MATERIAL SAFETY DATA SHEET

Revision Date: 06/01/2012
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1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: **Sulfuric Acid, All Grades**
Synonyms: Sulfuric acid; oil of vitriol; sulfuric acid, 77%; Battery Acid, 1.835 sulfuric acid; 93% sulfuric acid; 96% sulfuric acid; 98% sulfuric acid
Chemical Family: Inorganic acid
Molecular Formula: H2S04
Molecular Weight: 98.08

RESEARCH PRODUCTS INC OF ALABAMA
6311 HWY 90 W /PO BOX 705
THEODORE AL 36582
800-653-2436

EMERGENCY PHONE (24 hours/day)

FOR CHEMICAL EMERGENCY
SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT
ALL INFOTRAC – DAY OR NIGHT
800-535-5053
OUTSIDE THE UNITED STATES CALL COLLECT 1-352-323-3500

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

APPEARANCE AND ODOR:

Color:	clear
Appearance:	liquid
Odor:	odorless

STATEMENTS OF HAZARD:
DANGER! CAUSES SEVERE BURNS OF EYES AND SKIN. REACTS VIOLENTLY WITH WATER

POTENTIAL HEALTH EFFECTS
EFFECTS OF EXPOSURE:
Direct contact with this material may cause severe eye and skin burns. Refer to Section 11 for toxicology information on the regulated components of this product.

3. COMPOSITION/INFORMATION ON INGREDIENTS

OSHA REGULATED COMPONENTS

Component / CAS No.	%	Carcinogen
Sulfuric Acid 7664-93-9	80-100	IARC 1 ACGIH A2

4. FIRST AID MEASURES

Eye Contact:
Rinse immediately with plenty of water for at least 15 minutes. Obtain medical attention immediately.

Skin Contact:
Take off immediately all contaminated clothing. Wash immediately with plenty of water. Pay particular attention to skin crevices, nail folds, etc. Do not reuse contaminated clothing without laundering. Do not reuse contaminated leather ware.

Inhalation:
Remove to fresh air. If breathing is difficult, give oxygen. Apply artificial respiration if patient is not breathing. Obtain medical attention immediately.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media:
May react violently with organic materials and water with the evolution of heat. Fires involving a small amount of combustibles may be smothered by dry chemical. Use water on combustibles burning in vicinity of acid but use care as water applied to the acid results in severe generation of heat and may cause boiling and splattering.

Protective Equipment:
Wear self-contained positive pressure breathing apparatus and full firefighting protective clothing. See MSDS Section 8 (Exposure Controls/Personal Protection).

Special Hazards:
While sulfuric acid is not combustible; many reactions may cause fire or explosion on contact with bases and combustible substances, oxidants and reducing agents. In case of fire keep container cool with water spray; however avoid direct contact with water. Use powder, foam, or carbon dioxide.
Capable of igniting finely divided combustible materials

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:
Where exposure level is not known, wear approved, positive pressure, self-contained respirator. Where exposure level is known, wear approved respirator suitable for level of exposure.

Methods For Cleaning Up:
Dilute spill cautiously with 5 or 6 volumes of water and neutralize gradually with soda ash or lime. Do not allow un neutralized acid to get into sewers containing sulfides, because of the danger of evolving hydrogen sulfide gas.

Environmental Precautions:
The substance is harmful to aquatic organisms

7. HANDLING AND STORAGE

HANDLING

Precautionary Measures: Do not get in eyes, on skin or clothing. Wash thoroughly after handling.

Special Handling Statements: Sulfuric acid attacks many metals, releasing flammable hydrogen gas. Extremely hazardous in contact with many materials, particularly explosives. Hydrogen gas can accumulate in metal tanks containing acid. When diluting, always add acid to water. Never add water to acid.

STORAGE

Do not smoke or have other sources of ignition around open drums or tanks containing acid. Protect against physical damage to containers and contact with incompatible materials. Do not strike tank fittings with tools or other hard objects. Separate from combustible and reducing substances, strong oxidants, strong bases, food and feedstuffs

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Measures:
Utilize a closed system process where feasible. Where this material is not used in a closed system, local exhaust ventilation should be provided to control exposure.

Respiratory Protection:
Where exposures are below the established exposure limit, no respiratory protection is required. Where exposures exceed the established exposure limit, use respiratory protection recommended for the material and level of exposure.

Eye Protection:
Prevent eye and skin contact. Provide eye wash fountain and safety shower in close proximity to points of potential exposure. Wear eye/face protection such as chemical splash proof goggles or face shield.

Skin Protection:
Prevent contamination of skin or clothing when removing protective equipment. Wear impermeable gloves and suitable protective clothing.

Additional Advice:
Food, beverages, and tobacco products should not be carried, stored, or consumed where this material is in use. Before eating, drinking, or smoking, wash face and hands thoroughly with soap and water.

Exposure Limit(s)	OSHA (PEL)	ACGIH (TLV)
	1 mg/m3	0.2 mg/m3

- NIOSH IDLH is 15 mg/m3

9. PHYSICAL AND CHEMICAL PROPERTIES

Color:	clear
Appearance:	liquid
Odor:	odorless
Boiling Point:	338 °C 640 °F
Melting Point:	3 - 11 °C 37 - 51 °F (values for sulfuric acid 98% and 100%, respectively)
Vapor Pressure:	< 0.001 mm Hg @ 20 deg C
Specific Gravity/Density:	1.4 - 1.8
Vapor Density:	3.38 (air=1)
Percent Volatile (% by wt.):	0 - 20(water)
pH:	2.10.01 N; 0.10 N=1.2; 1.0 N=0.3
Saturation In Air (% By Vol.):	Not available
Evaporation Rate:	Slower than ether.
Solubility In Water:	Complete
Volatile Organic Content:	
Flash Point:	Not applicable
Flammable Limits (% By Vol):	Not applicable
Autoignition Temperature:	Not available
Decomposition Temperature:	340 deg C
Partition coefficient (n- octanol/water):	Not applicable
Odor Threshold:	Not available

10. STABILITY AND REACTIVITY

Stability:	Sulfuric acid reacts vigorously, violently or explosively with many organic and inorganic chemicals and with water
Conditions To Avoid:	Metals, oxidizing agents, reducing agents, bases, acrylonitrile, chlorates, finely powdered metals, nitrates, perchlorates, permanganates, epichlorohydrin, aniline, carbides, fulminates, picrates, organic materials, flammable liquids.
Polymerization:	Will not occur
Conditions To Avoid:	None known
Hazardous Decomposition Products:	oxides of sulfur (includes sulfur di and tri oxides)

11. TOXICOLOGICAL INFORMATION

Toxicological information for the product is found under Section 2. HAZARDS IDENTIFICATION.
Toxicological information on the regulated components of this product is as follows:

The acute oral (rat) LD50 and acute 1-hour inhalation (rat) for sulfuric acid are 2,140 mg/kg and 347 ppm (0.348 mg/L/4hr), respectively. Sulfuric acid is corrosive to the skin and eyes. Concentrated sulfuric acid can also be corrosive to the nose, mucous membranes, respiratory tract and gastrointestinal tract. Inhalation of the vapors or mist can cause pulmonary edema, emphysema or permanent changes in pulmonary function. Chronic exposure has been reported to be associated with dermatitis, chronic bronchitis, gastritis, erosion of dental enamel, conjunctivitis, increased frequency of respiratory tract infections and cancer of the larynx, lungs and upper respiratory tract.

California Proposition 65 Warning (applicable in California only) - This product contains (a) chemical(s) known to the State of California to cause cancer.

12. ECOLOGICAL INFORMATION

No aquatic LC50, BOD, or COD data available.

This substance is harmful to aquatic organisms

13. DISPOSAL CONSIDERATIONS

The information on RCRA waste classification and disposal methodology provided below applies only to the product, as supplied. If the material has been altered or contaminated, or it has exceeded its recommended shelf life, the guidance may be inapplicable. Hazardous waste classification under federal regulations (40 CFR Part 261 et seq) is dependent upon whether a material is a RCRA `listed hazardous waste or has any of the four RCRA `hazardous waste characteristics. Refer to 40 CFR Part 261.33 to determine if a given material to be disposed of is a RCRA `listed hazardous waste`; information contained in Section 15 of this MSDS is not intended to indicate if the product is a `listed hazardous waste. RCRA Hazardous Waste Characteristics: There are four characteristics defined in 40 CFR Section 261.21-61.24: Ignitability, Corrosivity, Reactivity, and Toxicity. To determine Ignitability, see Section 9 of this MSDS (flash point). For Corrosivity, see Sections 9 and 14 (pH and DOT corrosivity). For Reactivity, see Section 10 (incompatible materials). For Toxicity, see Section 3 (composition). Federal regulations are subject to change. State and local requirements, which may differ from or be more stringent than the federal regulations may also apply to the classification of the material if it is to be disposed. The Company encourages the recycle, recovery and reuse of materials, where permitted, as an alternate to disposal as a waste. The Company recommends that organic materials classified as RCRA hazardous wastes be disposed of by thermal treatment or incineration at EPA approved facilities. The Company has provided the foregoing for information only; the person generating the waste is responsible for determining the waste classification and disposal method.

14. TRANSPORT INFORMATION

This section provides basic shipping classification information. Refer to appropriate transportation regulations for specific requirements.

US DOT

Dangerous Goods X
Proper Shipping Name: Sulfuric acid
Hazard Class: 8
Packing Group: II
UN/ID Number: UN1830
Transport Label Required: Corrosive

Component / CAS No.	Hazardous Substances / Reportable Quantity of Product (lbs)
Sulfuric Acid	1000.0

Comments: Hazardous Substances/Reportable Quantities - DOT requirements specific to Hazardous Substances only apply if the quantity in one package equals or exceeds the product reportable quantity.

TRANSPORT CANADA

Dangerous Goods X
Proper Shipping Name: Sulfuric acid
Hazard Class: 8
Packing Group: II
UN Number: UN1830
Transport Label Required: Corrosive

ICAO / IATA

Dangerous Goods X
Proper Shipping Name: Sulfuric acid,
Hazard Class: 8
Packing Group: II
UN Number: UN1830
Transport Label Required: Corrosive

IMO

Dangerous Goods X
Proper Shipping Name: Sulfuric acid
Hazard Class: 8
UN Number: UN1830
Packing Group: II
Transport Label Required: Corrosive

15. REGULATORY INFORMATION

Inventory Information

United States (USA): All components of this product are included on the TSCA Chemical Inventory or are not required to be listed on the TSCA Chemical Inventory.

Canada: All components of this product are included on the Domestic Substances List (DSL) or are not required to be listed on the DSL.

Australia: All components of this product are included in the Australian Inventory of Chemical Substances (AICS) or are not required to be listed on AICS.

China: All components of this product are included on the Chinese inventory or are not required to be listed on the Chinese inventory.

Japan: All components of this product are included on the Japanese (ENCS) inventory or are not required to be listed on the Japanese inventory.

Korea: All components of this product are included on the Korean (ECL) inventory or are not required to be listed on the Korean inventory.

Philippines: All components of this product are included on the Philippine (PICCS) inventory or are not required to be listed on the Philippine inventory.

OTHER ENVIRONMENTAL INFORMATION

The following components of this product may be subject to reporting requirements pursuant to Section 313 of CERCLA (40 CFR 372), Section 12(b) of TSCA, or may be subject to release reporting requirements (40 CFR 307, 40 CFR 311, etc.) See Section 13 for information on waste classification and waste disposal of this product.

Component / CAS No.	%	TPQ (lbs)	RQ(lbs)	S313	TSCA 12B
Sulfuric Acid 7664-93-9	80 - 100	1000	1000	Yes	No

PRODUCT HAZARD CLASSIFICATION UNDER SECTION 311 OF SARA

- Acute
- Reactivity

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16. OTHER INFORMATION

NFPA Hazard Rating (National Fire Protection Association)

Health: 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

Fire: 0 - Materials that will not burn.

Instability: 2 - Materials that readily undergo violent chemical change at elevated temperatures and pressures.

Special: Water Reactive
