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# MATERIAL SAFETY DATA SHEET

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Version 2.9

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## Section 1 - Product and Company Information

Product Name	SULFURIC ACID, REAGENT GRADE, 95-98%
Product Number	435589
Brand	SIAL
Company	World Precision Instruments, Inc.
Street Address	175 Sarasota Center Blvd.
City, State, Zip, Country	Sarasota FL 34240 US
Technical Phone:	941-371-1003
Emergency Phone:	941-371-1003
Fax:	941-377-5428

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## Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
SULFURIC ACID, >= 51%	7664-93-9	No
Formula	H2SO4	
Synonyms	Acide sulfurique (French) * Acido solforico (Italian) * Battery acid * BOV * Dihydrogen sulfate * Dipping acid * Electrolyte acid * Mattling acid * Oil of vitriol * Schwefelsaeureloesungen (German) * Strong inorganic acid mists containing sulfuric acid * Sulfuric acid (ACGIH:OSHA) * Sulphuric acid * Vitriol Brown Oil * Zwavelzuuroplossingen (Dutch)	
RTECS Number:	WS5600000	

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## Section 3 - Hazards Identification

### EMERGENCY OVERVIEW

Corrosive.

Causes severe burns.

### HMIS RATING

HEALTH: 3

FLAMMABILITY: 0

REACTIVITY: 2

### NFPA RATING

HEALTH: 3

FLAMMABILITY: 0

REACTIVITY: 2

For additional information on toxicity, please refer to Section 11.

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## Section 4 - First Aid Measures

### ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician. Do not induce vomiting.

#### INHALATION EXPOSURE

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

#### DERMAL EXPOSURE

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

#### EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

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### Section 5 - Fire Fighting Measures

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#### CONDITIONS OF FLAMMABILITY

Strong dehydrating agent which may cause ignition of finely divided materials on contact.

#### FLASH POINT

N/A

#### AUTOIGNITION TEMP

N/A

#### FLAMMABILITY

N/A

#### EXTINGUISHING MEDIA

Suitable: Noncombustible. Use extinguishing media appropriate to surrounding fire conditions.

Unsuitable: Do not use water.

#### FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Specific Hazard(s): Emits toxic fumes under fire conditions.

Contact with other material may cause fire.

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### Section 6 - Accidental Release Measures

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#### PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

#### PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

#### METHODS FOR CLEANING UP

Cover with dry lime or soda ash, pick up, keep in a closed container, and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

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### Section 7 - Handling and Storage

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#### HANDLING

User Exposure: Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

#### STORAGE

Suitable: Keep tightly closed.  
Incompatible Materials: Do not allow contact with water

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## Section 8 - Exposure Controls / PPE

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### ENGINEERING CONTROLS

Safety shower and eye bath. Use only in a chemical fume hood.

### PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK - P3 (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.

Hand: Compatible chemical-resistant gloves.

Eye: Chemical safety goggles.

Other: Faceshield (8-inch minimum).

### GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Discard contaminated shoes. Wash thoroughly after handling.

### EXPOSURE LIMITS, RTECS

Country	Source	Type	Value
USA	ACGIH	STEL	3 MG/M3
USA	ACGIH	TWA	0.2 MG/M3
USA	MSHA Standard-air	TWA	1 MG/M3
USA	OSHA.	PEL	8H TWA 1 MG/M3
New Zealand OEL			
Remarks: check ACGIH TLV			
USA	NIOSH	TWA	1 MG/M3

### EXPOSURE LIMITS

Country	Source	Type	Value
Poland		NDS	1 MG/M3
Poland		NDSch	3 MG/M3
Poland		NDSP	-

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## Section 9 - Physical/Chemical Properties

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Appearance	Physical State: Liquid	
Property	Value	At Temperature or Pressure
Molecular Weight	98.08 AMU	
pH	1.2	Concentration: 5 g/l
BP/BP Range	290 °C	760 mmHg
MP/MP Range	N/A	
Freezing Point	3 °C	
Vapor Pressure	1 mmHg	145.8 °C
Vapor Density	< 0.3 g/l	25 °C
Saturated Vapor Conc.	N/A	
SG/Density	1.84 g/cm3	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	

Evaporation Rate	N/A	
Viscosity	21 Pas	25 °C
Surface Tension	55.1 mN/m	20 °C
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	N/A	
Explosion Limits	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Refractive Index	N/A	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	Solubility in Water:Soluble.	

N/A = not available

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## Section 10 - Stability and Reactivity

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### STABILITY

Stable: Stable.

Conditions to Avoid: Moisture. Do not allow water to enter container.

Materials to Avoid: Bases, Halides, Organic materials Incompatible with carbides, chlorates, fulminates, nitrates, picrates, cyanides, alkali halides, zinc iodide, permanganates, hydrogen peroxide, azides, perchlorates, nitromethane, phosphorous, and nitrites. Violent reaction with: cyclopentadiene, cyclopentanone oxime, nitroaryl amines, hexalithium disilicide, and phosphorous(III) oxide, Finely powdered metals

### HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Sulfur oxides, Hydrogen sulfide gas.

### HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

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## Section 11 - Toxicological Information

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### ROUTE OF EXPOSURE

Skin Contact: Causes severe burns.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: Causes severe burns.

Inhalation: May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Ingestion: Ingestion can cause immediate burning pain in the mouth, throat, abdomen; severe swelling of the larynx and skeletal paralysis affecting the ability to breathe, circulatory shock and convulsions. May be harmful if swallowed.

### SIGNS AND SYMPTOMS OF EXPOSURE

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

### TOXICITY DATA

Oral  
Rat  
2140 mg/kg  
LD50

Inhalation  
Rat  
510 mg/m3  
LC50

Inhalation  
Mouse  
320 mg/m3  
LC50

Inhalation  
Guinea pig  
18 mg/m3  
LC50

Remarks: Lungs, Thorax, or Respiration:Other changes.

#### IRRITATION DATA

Eyes  
Rabbit  
0.25 mg  
Remarks: Severe irritation effect

Eyes  
Rabbit  
5 mg  
30S  
Remarks: Rinsed

#### CHRONIC EXPOSURE - CARCINOGEN

Result: The International Agency for Research on Cancer (IARC) has determined that occupational exposure to strong-inorganic-acid mists containing sulfuric acid is carcinogenic to humans (group 1).

#### IARC CARCINOGEN LIST

Rating: Group 1

#### NTP CARCINOGEN LIST

Rating: Known to be carcinogenic.

#### ACGIH CARCINOGEN LIST

Rating: A2

#### CHRONIC EXPOSURE - TERATOGEN

Species: Rabbit  
Dose: 20 MG/M3/7H  
Route of Application: Inhalation  
Exposure Time: (6-18D PREG)  
Result: Specific Developmental Abnormalities: Musculoskeletal system.

## CHRONIC EXPOSURE - MUTAGEN

Species: Hamster  
Dose: 4 MMOL/L  
Cell Type: ovary  
Mutation test: Cytogenetic analysis

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### Section 12 - Ecological Information

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No data available.

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### Section 13 - Disposal Considerations

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#### APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Contact a licensed professional waste disposal service to dispose of this material. Observe all federal, state, and local environmental regulations.

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### Section 14 - Transport Information

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#### DOT

Proper Shipping Name: Sulfuric acid [with more than 51 percent acid]  
UN#: 1830  
Class: 8  
Packing Group: Packing Group II  
Hazard Label: Corrosive  
PIH: Not PIH

#### IATA

Proper Shipping Name: Sulphuric acid  
IATA UN Number: 1830  
Hazard Class: 8  
Packing Group: II

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### Section 15 - Regulatory Information

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#### EU DIRECTIVES CLASSIFICATION

Symbol of Danger: C  
Indication of Danger: Corrosive.  
R: 35  
Risk Statements: Causes severe burns.  
S: 26-30-45  
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Never add water to this product. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

#### US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Corrosive.  
Risk Statements: Causes severe burns.  
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Never add water to this product. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

#### UNITED STATES REGULATORY INFORMATION

SARA LISTED: No  
TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

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Section 16 - Other Information

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DISCLAIMER

For R&D use only. Not for drug, household or other uses.