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# ASARCO SULFURIC ACID

ASARCO

Revised: 3/8/2007

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Internal ID: N/A

Primary CAS: 7664-93-9

Filename: 017252

## Hazard Ratings

NFPA	Health - 3	Flammability - 0	Reactivity - 2	Other -
HMS	Health -	Flammability -	Reactivity -	PPE -

## This product is also known as

N/A

## Other Information

N/A

## Ingredients

SULFURIC ACID

7664-93-9

93 to 99%

## Locations

RAY

**MSDS**

**Material Safety Data Sheet**

ASARCO

MATERIAL SAFETY DATA SHEET

ASARCO SULFURIC ACID

146

**A. PRODUCT / COMPANY IDENTIFICATION**

TRADE NAME (COMMON OR SYNONYM):  
SULFURIC ACID, OIL OF VITRIOL, SULFURIC ACID MIST

CHEMICAL NAME: SULFURIC ACID

ASARCO PRODUCT CODE #: 1860

FORMULA: H2SO4

MOLECULAR WEIGHT: 98.08

ADDRESS (NO., STREET, CITY, STATE, AND ZIP CODE):

ASARCO LLC  
1150 N. 7TH AVENUE  
TUCSON, AZ 85705  
PHONE: 602-977-6500

CONTACT:	PHONE NUMBER
GENERAL INFORMATION:	602-977-6500
ENVIRONMENTAL AFFAIRS DEPARTMENT:	602-977-6523
FIRST AID INFORMATION (MEDICAL DEPT.):	415-377-0985
TRANSPORTATION EMERGENCIES - CHEMTREC:	800-424-9300

ISSUE DATE: 1/7/83

REVISION DATE: 3/8/07

**B. COMPOSITION/INFORMATION INGREDIENTS**

MATERIAL OR COMPONENT	C.A.S. #	WT. %	PERMISSIBLE AIR CONC (MG/M3)	
			OSHA	ACGIH
SULFURIC ACID	7664-93-9	93-99	1.0	1.0

**C. HAZARDS IDENTIFICATION**

PRIMARY ROUTE OF ENTRY:

INGESTION (X)  
INHALATION (X)  
SKIN ( )

CARCINOGENICITY:

THE INTERNATIONAL AGENCY FOR RESEARCH ON CANCER (IARC) HAS CLASSIFIED STRONG INORGANIC ACID MISTS CONTAINING SULFURIC ACID" AS CARCINOGENIC TO HUMANS. THIS CLASSIFICATION DOES NOT APPLY TO SULFURIC ACID OR SULFURIC ACID SOLUTIONS.

WARNING:

THIS PRODUCT CONTAINS A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.

ACUTE OVEREXPOSURE (SYMPTOMS AND EFFECTS):

1. INHALATION OF FUMES OR MISTS CAN CAUSE IRRITATION OR CORROSIVE BURNS TO THE UPPER RESPIRATORY SYSTEM. LUNG IRRITATION AND PULMONARY EDEMA CAN OCCUR.
2. INGESTION CAN CAUSE IRRITATION AND CORROSIVE BURNS TO THROAT, MOUTH, AND STOMACH. CAN BE FATAL IF SWALLOWED.
3. CAUSES SEVERE BURNS OR IRRITATION ON SKIN CONTACT.
4. LIQUID CONTACT WITH THE EYES CAN CAUSE IRRITATION, CORNEAL BURNS, AND BLINDNESS. MIST CONTACT MAY IRRITATE OR BURN.

CHRONIC OVEREXPOSURE (SYMPTOMS AND EFFECTS):

LONG TERM EXPOSURE TO HIGH LEVELS OF ACID FUMES MAY CAUSE EROSION OF TEETH FOLLOWED BY JAW NECROSIS, BRONCHIAL IRRITATION, COUGHING, AND BRONCHIAL PNEUMONIA, OR GASTROINTESTINAL DISTURBANCES.

MEDICAL CONDITIONS POSSIBLY AGGRAVATED: ACUTE AND CHRONIC RESPIRATORY DISEASES.

#### **D. FIRST AID MEASURES**

GET PROMPT MEDICAL ATTENTION!

INHALATION: REMOVE FROM EXPOSURE; PLACE INDIVIDUAL UNDER CARE OF A PHYSICIAN.

INGESTION:

DRINK LARGE AMOUNTS OF WATER (OR MILK, IF AVAILABLE) TO DILUTE THE ACID. DO NOT INDUCE VOMITING!

SKIN OR EYE:

IMMEDIATELY FLUSH WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. REMOVE CONTAMINATED CLOTHING.

#### **E. FIRE FIGHTING MEASURES**

FLASH POINT: NOT APPLICABLE

AUTO IGNITION TEMPERATURE: NOT APPLICABLE

FLAMMABLE LIMITS IN AIR (% BY VOL): NOT APPLICABLE

UNUSUAL FIRE AND EXPLOSION HAZARDS:

FLAMMABLE AND EXPLOSIVE HYDROGEN GAS CAN BE GENERATED INSIDE METAL DRUMS AND STORAGE TANKS. CONCENTRATED ACID CAN IGNITE COMBUSTIBLE MATERIALS ON CONTACT. ACID PLUS ACTIVE METAL CAN ALSO FORM EXPLOSIVE CONCENTRATIONS OF HYDROGEN.

FIRE EXTINGUISHING AGENTS RECOMMENDED:

IF INVOLVED IN A FIRE, USE WATER SPRAY; AVOID SPRAYING WATER INTO CONTAINERS. IF ONLY A SMALL AMOUNT OF COMBUSTIBLES IS PRESENT, SMOTHER FIRE WITH DRY CHEMICAL.

FIRE EXTINGUISHING AGENTS TO AVOID:

DIRECT STREAM OF WATER MAY CAUSE SPATTERING.

SPECIAL FIRE FIGHTING PRECAUTIONS:

USE NIOSH/MSHA APPROVED SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING IF INVOLVED IN FIRE. AT HIGH TEMPERATURES, SULFURIC ACID OR SULFUR TRIOXIDE MISTS CAN BE RELEASED FROM VENTED OR RUPTURED CONTAINERS. IF WATER IS ADDED TO CONCENTRATED SULFURIC ACID, VIOLENT SPATTERING CAN OCCUR AND CONSIDERABLE HEAT MAY BE EVOLVED.

#### **F. RELEASE MEASURES**

SPILLS AND LEAKS:

DILUTE SMALL SPILLS OR LEAKS CAUTIOUSLY WITH PLENTY OF WATER. NEUTRALIZE WITH ALKALI SUCH AS SODA ASH OR LIME. ADEQUATE VENTILATION IS REQUIRED FOR SODA ASH DUE TO RELEASE OF CO<sub>2</sub> GAS. NO SMOKING IN SPILL AREA. MAJOR SPILLS MUST BE HANDLED BY A PREDETERMINED PLAN. DIKING WITH SODA ASH IS RECOMMENDED. ATTEMPT TO KEEP OUT OF SEWER.

#### **G. HANDLING AND STORAGE**

NORMAL HANDLING:

DO NOT GET IN EYES, ON SKIN, OR ON CLOTHING. DO NOT BREATHE VAPOR OR MISTS. USE PROTECTIVE EQUIPMENT AS OUTLINED IN SECTION H. DO NOT ADD WATER TO ACID. WHEN DILUTING, ALWAYS ADD ACID TO WATER CAUTIOUSLY AND WITH AGITATION. USE WITH ADEQUATE VENTILATION.

STORAGE:

PROTECT FROM PHYSICAL DAMAGE. STORE IN COOL, WELL-VENTILATED AREA AWAY FROM COMBUSTIBLES AND REACTIVE CHEMICALS. KEEP OUT OF SUN AND AWAY FROM HEAT. KEEP CONTAINERS IN UPRIGHT POSITION. NO SMOKING IN STORAGE AREAS.

#### **H. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**ENGINEERING CONTROLS:**

ADEQUATE VENTILATION TO MAINTAIN ACID MIST BELOW PERMISSIBLE EXPOSURE LIMITS. PACKAGING, UNLOADING AREAS, OR OPEN PROCESSING EQUIPMENT MAY REQUIRE MECHANICAL VENTILATION.

**PERSONAL HYGIENE:**

AVOID INHALATION OR INGESTION. PRACTICE GOOD HOUSEKEEPING AND PERSONAL HYGIENE PROCEDURES. WASH THOROUGHLY BEFORE EATING OR SMOKING. DO NOT WEAR CONTAMINATED CLOTHING HOME.

**SPECIAL PRECAUTIONS/PROCEDURES/LABEL INSTRUCTIONS:**

LOOSEN CLOSURES CAREFULLY. NFPA CLASSIFICATION:

H 3  
F 0  
R 2  
W ( )

LABEL SIGNAL WORD: DANGER

**RESPIRATORY PROTECTION:**

WHERE AIRBORNE EXPOSURES MAY EXCEED OSHA/ACGIH PERMISSIBLE AIR CONCENTRATIONS, THE MINIMUM RESPIRATORY PROTECTION RECOMMENDED IS A NEGATIVE PRESSURE AIR PURIFYING RESPIRATOR WITH CARTRIDGE/FILTERS THAT ARE NIOSH APPROVED R99, N99, P99.

EYES AND FACE: CHEMICAL GOGGLES OR FACESHIELD REQUIRED.

**OTHER CLOTHING AND EQUIPMENT:**

RUBBER GLOVES AND APRON OR EQUIVALENT REQUIRED WHEN HANDLING SULFURIC ACID. FULL PROTECTIVE CLOTHING RECOMMENDED WHEN HANDLING LARGE QUANTITIES OF SULFURIC ACID.

**I. PHYSICAL / CHEMICAL PROPERTIES**

MATERIAL IS (AT NORMAL CONDITIONS): LIQUID

**APPEARANCE AND COLOR:**

OILY, COLORLESS TO SLIGHTLY YELLOW, CLEAR TO TURBID LIQUID. ODOR THRESHOLD IS APPROX. 1 MG/CU.M.

MELTING POINT (C): 93.19% AT -29 C, 98% AT -1C

BOILING POINT (C): 276-281

SPECIFIC GRAVITY (H2O = 1): 1.835-1.844

VAPOR DENSITY (AIR = 1): NOT APPLICABLE

SOLUBILITY IN WATER (% BY WT): COMPLETE

pH: 1% SOLUTION; pH = 0.9

**VAPOR PRESSURE (MMHg):**

90%=0.005 AT 20 C

95%=0.0015 AT 35 C

EVAPORATION RATE: NOT APPLICABLE

**J. STABILITY / REACTIVITY**

STABILITY: STABLE

CONDITIONS TO AVOID: NOT APPLICABLE

**INCOMPATIBILITY ( MATERIALS TO AVOID):**

SULFURIC ACID IS NOT FLAMMABLE BUT HIGHLY REACTIVE AND CAPABLE OF IGNITING FINELY DIVIDED COMBUSTIBLE MATERIALS ON CONTACT. REACTS VIOLENTLY WITH WATER AND ORGANIC MATERIALS WITH EVOLUTION OF HEAT. EXTREMELY HAZARDOUS IN CONTACT WITH MANY MATERIALS, PARTICULARLY CARBIDES, CHLORATES, FULMINATES, NITRATES, PICRATES, POWDERED METALS AND OTHER COMBUSTIBLE MATERIALS. ATTACKS MANY METALS RELEASING HYDROGEN. EXAMPLES OF COMMON INORGANIC CHEMICALS THAT SHOULD BE AVOIDED INCLUDE: SODIUM CARBONATE, SODIUM HYDROXIDE, ELEMENTAL SODIUM, POTASSIUM PERMANGANATE, AMMONIUM HYDROXIDE, AND POTASSIUM CHLORATE. COMMON ORGANIC CHEMICALS THAT HAVE BEEN REPORTED AS BEING INCOMPATIBLE WITH SULFURIC ACID INCLUDE: ETHYLENE GLYCOL, ANILINE, AND ETHYLENE DIAMINE.

HAZARDOUS DECOMPOSITION PRODUCTS: SULFUR ACID MIST

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS TO AVOID: NOT APPLICABLE

**K. TOXICOLOGICAL INFORMATION**

LD50 (SPECIES, GROUP):  
SULFURIC ACID: 2140 MG/KG (RAT, ORAL).

LC50 (SPECIES):  
SULFURIC ACID: 510 MG/CU.M/2HRS. (RAT)

MUTAGENICITY: NOT AVAILABLE

**L. ECOLOGICAL INFORMATION**

ECOTOXICITY: NOT AVAILABLE

ENVIRONMENTAL FATE: NOT AVAILABLE

**M. DISPOSAL CONSIDERATIONS**

WASTE DISPOSAL METHODS MUST COMPLY WITH FEDERAL, STATE, AND LOCAL DISPOSAL OR DISCHARGE LAWS:

IF HAZARDOUS UNDER 40 CFR 261, SUBPARTS B AND C, MATERIAL MUST BE TREATED OR DISPOSED IN A FACILITY MEETING THE REQUIREMENTS OF 40 CFR 264 OR 265. IF NON-HAZARDOUS, MATERIAL SHOULD BE DISPOSED IN A FACILITY MEETING THE REQUIREMENTS OF 40 CFR 257. EPA HAZARDOUS WASTE NUMBER: D002 (CORROSIVE)

RCRA STATUS OF UNUSED MATERIAL:

IF DISCARDED IN UNALTERED FORM, MATERIAL SHOULD BE TESTED TO DETERMINE IF IT MUST BE CLASSIFIED AS A HAZARDOUS WASTE FOR DISPOSAL PURPOSES. UNDER SPECIFIC CIRCUMSTANCES, APPLICATION CAN BE MADE TO THE EPA ADMINISTRATOR TO HAVE A PARTICULAR WASTE DESIGNATED NON-HAZARDOUS.

40 CFR 261

**N. TRANSPORT**

DOT REGULATION AND ID (OR PIN) NUMBER:

ARSARCO SULFURIC ACID IS REGULATED AS SULFURIC ACID, CLASS 8, PGII, UN1830, RQ,(SULFURIC ACID)

**O. REGULATORY INFORMATION**

WHMIS CLASSIFICATION, SARA REGULATION, AND OTHER INFORMATION:  
WHMIS CLASSIFIES THIS MATERIAL AS CLASS C, D1A, AND E.

TSCA STATUS: ON TSCA INVENTORY

REGULATED UNDER SARA TITLE III:

SECT. 302: SULFURIC ACID  
SECT. 311/312: IMMEDIATE AND DELAYED  
SECT. 313 CHEMICALS: SULFURIC ACID

CERCLA REPORTABLE QUANTITY: 1000 POUNDS FOR SULFURIC ACID

**P. REFERENCES**

PERMISSIBLE CONCENTRATION REFERENCES:

OSHA REGULATIONS FOR AIRBORNE CONTAMINANTS 29 CFR 1910.1000; ACGIH THRESHOLD LIMIT VALUES FOR CHEMICAL SUBSTANCES

HAZARD INFORMATION REFERENCES:

DOCUMENTATION OF THE THRESHOLD LIMIT VALUES, 6TH ED., ACGIH  
PATTY'S INDUSTRIAL HYGIENE AND TOXICOLOGY, VOL. 2, 4TH EDITION  
CHEMICAL HAZARDS OF THE WORKPLACE, JB LIPPINCOTT, 1991  
HAZARDOUS MATERIALS TOXICOLOGY, WILLIAMS AND WILKINS, 1992  
NFPA FIRE PROTECTION GUIDE ON HAZARDOUS MATERIALS, 11TH ED.

TOMES PLUS DATABASE; MICROMEDEX, INC., VOL. 17, 1993  
DATATOX DATABASE; SPECTRUM RESEARCH, INC., VERSION 2.0, 1992

GENERAL:  
HANDBOOK OF CHEMISTRY AND PHYSICS, 57TH ED., 1976-77, WEAST, R.C., EDITOR, CRC  
INC.

**Q. ADDITIONAL INFORMATION**

INFORMATION (HAZARDS, FIRST AID, ETC) IS ABBREVIATED. MORE INFORMATION IS  
CONTAINED IN REFERENCES FOUND IN SECTION P.:

ADDITIONAL INFORMATION CONTACT: ASARCO INCORPORATED  
SULFURIC ACID SALES DEPARTMENT  
2575 EAST CAMELBACK ROAD  
SUITE 500  
PHOENIX, ARIZONA 85016  
602-977-6670

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