

# MATERIAL SAFETY DATA SHEET

## 1. Product and Company Identification

<b>Material name</b>	<b>SULFURIC ACID</b>
<b>Version #</b>	06
<b>Revision date</b>	05-11-2010
<b>CAS #</b>	Mixture
<b>Product Codes</b>	J.T.Baker: 5030, 5137, 5374, 5802, 5815, 5858, 5859, 5868, 5889, 5897, 5971, 5997, 6163, 6902, 9671, 9673, 9674, 9675, 9681, 9684, 9690, 9691, 9697, 9864, IM2876 Mallinckrodt: 2876, 2877, 2878, 2879, 2900, 2904, 3780, 5557, H644, H976, H996, V651
<b>Synonym(s)</b>	Oil of vitriol * Babcock acid * Sulphuric acid
<b>Manufacturer</b>	Mallinckrodt Baker, Inc.
<b>Address</b>	222 Red School Lane Phillipsburg, NJ 08865 US
<b>Customer Service</b>	800-582-2537
<b>24 Hour Emergency</b>	908-859-2151
<b>Chemtrec</b>	800-244-4444

## 2. Hazards Identification

<b>Emergency overview</b>	DANGER  Poison  Material reacts with water.  Corrosive. Causes severe skin and eye burns. May be fatal if swallowed. Harmful if inhaled. Cancer hazard. Prolonged exposure may cause chronic effects. Harmful if absorbed through skin.
<b>OSHA regulatory status</b>	This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
<b>Potential health effects</b>	
<b>Routes of exposure</b>	Inhalation. Ingestion. Skin contact. Eye contact.
<b>Eyes</b>	Corrosive to the eyes and may cause severe damage including blindness. Causes eye burns. This product may cause severe irritation, redness, or blurred vision. Do not get this material in contact with eyes.
<b>Skin</b>	Corrosive. Causes severe skin burns. Do not get this material in contact with skin.
<b>Inhalation</b>	Corrosive. Causes burns. May cause damage to mucous membranes in nose, throat, lungs and bronchial system. Inhalation of vapor or mist may cause lung edema. May cause cancer by inhalation. Prolonged inhalation may be harmful. Do not breathe dust/fume/gas/mist/vapors/spray.
<b>Ingestion</b>	Corrosive. May be fatal if swallowed. 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. May irritate and cause stomach pain, vomiting and diarrhoea. Do not ingest.
<b>Target organs</b>	Eyes. RESPIRATORY SYSTEM. Skin. Teeth.
<b>Signs and symptoms</b>	Irritation of nose and throat. Irritation of eyes and mucous membranes.
<b>Potential environmental effects</b>	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
SULFURIC ACID	7664-93-9	90 - 100
Other components below reportable levels		> 2.5

### 4. First Aid Measures

#### First aid procedures

<b>Eye contact</b>	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.
<b>Skin contact</b>	Immediately flush skin with plenty of water. For minor skin contact, avoid spreading material on unaffected skin. Wash clothing separately before reuse. Get medical attention immediately.
<b>Inhalation</b>	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. Call a physician or poison control center immediately.
<b>Ingestion</b>	Do not induce vomiting without advice from poison control center. 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 SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth thoroughly. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

**General advice** Immediate medical attention is required. IF exposed or concerned: Get medical advice/attention. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. 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>	Not flammable, but reacts with most metals to form flammable hydrogen gas. Substance will react with water releasing flammable, toxic or corrosive gases and runoff.
<b>Extinguishing media</b>	
<b>Suitable extinguishing media</b>	Foam. Dry powder. Carbon dioxide (CO <sub>2</sub> ). Do not use water as an extinguisher. Water spray should be used to cool containers.
<b>Unsuitable extinguishing media</b>	Water.
<b>Protection of firefighters</b>	
<b>Specific hazards arising from the chemical</b>	Water reactive material.
<b>Protective equipment and precautions for firefighters</b>	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.
<b>Hazardous combustion products</b>	May include oxides of sulphur.

### 6. Accidental Release Measures

<b>Personal precautions</b>	Ventilate the area. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them.
<b>Environmental precautions</b>	Prevent further leakage or spillage if safe to do so. 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. Prevent entry into waterways, sewer, basements or confined areas.

**Methods for cleaning up**

Should not be released into the environment.

Large Spills: Dike far ahead of spill for later disposal. Neutralize spilled material with crushed limestone, soda ash or lime. Absorb in vermiculite, dry sand or earth and place into containers. DO NOT use combustible materials such as sawdust.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece).

Never return spills in original containers for re-use. Clean surface thoroughly to remove residual contamination.

J. T. Baker NEUTRASORB® acid neutralizers are recommended for spills of this product.

## 7. Handling and Storage

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**Handling**

Do not get this material in contact with eyes. Do not get this material in contact with skin. Avoid breathing dust/fume/gas/mist/vapors/spray. Do not get this material on clothing. Do not use in areas without adequate ventilation. Wear personal protective equipment. Avoid prolonged exposure. Wash thoroughly after handling. Use caution when combining with water; DO NOT add water to acid, ALWAYS add acid to water while stirring to prevent release of heat, steam and fumes.

**Storage**

Store in appropriate chemical storage area. Store in a well-ventilated place. Keep container tightly closed. Keep container dry. Do not store near heat sources or expose to high temperatures. Protect against direct sunlight. Keep out of the reach of children. Keep away from food, drink and animal feedingstuffs.

## 8. Exposure Controls / Personal Protection

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**Occupational exposure limits****ACGIH****Components****Type****Value****Form**

SULFURIC ACID (7664-93-9)

TWA

0.2000 mg/m3

Thoracic fraction.

**U.S. - OSHA****Components****Type****Value**

SULFURIC ACID (7664-93-9)

PEL

1.0000 mg/m3

TWA

1.0000 mg/m3

**Engineering controls**

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**

Do not get in eyes. Chemical goggles are recommended. Use face shield in case of splash risk. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

**Skin protection**

In case of splashes: Wear apron or special protective clothing. Impervious gloves. Do not get this material in contact with skin. Do not get this material on clothing.

**Respiratory protection**

If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection. Chemical respirator with acid gas cartridge. WARNING! Air-purifying respirators do not protect workers in oxygen deficient atmospheres. Do not breathe dust/fume/gas/mist/vapors/spray.

**General hygiene considerations**

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

**General**

Structural firefighters protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations.

## 9. Physical & Chemical Properties

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<b>Appearance</b>	Aqueous solution.
<b>Color</b>	Clear.
<b>Odor</b>	Odorless.
<b>Odor threshold</b>	Not available.
<b>Physical state</b>	Liquid.
<b>Form</b>	Liquid.
<b>pH</b>	1 N solution (~5% w/w) = 0.3; 0.1 N solution (~0.5% w/w) = 1.2
<b>Melting point</b>	3°C (100%), -32°C (93%), -38°C (78%), -64°C (65%).
<b>Freezing point</b>	Not available.
<b>Boiling point</b>	537.8 °F (281 °C) estimated
<b>Flash point</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>Flammability</b>	Not available.
<b>Flammability limits in air, upper, % by volume</b>	Not available.
<b>Flammability limits in air, lower, % by volume</b>	Not available.
<b>Vapor pressure</b>	0 hPa estimated
<b>Vapor density</b>	3.4
<b>Specific gravity</b>	1.84 (98%), 1.40 (50%), 1.07 (10%)
<b>Relative density</b>	Not available.
<b>Solubility (water)</b>	Miscible.
<b>Partition coefficient (n-octanol/water)</b>	Not available
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	644 °F (340 °C)
<b>Percent volatile</b>	5 % estimated
<b>Molecular formula</b>	H <sub>2</sub> SO <sub>4</sub> in H <sub>2</sub> O

## 10. Chemical Stability & Reactivity Information

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<b>Chemical stability</b>	Material is stable under normal conditions. Material reacts with water.
<b>Conditions to avoid</b>	Moisture. Heat.
<b>Incompatible materials</b>	Water. Cyanides. Strong oxidizing agents. Strong reducing agents. Metals. Halogens. Potassium Organic compounds. May be corrosive to metals.
<b>Hazardous decomposition products</b>	Sulphur oxides. Irritating and/or toxic fumes and gases may be emitted upon the products decomposition.
<b>Possibility of hazardous reactions</b>	Hazardous polymerization does not occur.

## 11. Toxicological Information

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### Toxicological data

<b>Product</b>	<b>Test Results</b>
SULFURIC ACID (Mixture)	Acute Inhalation LC50 Guinea pig: 0.0253 mg/l estimated Acute Inhalation LC50 Rat: 365 mg/l estimated

### Components

	<b>Test Results</b>
SULFURIC ACID (7664-93-9)	Acute Inhalation LC50 Rat: 347 mg/l 1.00 Hours

**Components****Test Results**

SULFURIC ACID (7664-93-9)

Acute Oral LD50 Rat: 2140 mg/kg

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

**Acute effects**

Causes burns.

**Chronic effects**

Hazardous by OSHA criteria. Prolonged exposure may cause chronic effects.

**Carcinogenicity**

Hazardous by OSHA criteria. Risk of cancer cannot be excluded with prolonged exposure.

**ACGIH Carcinogens**

SULFURIC ACID (CAS 7664-93-9)

A2 Suspected human carcinogen.

**IARC Monographs. Overall Evaluation of Carcinogenicity**

SULFURIC ACID (CAS 7664-93-9)

1 Carcinogenic to humans.

**US NTP Report on Carcinogens: Known carcinogen**

SULFURIC ACID (CAS 7664-93-9)

Known carcinogen.

**Skin corrosion/irritation**

Hazardous by OSHA criteria.

**Epidemiology**

Not available.

**Neurological effects**

Not available.

**12. Ecological Information****Ecotoxicological data****Product****Test Results**

SULFURIC ACID (Mixture)

LC50 Fish: 44.21 mg/l 96.00 Hours estimated

**Components****Test Results**

SULFURIC ACID (7664-93-9)

LC50 Western mosquitofish (Gambusia affinis): 42 mg/l 96.00 Hours

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

**Ecotoxicity**

Components of this product are hazardous to aquatic life.

**Environmental effects**

Harmful to aquatic organisms.

**Persistence and degradability**

Not available.

**13. Disposal Considerations****Waste codes**

D002: Waste Corrosive material [pH ≤2 or ≥12.5, or corrosive to steel]

**Disposal instructions**

All wastes must be handled in accordance with local, state and federal regulations. Dispose of contents/container in accordance with local/regional/national/international regulations. Dispose in accordance with all applicable regulations.

**Contaminated packaging**

Since emptied containers retain product residue, follow label warnings even after container is emptied.

**14. Transport Information****DOT****Basic shipping requirements:****UN number**

UN1830

**Proper shipping name**

Sulfuric acid with more than 51% acid

**Hazard class**

8

**Packing group**

II

**Additional information:****Special provisions**

A3, A7, B3, B83, B84, IB2, N34, T8, TP2, TP12

**Packaging exceptions**

154

Packaging non bulk 202  
 Packaging bulk 242  
 ERG number 137

**IATA**

**Basic shipping requirements:**

UN number 1830  
 Proper shipping name Sulphuric acid with more than 51% acid  
 Hazard class 8  
 Subsidiary hazard class 4.3  
 Packing group II

**IMDG**

**Basic shipping requirements:**

UN number 1830  
 Proper shipping name SULPHURIC ACID with more than 51% acid  
 Hazard class 8  
 Subsidiary hazard class 4.3  
 Packing group II



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.

**US EPCRA (SARA Title III) Section 302 - Extremely Hazardous Spill: Reportable quantity**

SULFURIC ACID (CAS 7664-93-9) 1000 LBS

**US EPCRA (SARA Title III) Section 302 - Extremely Hazardous Substance: Threshold Planning Quantity**

SULFURIC ACID (CAS 7664-93-9) 1000 LBS

**US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration**

SULFURIC ACID (CAS 7664-93-9) 1.0 %

**US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance**

SULFURIC ACID (CAS 7664-93-9) Listed.

**CERCLA (Superfund) reportable quantity**

SULFURIC ACID: 1000.0000

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

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

**Section 311 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)	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** WARNING: This product contains a chemical known to the State of California to cause cancer.

**US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance**

SULFURIC ACID (CAS 7664-93-9) Listed.

**US - California Proposition 65 - CRT: Listed date/Carcinogenic substance**

SULFURIC ACID (CAS 7664-93-9) Listed: March 14, 2003 Carcinogenic.

**US - New Jersey Community RTK (EHS Survey): Reportable threshold**

SULFURIC ACID (CAS 7664-93-9) 500 LBS

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

SULFURIC ACID (CAS 7664-93-9) Listed.

**Saf-T-Data**

Health: 4 - Extreme (Poison)  
Flammability: 0 - None  
Reactivity: 2 - Moderate  
Contact: 4 - Extreme (Corrosive)  
Lab Protective Equip: D - GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES  
Storage Color Code: W - White (Corrosive)

## 16. Labeling Info

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**Label Hazard Warning**

DANGER -- POISON  
Material reacts with water.  
Corrosive. Causes severe skin and eye burns. May be fatal if swallowed. Harmful if inhaled.  
Cancer hazard. Prolonged exposure may cause chronic effects. Harmful if absorbed through skin.

**Label Precautions**

Do not get in eyes, on skin, or on clothing. Do not breathe mist or vapor. Keep container closed.  
Use only with adequate ventilation. Wash thoroughly after handling. DO NOT allow water to come into contact with this material.

**Label First Aid**

Immediately flush eyes with plenty of water for at least 15 minutes. Immediately flush skin with plenty of water. If gas/fume/vapor/dust/mist from the material is inhaled, remove the affected person immediately to fresh air. If the affected person is not breathing, apply artificial respiration.  
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do not induce vomiting without advice from poison control center. Get medical attention immediately.

## 17. Other Information

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**NFPA ratings**

Health: 3  
Flammability: 0  
Instability: 1  
Special hazards: W

**Disclaimer**

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**Issue date**

05-11-2010