



The Science Company®

**MSDS**

## Material Safety Data Sheet

### 1. PRODUCT and COMPANY IDENTIFICATION

**Product: Sulfuric Acid, 3-18N, 10-50%**

**Product Code(s):** NC-2802, S1062, S1063, S1064, S1065, S1066, S1067

**Synonyms:** Oil of vitriol, babcock acid, sulphuric acid

**Manufacturer:** The Science Company

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Ph: (303)777-3777 Fax: (303)777-3331

#### **IN CASE OF EMERGENCY**

**24 HOUR CONTACT TELEPHONE**

**CHEM-TEL: (800)255-3924**

All non-emergency questions may be directed to customer service (303)777- 3331

### 2. COMPOSITION and INFORMATION on INGREDIENTS

<u>Ingredients</u>	<u>CAS#</u>	<u>Chemical Formula</u>	<u>Formula Weight</u>	<u>Hazardous</u>	<u>% by Weight</u>
Sulfuric acid	7664-93-9	H <sub>2</sub> SO <sub>4</sub>	98.08	Yes	10-50
Water	7732-18-5	H <sub>2</sub> O	18.015	No	50-90

### 3. HAZARDS IDENTIFICATION

#### Emergency Overview:

**POISON! DANGER! CORROSIVE! LIQUID AND MIST CAUSE SEVERE BURNS TO ALL BODY TISSUE. MAY BE FATAL IF SWALLOWED OR CONTACTED WITH SKIN. HARMFUL IF INHALED. AFFECTS TEETH. WATER REACTIVE. CANCER HAZARD. STRONG INORGANIC ACID MISTS CONTAINING SULFURIC ACID CAN CAUSE CANCER. RISK OF CANCER DEPENDS ON DURATION AND LEVEL OF EXPOSURE.**

**SAFETY RATINGS:** Health: 3, Severe

Reactivity: 3, Severe

Flammability: 0, None

Contact: 4, Extreme

**Protective Equipment:** Chemical Safety Glasses/Goggles, Shield, Lab Coat/Apron, Gloves, Local/General Ventilation

**Storage Code:** White: Corrosive

#### Potential Health Effects:

##### **INHALATION:**

Corrosive! May cause irritation of the nose and throat, labored breathing, damage to the mucous membranes and upper respiratory tract. May cause lung edema, a medical emergency.

##### **INGESTION:**

Corrosive! May cause severe burns to the mouth, throat, and stomach. May cause bleeding, nausea, vomiting, and diarrhea. Asphyxia from throat swelling and perforations of the esophagus and/or stomach can occur. Circulatory collapse with clammy skin, weak and rapid pulse, shallow respirations and scanty urine may follow ingestion and/or contact. Circulatory shock is often the immediate cause of death.

##### **SKIN CONTACT:**

Corrosive! May cause severe irritation, redness, pain, burns and may lead to death. Concentrated solutions can cause deep ulcers and discolor skin. Circulatory collapse with clammy skin, weak and rapid pulse, shallow respirations and scanty urine may follow ingestion and/or contact. Circulatory shock is often the immediate cause of death.

##### **EYE CONTACT:**

Corrosive! May cause severe redness, pain, blurred vision, eye burns that may result in permanent corneal damage even blindness.

##### **POTENTIAL CHRONIC HEALTH EFFECTS:**

May cause dermatitis and conjunctivitis. Dental erosion, tooth discoloration, nasal ulceration, laryngitis, bronchitis, pneumonia and gastrointestinal disturbances can occur. Long-term exposures can cause cancer.

##### **MEDICAL CONDITIONS GENERALLY AGGRAVATED by EXPOSURE:**

Persons with pre-existing skin disorders, eye problems or impaired respiratory function may be more susceptible to the effects of the substance.

### 4. FIRST AID MEASURES

#### **INHALATION:**

Remove to fresh air. 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. **GET MEDICAL ATTENTION IMMEDIATELY.**

**INGESTION:**

DO NOT INDUCE VOMITING. Give several glasses of water to drink. Never give anything by mouth to an unconscious person. GET MEDICAL ATTENTION IMMEDIATELY.

**SKIN CONTACT:**

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Excess acid can be neutralized with 2% Sodium bicarbonate. GET MEDICAL ATTENTION IMMEDIATELY.

**EYE CONTACT:**

Check for and remove contact lenses. Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. GET MEDICAL ATTENTION IMMEDIATELY.

**5. FIRE FIGHTING MEASURES**

**NFPA RATINGS:** Health: 3 Flammability: 0 Reactivity: 2 Water Reactive

**FIRE:**

Concentrated material is a strong dehydrating agent. Reacts with organic materials and may cause ignition of finely divided materials on contact.

**EXPLOSION:**

Contact with most metals can cause the formation of flammable and explosive hydrogen gas.

**FIRE EXTINGUISHING MEDIA:**

Dry chemical, foam, water or carbon dioxide. Concentrated solutions are water reactive. However, water spray may be used to keep fire exposed containers cool. Neutralize with soda ash or slaked lime.

**SPECIAL INFORMATION:**

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full-face piece operated in the pressure demand or other positive pressure mode. Structural firefighter's protective clothing is ineffective for fires involving sulfuric acid.

**6. ACCIDENTAL RELEASE MEASURES**

Remove all sources of ignition. Ventilate area of leak or spill. Isolate hazard area and keep unnecessary and unprotected personnel away from the area of the leak or spill. Wear appropriate personal protective equipment as specified in the Exposure Control and Personal Protection Section 8. Use non-sparking tools and equipment. Contain and recover liquid when possible. Collect liquid in an appropriate container and neutralize with alkaline material (e.g. soda ash or slaked lime) then absorb with an inert material (e.g. vermiculite, dry sand, earth), and place in a suitable container for reclamation or disposal. Do not use combustible materials, such as sawdust. Do not flush to sewer. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800)424-8802.

**7. HANDLING and STORAGE**

Store in a cool, dry, ventilated storage area with acid resistant flooring. Avoid storage on wood floors. Keep containers tightly closed and upright. Protect from physical damage. Keep out of direct sunlight and away from heat, sources of ignition, water and incompatible materials. Do not wash out container and use it for any other purpose. Protect from moisture. Separate from incompatibles, combustibles, organic or other readily oxidizable materials. When opening metal containers, use non-sparking tools because flammable hydrogen gas may be present. Protect from freezing. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquids); observe all warnings and precautions listed for the product. Storage and use areas should be non-smoking. Wash thoroughly after handling.

**SPECIAL PRECAUTIONS FOR DILUTING ACIDS:**

When diluting, **ALWAYS** add acid to water, **NEVER THE REVERSE**. Never use hot water. **ALWAYS** add product slowly to the surface of water, with constant stirring, to assure product is being completely mixed as added. If acid is added too rapidly, or without stirring, and becomes concentrated at the bottom of mixing vessel, excess heat may be generated, resulting in **DANGEROUS** boiling and spattering and a possible **IMMEDIATE AND VIOLENT ERUPTION** of highly acidic solution. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

**8. EXPOSURE CONTROLS and PERSONAL PROTECTION****EXPOSURE LIMITS:**

OSHA Permissible Exposure Limit (PEL): 1 mg/m<sup>3</sup> Ceiling  
ACGIH Threshold Limit Value (TLV): 0.2 mg/m<sup>3</sup> Ceiling, A2 Suspected as human carcinogen

**VENTILATION SYSTEM:**

A system of local and/or general ventilation is recommended to keep employee exposure below airborne limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion into the general work area.

**PERSONAL RESPIRATORS (NIOSH) APPROVED:**

If the exposure limit is exceeded and engineering controls are not feasible, wear an appropriate respirator with cartridge for the hazardous material being handled. All respirators should be approved and certified. For emergencies or instances where the exposure levels are not known, use a full face piece positive pressure, air supplied respirator. **WARNING:** Air purifying respirators do not protect workers in oxygen deficient atmospheres.

**SKIN PROTECTION:**

Wear protective clothing, gloves, lab coat or apron, as appropriate, to prevent skin contact.

**EYE PROTECTION:**

Use chemical safety glasses/goggles and/or a full face shield where splashing is possible. Maintain approved eye wash station and quick drench facilities in work area.

**9. PHYSICAL and CHEMICAL PROPERTIES**

<b>APPEARANCE:</b>	Clear Oily Liquid
<b>ODOR:</b>	Odorless
<b>SOLUBILITY:</b>	Miscible in water, liberates much heat
<b>SPECIFIC GRAVITY:</b>	1.4 (50%)
<b>pH:</b>	Acidic
<b>% VOLATILES by VOLUME</b>	No information found
<b>BOILING POINT:</b>	No information found
<b>MELTING POINT:</b>	No information found
<b>VAPOR DENSITY (Air =1):</b>	No information found
<b>VAPOR PRESSURE (mm Hg):</b>	No information found
<b>EVAPORATION RATE (BuAc=1):</b>	No information found

**10. STABILITY and REACTIVITY****STABILITY:**

Stable under ordinary conditions of use and storage. Containers may burst when heated. Concentrated sulfuric acid solutions react violently with water, spattering and liberating heat.

**HAZARDOUS DECOMPOSITION PRODUCTS:**

May form toxic fumes of sulfur oxide when heated to decomposition. Will react with water or steam to produce toxic or corrosive fumes. Reacts with carbonates to generate carbon dioxide gas. **Reacts to cyanides and sulfides producing poisonous hydrogen cyanide and hydrogen sulfide gas.**

**HAZARDOUS POLYMERIZATION:**

Will not occur.

**INCOMPATIBILITIES:**

Water! Cyanides! Potassium chlorate, potassium perchlorate, potassium permanganate, sodium, lithium, bases, organic material, halogens, metal acetylides, oxides, hydrides, metals (yields hydrogen gas), strong oxidizing and reducing agents and many other reactive substances. Incompatible with cyanides, sulfides, sulfites and formaldehyde.

**CONDITIONS to AVOID:**

Moisture, heat, flames, ignition sources, and incompatibles.

**11. TOXICOLOGICAL INFORMATION****TOXICOLOGICAL DATA:**

Oral rat LD50: 2140 mg/kg. Inhalation rat LC50: > 510 gm/m<sup>3</sup> /2hr.

Irritation Data, standard Draize: Eye rabbit, 250 µg (severe); investigated as a tumorigen, mutagen and reproductive effector.

Cancer Lists	-----NTP Carcinogen-----		
Ingredient	Known	Anticipated	IARC Category
Sulfuric acid (7664-93-9)	No	No	None

**CARCINOGENICITY:**

Cancer status: The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mists containing sulfuric acid" as a known human carcinogen, (IARC category 1). This classification applies only to mists containing sulfuric acid and not sulfuric acid or sulfuric acid solutions.

**12. ECOLOGICAL INFORMATION****ENVIRONMENTAL FATE:**

Sulfuric acid: When released into soil, this material may leach into ground water. When released into air, this material may be removed from the atmosphere to a moderate extent by wet or dry deposition.

**ENVIRONMENTAL TOXICITY:**

Sulfuric acid:

LC50 Flounder: 100-330 mg/1/48 hr aerated water/ conditions of bioassay not specified.

LC50 Shrimp: 80-90 mg/1/48 hr aerated water/ conditions of bioassay not specified.

LC50 Prawn: 42.5 ppm/ 48 hr salt water/ conditions for bioassay not specified.

This material is expected to be toxic to aquatic life.

**13. DISPOSAL INFORMATION**

Whatever cannot be saved for recovery or recycling should be handled as potentially hazardous waste and disposed of or incinerated at an approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

**14. TRANSPORT INFORMATION****TRANSPORT (Land, DOT):**

UN2796, Sulfuric Acid, 8, PGII

**15. REGULATORY INFORMATION**

## Chemical Inventory Status – Part 1

Ingredient	TSCA	EC	Japan	Australia
Sulfuric acid (7664-93-9)	Yes	Yes	Yes	Yes

## Chemical Inventory Status – Part 2

Ingredient	Korea	DSL	-----Canada----- NDSL	Phil
Sulfuric acid (7664-93-9)	Yes	Yes	No	Yes

## Federal, State &amp; International Regulations – Part 1

Ingredient	--SARA 302-- RQ	TPQ	-----SARA 313----- List	Chemical Catg
Sulfuric acid (7664-93-9)	1000	1000	Yes	No

## Federal, State &amp; International Regulations – Part 2

Ingredient	CERCLA	RCRA 261.33	TSCA 8 (d)
Sulfuric acid (7664-93-9)	1000	No	No

Chemical Weapons Convention: No      TSCA 12 (b): No      CDTA: Yes      SARA 311/312: Acute: Yes  
 Chronic: Yes      Fire: No      Pressure: No      Reactivity: Yes      Physical State: Mixture/Liquid

**Australian Hazchem Code:** 2P

**Poison Schedule:** Not allocated

**16. OTHER INFORMATION****PRODUCT USE:**

For manufacturing, industrial and laboratory use only; not for household use.

**DISCLAIMER:**

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