

MATERIAL SAFETY DATA SHEET**SULPHURIC ACID DILUTE SOLUTION**

PRODUCT CODE NUMBER(S): 8821-6, 8822-6, 8823-6, 8824-6, 8831-6, CAL 0419, CAL 0436

PRODUCT IDENTIFICATION**Chemical Name and Synonyms:** Sulphuric acid, solutions 0.02N to 2N**Chemical Family:** Mineral acid in aqueous solution**Chemical Formula:** H₂SO₄ in H₂O**Product Use:** Laboratory reagent**Manufacturer's Name and Address:**Caledon Laboratories Ltd.
40 Armstrong Avenue
Georgetown, Ontario L7G 4R9**Telephone No:** (905) 877-0101**Fax No:** (905) 877-6666**Emergency Telephone No:** CANUTEC (613) 996-6666**HAZARDOUS INGREDIENTS OF MATERIALS**

Ingredients	%	TLV Units	CAS No.
Sulphuric acid	<8	1 mg/m ³ (as H ₂ SO ₄)	7664-93-9

PHYSICAL DATA**Physical State:** Liquid**Odour and Appearance:** Clear, colourless liquid; odourless**Odour Threshold (ppm):** 1 mg/m³ (detection); 1 to 3 mg/m³ (irritation) Poor warning properties; irritation and detection above TLV.**Vapour Pressure (mm Hg):** Similar to water**Vapour Density (Air = 1):** Similar to water**Evaporation Rate:** Similar to water**Boiling Point (degrees C):** ~ 100°C**Freezing Point (degrees C):** ~ 0°C to -2°C**pH:** ~ 0.3**Specific Gravity:** ~1.00 - 1.01**Coefficient of Water/Oil distribution:** Not available**SHIPPING DESCRIPTION****UN:** Not regulated**T.D.G. Class:** Not regulated**Pkg. Group:** Not regulated**REACTIVITY DATA****Chemical Stability:** Stable**Incompatibility with other substances:** Contact with organic materials may cause fire and explosion. Contact with metals may form toxic and flammable sulphur dioxide and hydrogen gases. Reacts vigorously or violently with most metals, bases, oxidizers, reducers, metal carbonates, metal powders, cyanides, sulphides, carbides, oxides, acetylides,

hydrides, halogens, perchlorates, acetonitrile, permanganates, acetic acid, organic or combustible materials.

Reactivity: Avoid high temperatures. Contact of concentrated acid with metals produces highly flammable hydrogen gas.**Hazardous Decomposition Products:** SO_x, hydrogen gas**FIRE AND EXPLOSION DATA****Flammability:** Non flammable**Extinguishing Media:** Use appropriate media to extinguish the surrounding supporting fire. Use water to cool containers, absorb heat, and disperse vapours. Fight fire from upwind, from a safe distance. Firefighters must wear specialized protective clothing (full body encapsulating chemical resistant suit) and positive-pressure full face-piece self-contained breathing apparatus.**Flash Point (Method Used):** Not applicable**Autoignition Temperature:** Not applicable**Upper Flammable Limit (% by volume):** Not applicable**Lower Flammable Limit (% by volume):** Not applicable**Hazardous Combustion Products:** SO_x, hydrogen gas**Sensitivity to Impact:** None identified**Sensitivity to Static discharge:** None identified**TOXICOLOGICAL PROPERTIES AND HEALTH DATA****Toxicological Data:****LD₅₀:** (oral, rat) 2,140 mg/kg (conc. H₂SO₄)**LC₅₀:** (rat) 510 mg/m³/2h (conc. H₂SO₄)**Effects of Acute Exposure to Product:****Inhaled:** Irritation of the respiratory tract. May cause increased pulmonary resistance and cough.**In contact with skin:** May cause irritation and pain. Damage depends on concentration of solution and duration of exposure. Repeated exposure to dilute solutions may cause irritation, redness, pain and drying and cracking of the skin.**In contact with eyes:** May cause severe irritation or burns to eye tissue. Damage depends on concentration of solution and duration of exposure.**Ingested:** May cause severe irritation and burns to esophagus and gastrointestinal tract.**Effects of Chronic Exposure to Product:**

Chronic skin exposure to low concentrations can cause dermatitis. Chronic inhalation can cause bronchial hyperreactivity.

Carcinogenicity: Mists containing sulphuric acid considered carcinogenic to humans (ACGIH, IARC, NTP)**Teratogenicity:** Concentrated sulphuric acid has produced embryotoxicity in some animal testing**Reproductive Effects:** No human data. No effects in mice or rabbits

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Mutagenicity: *Insufficient information available*

Synergistic Products: *None known*

PREVENTIVE MEASURES

Engineering Controls: *Local exhaust ventilation recommended.*

Respiratory Protection: *Dust/mist mask. Use only in a chemical fumehood. Up to 15 mg/m³: NIOSH/MSHA approved full face-piece chemical cartridge respirator with acid gas cartridges and high-efficiency particulate filter. For higher or unknown concentrations, as in fire or spill conditions, full face-piece supplied-air respirator with auxiliary positive-pressure self-contained breathing apparatus or full face-piece, positive-pressure self-contained breathing apparatus.*

Eye Protection: *Chemical safety goggles*

Skin Protection: *Butyl or natural rubber, neoprene, polyethylene, PVC, Teflon™, Viton™, Saranex™, Responder™, Barricade™, CPF3™, 4H™, Trelchem HPS™, Tychem 10000™ gloves. Other protective clothing, apron, sleeves, coveralls, boots sufficient to prevent contact.*

Other Personal Protective Equipment: *Safety showers and eye wash fountains in storage and handling area.*

Leak and Spill Procedure: *Ventilate area. Cleanup personnel must wear protective equipment and clothing sufficient to prevent inhalation of fumes or vapours and contact with skin and eyes. Dike spills. Prevent from entering sewers and waterways. Collect on absorbent material and transfer to poly-lined metal drums for recovery or disposal. Flush area of spill thoroughly with copious amounts of running water.*

Waste Disposal: *Follow all federal, provincial, and local regulations for disposal.*

Handling Procedures and Equipment: **CORROSIVE.** *Persons working with this product must be thoroughly trained in its hazards and its safe use, and must wear appropriate protective equipment and clothing. Use the smallest amount possible for the purpose in a designated area with sufficient ventilation. Avoid all contact with liquid or vapours. Keep work area clean and free of any combustible or incompatible materials. Caution: empty containers may contain hazardous residues; treat with caution. Wash thoroughly after handling.*

Storage Requirements: *Store in suitable, labelled containers, cool, dry, well-ventilated place out of direct sunlight and away from incompatible materials. Keep air out of container. Keep container tightly closed. Protect from damage, and inspect frequently for signs of damage or leaks.*

FIRST AID MEASURES

Specific Measures:

Eyes: *Immediately flush eyes with warm running water for at least fifteen (15) minutes, holding eyelids open during flushing. Take care not to flush contaminated water into unaffected eye. If irritation persists repeat flushing and obtain medical attention.*

Skin: *Remove contaminated clothing (including rings, watches, belts, and shoes). Flush exposed area with large amounts of warm running water for ten to twenty (10-20) minutes. If irritation persists, repeat flushing and get medical attention.*

Inhalation: *Remove casualty to fresh air. If breathing is difficult, give oxygen and obtain medical attention.*

Ingestion: *Do not induce vomiting. If the casualty is alert and not convulsing, have him drink 2 to 4 glasses of water to dilute the material. Get medical attention. If spontaneous vomiting occurs, have casualty lean forward to avoid breathing in of emesis. Rinse mouth and administer more water.*

REFERENCES USED

CCINFO disc: *MSDS's, March 2007*

Budavari: *The Merck Index, 12th ed., 1997*

Royal Society of Chemistry: *Chemical Safety Data Sheets, Vol. 3, 1990*

Sax, Lewis: *Hawley's Condensed Chemical Dictionary, 11th ed., 1987*

Suppliers' Material Safety Data Sheets

ADDITIONAL INFORMATION

Date Issued: *December 18, 1991*

Revision: *March 2010*

MSDS: *8821-6, 8822-6, 8823-6, 8824-6, 8831-6, CAL 0419, CAL 0436*

Proposed WHMIS Designation: *D1A; D2A; E (conc. H₂SO₄)*

*Prepared by: Caledon Laboratories Ltd. (905) 877-0101
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