SAFETY DATA SHEET

Sulfuric Acid – 96%

1. IDENTIFICATION OF THE SUBSTANCE/ MIXTURE AND OF THE COMPANY

Product Name:	Sulfuric Acid 96 Percent
Product Code:	SA96
Formula:	H_2SO_4
Synonyms:	Oil of Vitriol
Product Use:	Inorganic Acid. For industrial use only.
Manufacturer:	PCI Nitrogen, LLC 2001 Jackson Rd Pasadena, TX 77506 713-920-5300 www.pcicorp.net
Emergency Phone #s:	CHEMTREC 1-800-424-9300 (within US)

2. HAZARDS IDENTIFICATION

Hazards:	Skin Corrosion, 1A, H314 Eye Damage, 1, H318 Carcinogen, 1A, H350

Label Elements

Hazard Symbol:	
Signal Word:	Danger
Hazard Statement:	H314 - Causes severe skin burns and eye damage. H318 - Causes serious eye damage. H350 - May cause cancer (Inhalation).
Precautionary Statements	P201 - Obtain special instructions before use. P202 - Do not handle until all safety precautions have been read and understood. P260 - Do not breathe fumes, mist, vapors, spray. P264 - Wash hands and forearms thoroughly after handling. P280 - Wear eye protection, face protection, protective gloves, protective clothing. P301, P330, P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303, P361, P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

	P304, P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305, P351, P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P308, P313 - If exposed or concerned: Get medical advice/ attention. P310 - Immediately call a POISON CENTER or doctor. P321 - Specific treatment (see Section 4). P363 - Wash contaminated clothing before reuse. P405 - Store locked up. P501 - Dispose of contents/container according to local, regional, national, territorial, provincial, and international regulations.
Hazard(s) Not Otherwise Classified:	Not applicable
Supplemental Information:	Not applicable

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredients	% (w/w)	CAS Number	Hazards
Sulfuric Acid	96	7664-93-9	Skin Corrosion, 1A, H314 Eye Damage, 1, H318 Carcinogen, 1A, H350
Water	4	7732-18-5	Not classified

4. FIRST AID MEASURES

General:	Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label if possible).
Inhalation:	Using proper respiratory protection, immediately move the exposed person to fresh air. Keep at rest and in a position comfortable for breathing. Give oxygen or artificial respiration if necessary. Seek immediate medical advice.
Eye Contact:	Immediately rinse with water for a prolonged period (at least 15 minutes) while holding the eyelids wide open. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.
Skin Contact:	Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Immediately call a POISON CENTER or doctor/physician. Wash contaminated clothing before reuse.
Ingestion:	If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label. Rinse mouth.

Most Important Symptoms and Effects, both acute and delayed	
General:	Corrosive. Causes burns.
Inhalation:	Causes severe respiratory irritation if inhaled. Symptoms may include: burning of nose and throat, constriction of airway, difficulty breathing, shortness of breath, bronchial spasms, chest pain, and pink frothy sputum. May cause pulmonary edema. Symptoms may be delayed.
Eye Contact:	Contact may cause immediate severe irritation progressing quickly to chemical burns. Can cause blindness.
Skin Contact:	Contact may cause immediate severe irritation progressing quickly to chemical burns. Highly corrosive to skin.
Ingestion:	May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract. Swallowing a small quantity of this material will result in serious health hazard.
Chronic Symptoms:	Prolonged and frequent exposure through inhalation may cause cancer.

5. FIRE FIGHTING MEASURES

Conditions of Flammability:	Not flammable but reacts exothermically with incompatibles, releasing heat and increasing risk of fire or explosion.
Extinguishing Media:	Use extinguishing media appropriate for surrounding fire. Do not get water inside containers. Do not apply water stream directly at source of leak. A direct water stream will cause violent splattering and generation of heat.
Fire Fighting Procedures:	Exercise caution when fighting any chemical fire. Do not get water inside containers. Do not apply water stream directly at source of leak. Do not enter the fire area without proper protective equipment, including respiratory protection. Do not allow run-off from fire fighting to enter drains or water courses.
Fire & Explosion Hazards:	Risk of fire and explosion on contact with combustible substances or reducing agents. Reacts exothermically with (some) bases. Violent exothermic reaction with water: release of corrosive gases/vapors.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment And Emergency Procedures

General:	Do not get in eyes, on skin, or on clothing. Do not breathe vapor or mist.

For Non- Emergency Personnel:	Use recommended respiratory protection. Wear suitable protective clothing, gloves and eye/face protection. Stop leak if safe to do so. Eliminate ignition sources. Evacuate unnecessary personnel.
For Emergency Responders:	Use recommended respiratory protection. Wear suitable protective clothing, gloves and eye/face protection. Stop leak if safe to do so. Eliminate ignition sources. Ventilate area.
Environmental Precautions:	Do not allow to enter drains or water courses. Avoid release to the environment.

Methods And Materials For Containment And Clean Up

For Containment:	Liquid spill: neutralize with powdered limestone or sodium bicarbonate. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Do not absorb with combustible material such as: saw dust or cellulosic material.
Methods for Cleaning Up:	Ventilate area. Collect absorbed material and place into a sealed, labelled container for proper disposal.

7. HANDLING AND STORAGE

Handling:	Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work.
Storage:	Store in original container or corrosive resistant and/or lined container. May be stored in stainless steel containers. Store in an area having corrosion resistant concrete floor. Store in a dry, cool and well-ventilated place. Store away from other materials. Incompatible with: reducing agents, organic materials, alkalis, moisture.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Occupational Exposure Limits – Sulfuric Acid (7664-93-9)

Mexico	OEL TWA (mg/m³)	1 mg/m³
USA ACGIH	ACGIH TWA (mg/m³)	0.2 mg/m³
USA OSHA	OSHA PEL (TWA) (mg/m³)	1 mg/m³
USA NIOSH	NIOSH REL (TWA) (mg/m³)	1 mg/m³
USA IDLH	US IDLH (mg/m³)	15 mg/m³
Alberta	OEL STEL (mg/m³)	3 mg/m³
Alberta	OEL TWA (mg/m³)	1 mg/m³

British Columbia	OEL TWA (mg/m³)	0.2 mg/m³ (Thoracic, contained in strong inorganic acid mists)
Manitoba	OEL TWA (mg/m³)	0.2 mg/m³
New Brunswick	OEL STEL (mg/m³)	3 mg/m³
New Brunswick	OEL TWA (mg/m³)	1 mg/m³
Newfoundland & Labrador	OEL TWA (mg/m³)	0.2 mg/m³
Nova Scotia	OEL TWA (mg/m³)	0.2 mg/m³
Nunavut	OEL STEL (mg/m³)	3 mg/m³
Nunavut	OEL TWA (mg/m³)	1 mg/m³
Northwest Territories	OEL STEL (mg/m³)	3 mg/m³
Northwest Territories	OEL TWA (mg/m³)	1 mg/m³
Ontario	OEL TWA (mg/m³)	0.2 mg/m³
Prince Edward Island	OEL TWA (mg/m³)	0.2 mg/m³
Québec	VECD (mg/m³)	3 mg/m³
Québec	VEMP (mg/m³)	1 mg/m³
Saskatchewan	OEL STEL (mg/m³)	0.6 mg/m³
Saskatchewan	OEL TWA (mg/m³)	0.2 mg/m³
Yukon	OEL STEL (mg/m³)	1 mg/m³
Yukon	OEL TWA (mg/m³)	1 mg/m³

Engineering Controls:	Ensure adequate ventilation, especially in confined areas. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure all national/local regulations are observed.

Personal Protection Equipment

Hand Protection:	Wear chemically resistant protective gloves.
Eye / Face Protection:	A full face shield is recommended. Chemical goggles or safety glasses.
Skin Protection:	Chemical resistant suit. Rubber apron, boots.
Respiratory Protection:	Use a NIOSH-approved respirator or self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits.
Thermal Hazard Protection:	If material is hot, wear thermally resistant protective gloves.
General Hygiene Considerations:	When using, do not eat, drink or smoke.

9. TYPICAL PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Appearance:	Clear
Odor:	Pungent, irritating
Odor Threshold:	Not available
pH:	< 1
Evaporation Rate (Butyl Acetate=1):	Not available
Melting/Freezing Point:	-20 °C (- 4 °F)
Boiling Point:	335 °C (635 °F)
Flash Point:	Not available
Auto-ignition Temperature:	Not available
Decomposition Temperature:	Not available
Flammability (solid, gas):	Not available
Lower Flammable Limit:	Not available
Upper Flammable Limit:	Not available
Vapor Pressure:	0.002 mm Hg at 40 °C (104 °F)
Relative Vapor Density at 20°C:	3.4 (air = 1)
Relative Density:	1.84 at 15.55°C (60 °F) (water = 1)
Density:	15.35 lb/gal at 15.55˚C (60˚F)
Solubility:	Miscible
Log Pow:	Not available
Log know:	Not available
Viscosity, Kinematic:	Not available
Viscosity, Dynamic:	26.7 cP at 20 °C (68 °F)
Explosion Data – Sensitivity to Mechanical Impact:	Not available
Explosion Data – Sensitivity to Static Discharge:	Not available

10. STABILITY AND REACTIVITY

Reactivity:	Reacts exothermically with (some) bases. Violent exothermic reaction with water (moisture): release of corrosive gases/vapors.
Stability:	Stable at standard temperature and pressure.
Possibility of Hazardous Reactions:	Hazardous polymerization will not occur.
Conditions to avoid:	Protect from moisture. Water. Keep away from (strong) bases. Contact with metallic substances.
Incompatible Materials:	Reducing agents, water, combustible materials, bases, organic materials, metals.
Decomposition Products:	Under conditions of fire this material may produce sulfur oxides.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity:	Not classified
LD50 and LC50 Data:	See below and Section 12
Skin Corrosion/ Irritation:	Causes severe skin burns and eye damage (pH: < 1)
Serious Eye Damage/ Irritation:	Causes serious eye damage (pH: < 1)
Respiratory or Skin Sensitization:	Not classified
Germ Cell Mutagenicity:	Not classified
Teratogenicity:	Not available
Carcinogenicity:	May cause cancer (Inhalation)
Specific Target Organ Toxicity (Repeated Exposure):	Not classified
Specific Target Organ Toxicity (Single Exposure):	Not classified
Reproductive Toxicity:	Not classified
Aspiration Hazard:	Not classified
Symptoms/ Injuries After Inhalation:	Causes severe respiratory irritation if inhaled. Symptoms may include: Burning of nose and throat, constriction of airway, difficulty breathing, shortness of breath, bronchial spasms, chest pain, and pink frothy sputum. May cause pulmonary edema. Symptoms may be delayed.

Symptoms/ Injuries After Skin Contact:	Contact may cause immediate severe irritation progressing quickly to chemical burns. Highly corrosive to skin.
Symptoms/ Injuries After Eye Contact:	Contact may cause immediate severe irritation progressing quickly to chemical burns. Can cause blindness.
Symptoms/ Injuries After Ingestion:	May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract. Swallowing a small quantity of this material will result in serious health hazard.
Chronic Symptoms:	Prolonged and frequent exposure through inhalation may cause cancer.

Information on Toxicological Effects – Ingredients(s) – LD50 and LC50 Data

Sulfuric Acid (7664-93-9)

LD50 Oral Rat	2140 mg/kg
LC50 Inhalation Rat (mg/l)	510 mg/m³ (Exposure time: 2 h)
ATE (oral)	2140 mg/kg body weight
ATE (dust, mist)	510 mg/l/4h
IARC Group	1 (inorganic acid mist)

12. ECOLOGICAL INFORMATION

Toxicity

Sulfuric Acid (7664-93-9)

LC50 Fish 1	500 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static])
EC50 Daphnia 1	29 mg/l (Exposure time: 24 h - Species: Daphnia magna)

Persistence and Degradability

Sulfuric Acid 96 Percent

Persistence and Degradability	Product is biodegradable.

Bioaccumulative Potential

Sulfuric Acid 96 Percent

Bioaccumulative Potential	Not expected to bioaccumulate.

Sulfuric Acid (7664-93-9)

BCF fish 1	(no bioaccumulation)

Mobility in Soil:	Not available
Other Adverse Effects:	Not available

13. DISPOSAL CONSIDERATIONS

Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.

14. TRANSPORT INFORMATION

DOT UN No.:	UN 1830
DOT Proper Shipping Name:	Sulfuric Acid
DOT Hazard Classes:	Class 8 – Corrosive
DOT Symbols:	None
DOT Packing Group:	II
DOT Special Provisions:	See 49 CFR 172.102
DOT Reportable Quantity (RQ):	1,000 lbs
USCG CHRIS Codes:	SFA

15. REGULATORY INFORMATION

Sulfuric Acid 96 Percent

SARA Section 311/312 Hazard Classes - Immediate (acute) health hazard Delayed (chronic) health hazard

US Federal Regulations

Sulfuric Acid (7664-93-9)

United States TSCA (Toxic Substances Control Act) inventory	Yes
EPCRA (SARA) § 313 Toxic Release Inventory (TRI)	Yes – Aerosol forms only
EPCRA (SARA) § 302 Extremely Hazardous Substance (EHS)	Yes
EPCRA (SARA) § 302 Threshold Planning Quantity (TPQ)	1,000 lb
EPCRA (SARA) § 302 EHS Reportable Quantity (RQ)	1,000 lb
CERCLA Reportable Quantity (RQ)	1,000 lb
CERCLA Hazardous Substance	Yes

Water (7732-18-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

US State Regulations

Sulfuric Acid (7664-93-9)

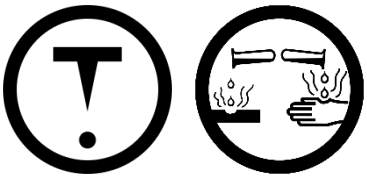
U.S. - California - SCAQMD - Toxic Air Contaminants - Non-Cancer Acute
U.S. - California - SCAQMD - Toxic Air Contaminants - Non-Cancer Chronic
U.S. - California - Toxic Air Contaminant List (AB 1807, AB 2728)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (30 min)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (8 hr)
U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Emission Levels (ELs)
U.S. - Idaho - Occupational Exposure Limits - TWAs
U.S. - Illinois - Toxic Air Contaminant Carcinogens
U.S. - Illinois - Toxic Air Contaminants
U.S. - Louisiana - Reportable Quantity List for Pollutants
U.S. - Maine - Air Pollutants - Hazardous Air Pollutants
U.S. - Massachusetts - Allowable Ambient Limits (AALs)
U.S. - Massachusetts - Allowable Threshold Concentrations (ATCs)
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 2
U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 2
U.S. - Massachusetts - Right To Know List
U.S. - Massachusetts - Threshold Effects Exposure Limits (TELs)
U.S. - Massachusetts - Toxics Use Reduction Act
U.S. - Michigan - Occupational Exposure Limits - TWAs
U.S. - Michigan - Polluting Materials List

U.S. - Minnesota - Chemicals of High Concern
U.S. - Minnesota - Hazardous Substance List
U.S. - Minnesota - Permissible Exposure Limits - TWAs
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - 24-Hour
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - Annual
U.S. - New Jersey - Discharge Prevention - List of Hazardous Substances
U.S. - New Jersey - Environmental Hazardous Substances List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Special Health Hazards Substances List
U.S. - New York - Occupational Exposure Limits - TWAs
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances
U.S. - North Carolina - Control of Toxic Air Pollutants
U.S. - North Dakota - Air Pollutants - Guideline Concentrations - 8-Hour
U.S. - Ohio - Extremely Hazardous Substances - Threshold Quantities
U.S. - Oregon - Permissible Exposure Limits - TWAs
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - 1-Hour
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - Annual
U.S. - South Carolina - Toxic Air Pollutants - Maximum Allowable Concentrations
U.S. - South Carolina - Toxic Air Pollutants - Pollutant Categories
U.S. - Tennessee - Occupational Exposure Limits - TWAs
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term
U.S. - Vermont - Permissible Exposure Limits - TWAs
U.S. - Washington - Permissible Exposure Limits - STELs
U.S. - Washington - Permissible Exposure Limits - TWAs
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 25 Feet to Less Than 40 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 40 Feet to Less Than 75 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 75 Feet or Greater
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights Less Than 25 Feet

Canadian Regulations

Sulfuric Acid 96 Percent

WHMIS Classification: Class D Division 2 Subdivision A - Very toxic material causing other toxic effects, Class E - Corrosive Material



Sulfuric Acid (7664-93-9)

Listed on the Canadian DSL (Domestic Substances List) Inventory
Listed on the Canadian Ingredient Disclosure List

WHMIS Classification:	Class D Division 2 Subdivision A - Very toxic material causing other toxic effects, Class E - Corrosive Material

Water (7732-18-5)

Listed on the Canadian DSL (Domestic Substances List) Inventory

WHMIS Classification:	Uncontrolled product according to WHMIS classification criteria

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by CPR.

16. OTHER INFORMATION

Prepared by:	Technical Staff at PCI Nitrogen, LLC. Telephone: 713-920-5300

The information contained in this Safety Data Sheet (SDS) relates only to the specific product(s) designated herein. The information and recommendations are based upon data believed to be current as of the date of this SDS and was obtained from sources believed to be accurate. However, this information is furnished without warranty, representations, or license of any kind, express or implied, with respect to accuracy, correctness, or completeness and neither PCI Nitrogen, LLC nor its marketing affiliates assume any legal responsibility for use or reliance upon same.