Fresh water	Fish - Western mosquitofish - Gambusia affinis - Adult	96 hours

**Conclusion/Summary** : Not available.

### Persistence/degradability

Product/ingredient name	Test	Result
Not available.		

**Conclusion/Summary** : Not available.

Product/ingredient name	Aquatic half-life	Photolysis
Not available.		

### Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
Inorganic acid	-0.21	-	low












**Mobility** : Not available.

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

## Section 13. Disposal considerations

**Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

## Section 14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG* Label	Additional information
<b>DOT Classification</b>	UN3093	Corrosive liquid, oxidizing, n.o.s. (Inorganic acid, Chromate salt.)	8 (5.1)	II  	ERG#140 -
<b>IMDG Class</b>	UN3093	Corrosive liquid, oxidizing, n.o.s. (Inorganic acid, Chromate salt.). Marine pollutant (Chromate salt., hexchrome salt 1)	8 (5.1)	II   	-
<b>IATA-DGR Class</b>	UN3093	Corrosive liquid, oxidizing, n.o.s. (Inorganic acid, Chromate salt.)	8 (5.1)	II   	-
<b>UN Class</b>	UN3093	Corrosive liquid, oxidizing, n.o.s. (Inorganic acid, Chromate salt.)	8 (5.1)	II   	-

PG\* : Packing group

## Section 15. Regulatory information

### China

#### [List of Toxic Chemicals Severely Restricted for Importing & Exporting by China](#)

None of the components are listed.

### Korea

#### a. [Regulation according to ISHA](#)

**ISHA Article 37** : The following components are listed: Chromate salt.; hexchrome salt 1

**ISHA Article 38** : None of the components are listed.

Continued on next page

## Section 15. Regulatory information

### b. Regulation according to TCCA

- TCCA Toxic chemicals** : Toxic
- TCCA Observational chemicals** : None of the components are listed.
- TCCA Article 32 (Banned)** : None of the components are listed.
- TCCA Article 32 (Restricted)** : The following components are listed: Chromate salt.; hexchrome salt 1

### c. Dangerous Materials Control Act : Not available.

### Europe

- Safety, health and environmental regulations specific for the product** : No known specific national and/or regional regulations applicable to this product (including its ingredients).

### Japan

### Poisonous and Deleterious Substances

<u>Ingredient name</u>	<u>Status</u>
ammonium bifluoride	Deleterious
Chromate salt.	Deleterious
Inorganic acid	Deleterious

### ISHL

- ISHL Class** : Class 2

- Working Conditions Act; Health and Safety Act** : Article 57.  
Corrosive.Clause 326.

- ISHL Prevention of Tetraalkyl Lead Poisoning** : Not listed

- ISHL Harmful Substances Subject to Obtaining Permission for Manufacturing** : Not listed

- ISHL Harmful Substances, Prohibited for Manufacturing** : Not listed

- ISHL Chemicals requiring notification** : Listed

- ISHL Dangerous Substances** : Not listed

- List of Specially Controlled Industrial Waste** : Listed

- Pollutant Release and Transfer Registers (PRTR)** : Class 1

- Fire Service Law - Obstructive materials** : Listed

### Taiwan

- List of chemicals for which manufacturing or handling is defined as "work specially hazardous to health"** : This product contains substances "Specially hazardous to health": Inorganic acid, Chromate salt., hexchrome salt 1, sulphuric acid.

## Section 15. Regulatory information

**List of chemicals reputed to be a "threat of imminent danger"** : This product contains substances considered to be a "Threat of imminent danger": Inorganic acid, Chromate salt., ammonium bifluoride, hexchrome salt 1, sulphuric acid.

**LSHL Article 21** : This product contains substances listed on "LSHL Article 21": Chromate salt., hexchrome salt 1.

### International lists

**United States TSCA** : **TSCA 5(a)2 proposed significant new use rules:** No products were found.  
**TSCA 5(a)2 final significant new use rules:** No products were found.  
**TSCA 12(b) one-time export:** No products were found.  
**TSCA 12(b) annual export notification:** hexchrome salt 1; Chromate salt.  
TSCA 12(b) export notification requirements for this chemical apply only when used in water treatment. Refer to 59 Federal Register 42773 and 40 CFR 749.68.

**United States inventory (TSCA 8b)** : All components are listed or exempted.

## Section 16. Other information

### History

**Validation date** : **1/23/2014.**  
**Supersedes Date** : 3/27/2013.  
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### Notice to reader

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