



MATERIAL SAFETY DATA SHEET

This Material Safety Data Sheet complies with the Canadian Controlled Products Act

****NOTE: THE FOLLOWING INFORMATION PROVIDED IS FOR THE PRODUCT CONCENTRATE ONLY, NOT FOR USE-DILUTIONS****

SECTION 1 – PRODUCT IDENTIFICATION					
PRODUCT IDENTIFIER:		REACT			
PRODUCT USE:		ALUMINUM BRIGHTENER, ETCHANT AND CLEANER			
SUPPLIER:		Velocity Chemicals Ltd. Unit #1, 9515- 190 th St., Surrey, B.C. V4N-3S1 Emergency Telephone: (604) 881-4700 Facsimile: (604) 881-4701		In case of transportation emergency or product spill, contact: In Canada- CANUTEC @ 613-996-6666 (24 hrs.)	
SECTION 2 – HAZARDOUS INGREDIENTS					
HAZARDOUS INGREDIENTS	% (W/W)	CAS NUMBER	LD50	LC50	EXPOSURE LIMITS
Sulfuric Acid	10-30	7664-93-9	2140 mg/kg (oral, rat)	510 mg/m3 (inhal., 2hrs, rat) 160 mg/m3 (inhal., 4hrs, mouse)	OSHA(PEL)= 1mg/m3(TWA) ACGIH = 0.2mg/m3(TWA), 3mg/m3 (STEL)
Hydrofluoric acid	10-20	7664-39-3	Not Available	1300ppm (inhal., rat -1hr.) 171ppm (inhal., 4hrs, mouse)	OSHA= 6ppm (STEL), 3ppm(TWA) ACGIH= 0.5ppm(TLV-TWA), 2ppm Ceiling IDLH= 30ppm
Ethylene Glycol Monobutyl Ether	5-10	111-76-2	470mg/kg (oral, rat) 220mg/kg (skin, rabbit)	450ppm (inhal., 4hrs, rat)	OSHA(PEL)= 50ppm, skin ACGIH(TWA)= 20ppm, skin IDLH= 700ppm
SECTION 3 – PHYSICAL DATA					

<p>Physical state: liquid</p> <p>Solubility: soluble</p> <p>Odour and Appearance: clear, colorless, sweet and pungent</p> <p>pH (100%) @ 20°C: < 1.0</p> <p>Specific Gravity @ 20°C: 1.17</p> <p>Odour Threshold (ppm): not determined</p>	<p>Vapour Density: not determined</p> <p>Vapour Pressure: not determined</p> <p>Evaporation Rate: not determined</p> <p>Boiling Point (°C): not determined</p> <p>Freezing Point (°C): not determined</p> <p>Coefficient of water/oil distribution: Greater than 1</p>
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REACT

SECTION 4 – FIRE AND EXPLOSION DATA

<p>Flammability: No, product is non-flammable.</p> <p>If yes, under what condition: Not applicable.</p> <p>Means of Extinction: Dry chemical, alcohol foam, CO₂, water spray. The product is not flammable. Use extinguishing media suitable for surrounding fires.</p> <p>Special Fire Fighting Procedures: Wear NIOSH/OSHA approved, self contained breathing apparatus for fire fighting situations. Use water spray to cool all nearby fire exposed surfaces.</p> <p>Explosion Data-</p> <p>Sensitivity to impact: None</p> <p>Sensitivity to static discharge: None</p>	<p>Flash Point (°C) and method: not applicable</p> <p>Upper Flammable limit (% volume): not applicable</p> <p>Lower Flammable limit (% volume): not applicable</p> <p>Autoignition temperature (°C): not applicable</p> <p>Usual Fire Hazards: Prolonged contact with sensitive metals like aluminum can form flammable hydrogen gas.</p> <p>Hazardous combustion products: liberates toxic, corrosive fumes of hydrogen sulfide and hydrogen fluoride, carbon and sulfur oxides.</p>
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SECTION 5 – REACTIVITY DATA

<p>Chemical Stability: yes, stable under normal storage conditions</p> <p>If no, under what conditions:</p> <p>Incompatibility with other substances: yes</p> <p>If so, under what conditions: strong alkalis, strong oxidizers and reducing agents, organic materials, glass, silica and sensitive metals like aluminum and its alloys.</p> <p>Reactivity, and under what conditions: none known</p> <p>Hazardous Decomposition Products: liberates toxic corrosive fumes of hydrogen sulfide and hydrogen fluoride, carbon and sulfur oxides upon thermal decomposition.</p>
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SECTION 6 – TOXICOLOGICAL PROPERTIES

Primary route of entry: skin and eye contact, skin absorption and inhalation

Effects of Acute Exposure to Product: Product exposure can cause severe irritation, burns and damage to skin and eyes. Inhaling mist or vapors can cause immediate irritation, burns or discomfort to respiratory system, headaches, nausea, etc. Toxic effects of Hydrogen Fluoride can be delayed through skin absorption. Also, Ethylene glycol Monobutyl Ether may cause harmful effects if absorbed through skin.

Effects of Chronic Exposure to Product: Prolonged exposure will cause skin and eye damage, lung damage or respiratory disorder, pneumonia, pulmonary edema and shock. Absorption of fluorides may lead to fluorosis (bone and joint damage), ossification of ligaments and kidney damage. Inhaling strong Sulfuric acid mist only can cause cancer. May also cause blood, kidney and liver disorders through repeated exposure of Ethylene glycol Monobutyl ether (based on animal test data).

Exposure Limits: see Section 2 under Hazardous Ingredients

Irritancy of Product: corrosive to skin, eyes and respiratory system.

Sensitization: none known

Reproductive Toxicity: none known

Mutagenicity: none known

Carcinogenicity:

Sulfuric acid (acid mists only)-IARC (Group 1-human carcinogen), ACGIH(A2-suspect human carcinogen)

Glycol ether Monobutyl ether is classified as Group 3 (Unclassifiable as to carcinogenicity in humans) under IARC and A3 (confirmed animal carcinogen with unknown relevance to humans) under ACGIH.

Teratogenicity: none known

Synergistic Products: none known

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SECTION 7 – PREVENTATIVE MEASURES

Respiratory Protection: Do not inhale mists or vapors. Use a NIOSH/OSHA approved for acid mist/dust & organic respirator if mists or vapors are present. Respirator may be a full-face acid gas/mist, a self contained breathing apparatus or a supplied air.

Gloves: butyl, rubber, neoprene or viton

Eye Protection: splash proof chemical goggles or face shield with full face respirator for splashing hazards.

Footwear: rubber boots

Clothing: long sleeves

Other: rubber apron

Engineering Controls: General ventilation for normal operating conditions or local exhaust for confined areas.

Leak and Spill Procedures: Wear protective equipment. Contain spill. Prevent runoff to drains or sewers. Recover material by pumping into a suitable waste container. Reuse material if possible, or otherwise neutralize with soda ash before disposal. Dispose in accordance with local regulations.

Waste Disposal: Dispose of in accordance with local environmental regulations.

Handling Procedures and Equipment: Use good hygiene practices. Do not get in eyes, on skin or clothing. Do not inhale mists or vapors. Use in a well ventilated area. Safety shower and eye wash station should be available in the immediate work area.

Storage Requirements: Store in a cool, dry place away from incompatibles. Do not mix with any other chemicals. Keep container closed when not in use. Keep from freezing and temperatures below 30°C.

Special Shipping Information:

WHMIS Classification: D1A, D2A, D2B, E

TDG Classification: Hydrofluoric Acid and Sulfuric Acid mixture, Class 8(6.1), UN 1786, P.G. I

SECTION 8 – FIRST AID MEASURES

Inhalation: Remove victim to fresh air, apply artificial respiration if necessary. Seek medical help.

Ingestion: Give large amounts of water if conscious. Do not induce vomiting. Get medical help immediately.

Skin Contact::: Flush immediately with cold water for 15 minues. Remove contaminated clothing. Get immediate medical aid. Treat burned area immediately with the following: apply a 2.5% calcium gluconate gel to burned area, or immerse burned area with iced cold solution of 0.2% aqueous benzethonium chloride or 0.13% benzalkonium chloride. If immersion is not possible, soak clean towels with above solution and apply to the burned area as compresses. Compresses should be changed every two minutes. Prepared solutions of the above or calcium gluconate gel should be available at all times, and solutions should be changed annually.

Eye Contact: Flush immediately with cold water for 15 minutes. Get immediate medical aid. However, if no immediate physician available, apply one to two drops of 0.5% tetracaine hydrochloride solution followed by a second flush with water for another 15 minutes.

SECTION 9 - OTHER INFORMATION

REVISIONS:	January 3, 2012	SUPERCEDES:	March 23, 2011
PREPARED BY:	Technical Department (Customer Service phone number: 604-881-4700)		
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