INDIGO CHEMICALS

44/1 PLOT NO.50, AT PO-BHATHA, VILLAGE-BHATHA,
TALUKA CHORASI, SURAT, GUJARAT-394510

INDIGO
—CHEMICALS—

SAFETY DATA SHEET: SULPHURIC ACID

SECTION 1: IDENTIFICATION OF THE PRODUCT/COMPANY/UNDERTAKING.

1.1) Identification of the Product.

Identified Product:	**SULPHURIC ACID**
Synonym(S):	SULPHURIC ACID
CAS NO.:	7664-93-9
Molecular Formula	H_2SO_4
Chemical Identity/Chemical Nature	Sulfuric Acid Inorganic Acid

1.2) Product Uses.

Sulfuric acid (H_2SO_4) is a strong acid with hygroscopic and oxidizing properties. Sulfuric Acid is a mineral acid with the chemical formula H_2SO_4. Sulfuric acid is also known as Mattling acid or Oil of vitriol. It has a strong acidic nature and is corrosive.

1.3) Identification of The Company/Undertaking

Manufacturer/supplier

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Surat, Gujarat, 394510

1.4) Emergency Contact Details.

INDIGO CHEMICALS

Tel: +91 76009-55231, +91 76009-55268
Email: sales@indigochemicals
Website: www.indigochemicals.com

SECTION 2: HAZARD IDENTIFICATION

Classification	PHYSICAL STATE AND APPEARANCE: Odorless, clear to amber, heavy, oily liquid. A pungent odor may exist if certain impurities are present in the acid. EMERGENCY OVERVIEW: Danger! Extremely corrosive. Causes severe burns and / or eye damage. Mist: Causes respiratory irritation. Harmful if inhaled. Harmful or fatal if swallowed. Reacts violently with water. Concentrated Sulfuric Acid will react with many organic materials and may cause fire due to the heat of the reaction. Not flammable, but reacts with most metals to form explosive/flammable hydrogen gas.
Pictogram	

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Signal Word	warning
Precautionary Statement	EYE CONTACT: Immediate pain, severe burns and corneal damage, which mayresult in permanent blindness. SKIN CONTACT: Causes burns, and brownish or yellow stains. Concentrated solutions may cause second or third degree burns with severe necrosis. Prolongedand repeated exposure to dilute solutions may cause irritation, redness, pain and drying and cracking of the skin. INHALATION: Causes respiratory irritation and at high concentrations may causesevere injury, burns, or death. Effects of exposure may be delayed. INGESTION: Causes severe irritation or burns of the mouth, throat, and esophagus.EXISTING MEDICAL CONDITIONS POSSIBLY AGGRAVATED BY EXPOSURE: Skin irritation may be aggravated in individuals with existing skin lesions. Breathing of vapors or sprays (mists) may aggravate acute or chronic asthma and chronic pulmonary disease such as emphysema and bronchitis.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Composition	CAS no.	EC#	Composition (%)
Sulfuric Acid	7664-93-9	-	98.5%

SECTION 4: FIRST-AID MEASURES

First aid after Inhalation:	Causes respiratory irritation and at high concentrations may cause severe injury, burns, or death. Effects of exposure may be delayed.
First aid Skin contact:	Causes burns, and brownish or yellow stains. Concentrated solutions may cause second or third degree burns with severe necrosis. Prolonged and repeated exposure to dilute solutions may cause irritation, redness, pain and drying and cracking of the skin.
First aid Eye contact:	Immediate pain, severe burns and corneal damage, which may result in permanent blindness.

First aid after Ingestion:	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.
Symptoms	Irritation, Nausea,Headache, Shortness of breath.

SECTION 5: FIRE- FIGHTING MEASURES

Suitable extinguishing media:	Wear approved self-contained breathing apparatus if vapors or mists are present and full protective clothing. For fighting fires in close proximity to spill or vapors, use acid-resistant personal protective equipment. Evacuate personnel to a safe area. Prevent unauthorized entry to fire area. Dike area to contain runoff and prevent contamination of water sources. Neutralize runoff with lime, soda ash or other suitable neutralizing agents (see Deactivating Chemicals, Section 6). Cool containers that are exposed to flame with streams of water until fire is out.

SECTION 6: ACCIDENTAL RELEASE MEASURE.

6.1) Personal Precautions

Small Spill:

Cover with DRY earth, sand or other non-combustible material or absorb with an inert dry material and place in a loosely covered plastic or other appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate, lime, or another suitable neutralizing agent.

6.2) Method for Cleaning up

Large Spill:

Stop leak, if possible, without risk. Dike with DRY earth, sand or other non-combustible inert material. Prevent entry into sewersor waterways. Consider neutralizing the residue with sodium carbonate, lime, or another suitable neutralizing agent. Ensure adequate decontamination of tools and equipment following clean up. Comply with Federal, Provincial/State and local regulations on reporting releases. Dispose of waste material at an approved waste treatment/disposal facility, in accordance with applicable regulations. Do not dispose of waste with normal garbage or to sewer systems.

SECTION 7: HANDLING AND STORAGE.

7.1) Precautions for safe handling.

Good general ventilation should be provided to keep vapor and mist concentrations below the exposure limits. Have available and wear as appropriate: Chemical splash goggles; full-length face shield/chemical splash goggle combination; acid-proof gauntlet gloves, apron, and boots; acid proof suit and hood; and appropriate respiratory protection. In case of emergency or where there is a strong possibility of considerable exposure, wear a complete acid suit with hood, boots and gloves. If acid vapor or mist are present and exposure limits may be exceeded, wear appropriate NOISH/MSHA respiratory protection.

HANDLING: Wear appropriate Personal Protection Equipment. Do not breathe sprays or mists. Do not ingest. Do not get in eyes, on skin or on clothing. Keep ignition sources away from sulfuric acid storage, handling and transportation equipment. Locate safety shower and eyewash station close to chemical handling area. Use EXTREME care when

diluting with water. Always add acid to water never the reverse. CAUTION: Hydrogen, a highly flammable gas, can accumulate to explosive concentrations inside drums, or any types of steel containers or tanks upon storage. Carbon steel storage tanks must be vented. People working with this chemical should be properly trained regarding its hazards and its safe use.

STORAGE: If stored in non-reactive container, keep container tightly closed. Metal and, specifically carbon steel, storage tanks must be vented due to hydrogen release as noted above.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION.

CAS No.	ACGIH	IDLH	OSHA
7664-93-9	ACGIH TLV 1 mg/m (TWA) 8 hours.	None	None

Engineering controls	Use process enclosures, local exhaust ventilation or other engineering controls to keep airborne levels below recommended exposure limits. The most effective measures are the total enclosure of processes and the mechanization of handling procedures to prevent all personal contact with sulfuric acid. Safety showers and eyewash stations should be installed in storage and handling areas.
Hand Protection	Chemical-resistant, impervious gloves (i.e. neoprene) should be worn when handling sulfuric acid.
Eye Protection	Chemical goggles and face shield.
Respiratory	Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. A NIOSH/MSHA approved air-purifying 3 respirator equipped with acid gas/fume, dust, mist cartridges for concentrations up to 10 mg/m. An air-supplied respirator if concentrations are higher or unknown.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES AND SAFETY CHARACTERISTICS.

Appearance	Odorless, clear to amber, heavy, oily liquid. A pungent odor may exist if certain impurities are present in the acid.
Molecular formula	H2SO4
Molecular weight	98.08%
Colour	Sulfuric acid is a colorless oily liquid. It is soluble in water with release of heat.
Physical State	Liquid.
Material size	-

Odor	No information available
pH	No information available
Melting point	98%: -1.1°C (30°F)
Initial Boiling point	No information available
Flash Point	No information available
Evaporation Point	No information available
Auto-Ignition temperature	No information available
Solubility	Easily soluble in cold water (with liberation of much heat.)

SECTION 10: STABILITY AND REACTIVITY.

Reactivity:	Conditions to Avoid: Keep away from heat and sources of ignition. Avoid temperatures, which may have a negative effect on the materials of construction used in equipment. Materials to Avoid: Contact with organic materials (such as alcohol, acrylonitrile, chlorates, carbides, epichlorohydrin, fulminates, isoprene, nitrates and picrate's) may cause fire and explosions. Contact with metals may produce flammable hydrogen gas. When diluting, add acid to water. Do NOT add water to the acid.
Chemical stability:	Stable.
Possibility of hazardous reactions:	Hazardous Decomposition or Combustion Products: Toxic gases and vapors (e.g., sulfur dioxide, sulfuric acid vapors/mists and sulfur trioxide) may be released when sulfuric acid decomposes
Conditions to avoid:	Corrosivity: Extremely corrosive in presence of aluminum, copper, and stainless steel. Highly corrosive in presence of stainless steel (304). Non-corrosive in presence of glass.

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SECTION 11: TOXICOLOGY INFORMATION.

Acute Symptoms/sign of exposure: -	
Toxicity Data	LD (oral, rat) = 2140 mg/kg LC 50 50 3 (inhalation, rat) = 510 mg/m for 2 hrs. Carcinogenicity Data: The IARC has concluded that occupational exposure to strong inorganic acid mists containing sulfuric acid is carcinogenic to man, causing cancer of the larynx (the voice box). Although no direct link has been established between exposure to sulfuric acid and cancer in man, exposure to any mist or aerosol during the use of this product should be avoided. Reproductive Effects: Slightly embryotoxic in rabbits (a minor, rare skeletal variation). The animals were 3 exposed to 5 and 20 mg/m for 7 hours/day throughout pregnancy. Slight maternal toxicity was present at the highest dose in both species. Mutagenicity Data: Cytogenic analysis (hamster) ovaries 4 mmol/L Teratogenicity Data: Not teratogenic in mice and rabbits. Synergistic Materials: None known.
Skin:	Causes severe skin irritation and burns. Continued contact can cause tissue necrosis.
Eyes:	Causes severe eye irritation and burns. May cause irreversible eye injury.
Ingestion:	Harmful if swallowed. May cause permanent damage to the digestive tract. Causes gastrointestinal tract burns. May cause perforation of thestomach, GI bleeding, edema of the glottis, necrosis and scarring, andsudden circulatory collapse (similar to acute inhalation). It may also cause systemic toxicity with acidosis.
Inhalation:	May cause severe irritation of the respiratory tract and mucous membranes with sore throat, coughing, shortness of breath, and delayed lung edema. Causes chemical burns to the respiratory tract. Inhalation may be fatal as a result of spasm, inflammation, edema of

	the larynx and bronchi, chemical pneumonitis, and pulmonary edema. May also affect teeth (changes in teeth and supporting structures - erosion, discoloration).
Aspiration hazard	No information available.
Chronic Toxicity	Potential Health Effects: Inhalation: Prolonged or repeated inhalation may affect behavior (muscle contraction or spasticity), urinary system (kidney damage), and cardiovascular system, heart (ischemic heart lesions), and respiratory system/lungs (pulmonary edema, lung damage), teeth (dental discoloration, erosion).
Sensitization:	No information available.
Mutagenic Effects:	No information available
Carcinogenic effects:	Not considered carcinogenic.
Reproductive toxicity	No data is available.
Specific Target Organ Toxicity (STOT)	No information available.

SECTION 12: ECOLOGICAL INFORMATION.

12.1	**Ecological Toxicity:** Harmful to aquatic life in very low concentrations.
12.2	**Persistence and degradability:** Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise. These products are Sulphur oxides (SO2, SO3)

SECTION 13: DISPOSAL CONSIDERATIONS.

Waste disposal: The generation of waste should be avoided or minimized wherever possible. Cleaned up material may be a hazardous waste as defined by Resource Conservation and Recovery Act (RCRA) on disposal due to the corrosivity characteristic. Disposal of this product and any by-products must comply with all local, state, and federal requirements. Consult your local and/or regional authorities.

SECTION 14: TRANSPORT INFORMATION.

14.1 UN Number or ID Number	
ADR/RID/ADN	UN 1830

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IMDG-Code	UN 1830
ICAO-TI	UN 1830
14.2 UN proper shipping name	
ADR/RID/ADN	SULPHURIC ACID
IMDG-Code	SULPHURIC ACID
ICAO-TI	Sulphuric Acid
14.3 Transport hazard class(es)	
ADR/RID/ADN	8
IMDG-Code	8
ICAO-TI	8
14.4 Packing group	
ADR/RID/ADN	II
IMDG-Code	II
ICAO-TI	II

14.5 Environmental hazards.
non-environmentally hazardous acc. to the dangerous goods regulations.

14.6 Special precautions for user.
Provisions for dangerous goods (ADR) should be complied within the premises.

14.7 Maritime transport in bulk according to IMO instruments.
The cargo is not intended to be carried in bulk.

14.8 Information for each of the UN Model Regulations.

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN) - Additional information.

Proper shipping name	SULPHURIC ACID
Particulars in the transport document	UN1830, SULPHURIC ACID, 8, II, (E)
Classification code.	C1
Danger label(s)	8

Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L
Transport category (TC)	2
Tunnel restriction code (TRC)	E
Hazard identification No	80
Emergency Action Code	2P

International Maritime Dangerous Goods Code (IMDG) - Additional information

Proper shipping name	SULPHURIC ACID
Particulars in the shipper's declaration	UN1830, SULPHURIC ACID, 8, II
Danger label(s).	8

Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L
EmS	F-A , S-B
Stowage category	C
Segregation group	1 – Acids

International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information.

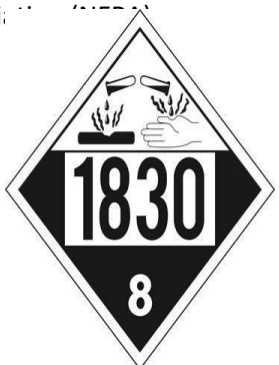
Proper shipping name	Sulphuric Acid.
Particulars in the shipper's declaration	UN1830, Sulphuric acid, 8, II
Danger label(s)	8

Excepted quantities (EQ)	E2
Limited quantities (LQ)	0,5 L

SECTION 15: REGULATORY INFORMATION.

Hazardous Material Information System (HMIS) National Fire Protection Associ

Health	3
Fire hazard	0
Physical Hazard	2
Personal protection	C



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SECTION 16: OTHER INFORMATION.

Source of data: United Nations Publications. (2019). *Globally Harmonized System of Classification and Labelling of Chemicals (GHS)* (Eighth Revised ed.). United Nations.

Disclaimer:
The safety data sheet is prepared by Jal Aqua International to the best of its knowledge. All the information present in the SDS is obtained from verified technical sources and verified literature source to the best knowledge at the date of issue. Jal Aqua International cannot control or foresee on how the product is used. Everyone accessing the product must be aware about the risks and take required precautions to use the material. Jal Aqua International shall be responsible for damage caused to the consumer in terms to handling, storing, disposing and using the product. Contact Jal Aqua international for any information regarding the SDS. The SDS applies to the direct users of the product. The SDS shall be considered valid if the product is used for mixing other substances or chemicals.

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END OF SDS