

Material Safety Data Sheet

Sulphuric Acid - Electrolyte

SUPPLIER DETAILS

Supplier Name:	Palabora Copper (Pty) Ltd PO Box 65 1 Copper Road Phalaborwa, 1390 South Africa Manager: Environment & SHEQ MS	Emergency Telephone Number:	+27 (0)15 780 2666
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Person Responsible for Updating MSDS		Telephone Number:	+27 (0)15 780 2911
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1. PRODUCT IDENTIFICATION

Chemical Names and Synonyms: Electrolyte, weak sulphuric acid.	UN Number:
CAS Number: 7664-93-9	NIOSH Number:

2. COMPOSITION

INGREDIENTS/COMPONENTS	CONCENTRATION (Approximate wt. %)	CAS NUMBER	LD50/LC50	TLVs
sulphuric acid	20 - 30	7664-93-9	LC ₅₀ = 320 mg/m ³ inhalation - mouse LC ₅₀ = 510 mg/m ³ inhalation - rat LD ₅₀ = 2140 mg/kg oral - rat	TWA: 1 mg/m ³ IDLH 15 mg/m ³ STEL 3 mg/m ³
Arsenic	< 1	7440-38-2	LD ₅₀ = 145 mg/kg oral - mouse LD ₅₀ = 763 mg/kg oral - rat	TWA: 0.5 mg/m ³ no data
metal salts (Ni, Cu, Fe)	2 - 5	no data	no data	no data
Water	70 - 80	7732-18-5	not hazardous	no data

3. HAZARDOUS IDENTIFICATION

Emergency Overview :

Standard industry practices for the safe handling of chemicals must be exercised. Only properly trained personnel should handle this product. Wear safety glasses and gloves when handling this solution. This product exists as a bluish-green solution with a slight odour. It is corrosive and will cause severe burns to skin and eyes. Cancer hazard has been identified. May cause severe irritation and possible burns to both respiratory tract and digestive system. May cause lung and kidney damage. May cause fetal effects based on animal studies.

Potential Health Effects:

Route(s) of Entry: Inhalation, Ingestion, Absorption

Effects of Acute Exposure:

Causes eye burns and may cause chemical conjunctivitis and corneal damage. In mild cases may cause skin rash. Causes skin burns and continued contact can cause tissue necrosis. Cold and clammy skin with cyanosis or pale colour may also occur. Ingestion may cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns. May cause systemic toxicity with acidosis. May cause perforation of the digestive tract. Inhalation may cause severe irritation of the respiratory tract 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. Aspiration may lead to pulmonary edema. May cause systemic effects.

Effects of Chronic Exposure:

Prolonged or repeated inhalation may cause kidney and lung damage, nosebleeds, nasal congestion, erosion of the teeth, perforation of the nasal septum, chest pain and bronchitis. Prolonged or repeated skin contact may cause dermatitis. Prolonged or repeated eye contact may cause conjunctivitis. May cause fetal effects. May cause cancer in humans. Laboratory experiments have resulted in mutagenic effects. May cause ischemic heart lesions. Effects may be delayed.

Environmental Risk: No Data

4. FIRST AID MEASURES

Inhalation: Remove to fresh air. If victim has difficulty breathing or is not breathing, administer artificial respiration but do not use mouth-to-mouth, use suitable mechanical device such as a bag and mask. Maintain airway and blood pressure and administer oxygen if qualified personnel are available. Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

Skin contact: Remove contaminated clothing and shoes immediately. Flush affected area with large amounts of water until no evidence of chemical remains (at least 15 - 20 minutes). GET IMMEDIATE MEDICAL ATTENTION.

Wash contaminated clothing immediately and destroy contaminated shoes
Eye contact: Extensive irrigation with water is required; flush with plenty of water for at least 30 minutes, lifting upper and lower lids occasionally until no evidence of chemical remains. Do not allow victim to rub or keep eyes closed. GET IMMEDIATE MEDICAL ATTENTION. Speedy action is critical.

Ingestion: DO NOT INDUCE VOMITING. NEVER give anything by mouth if victim is unconscious or convulsing. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Keep victim warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

Additional Information: Notes to Physician: Monitor arterial blood gases, chest x-ray, and pulmonary function tests if respiratory tract irritation or respiratory depression is evident. Treat dermal irritation or burns with standard topical therapy. Effects may be delayed. DO NOT use sodium bicarbonate in an attempt to neutralize the acid. Antidote: DO NOT use oils or ointments in eyes.

5. FIRE FIGHTING MEASURES

Extinguishing Media:

Use carbon dioxide or dry chemical. Most foams will react with material and release corrosive/toxic gases. Cool fire-exposed containers with flooding quantities of water until well after fire is out.

Fire Fighting Procedure:

Wear self-contained breathing apparatus in pressure demand mode and full protective clothing. Water runoff can cause environmental damage. Dike and collect water used to fight fire. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Vapours may be heavier than air and can spread along the ground and collect in low or confined areas. Containers may explode when heated. Substance is noncombustible.

Combustion Products: No data

Flash Point: Not applicable

Auto-ignition Temperature: not applicable

Flammable Limits: Not Applicable – Non Flammable

Explosion Data:

Sensitivity to Mechanical Impact: Avoid mechanical shock.

Sensitivity to Static Discharge: no data

6. ACCIDENTAL RELEASE MEASURES

Personal Protection:

Wear complete protective equipment. (refer to Section 8)

Leak or Spill Procedure:

Avoid runoff into storm sewers and ditches, which lead to waterways. Clean up spills immediately observing precautions in the protective equipment section. Provide ventilation. Cover with dry earth, dry sand or other non-combustible material followed with plastic sheet to minimize spreading and contact with water.

7. HANDLING AND STORAGE

Handling:

Do not store near combustible materials. Store in a cool, well-ventilated dry place designated for corrosive materials. Keep away from incompatible substances. Keep container tightly closed and upright when not in use.

Storage:

Wear safety glasses and gloves. Keep container upright and tightly sealed when not in use. Wash thoroughly after handling. Do not get in eyes, on skin, or on clothing. Do not ingest or inhale. Always obey hazard warnings and handle empty containers as if they were full. Remove contaminated clothing and wash before reuse. Discard contaminated shoes.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls:

Ventilation:

Provide adequate general or local exhaust ventilation system to meet published exposure limits.

Other: Facilities storing or utilizing this material should be equipped with an eyewash station and safety shower.

Personal Protection:

Protective Clothing:

The use of chemical resistant gloves is mandatory. Wear appropriate protective clothing to prevent skin exposure.

Eye Protection:

Wear appropriate protective eye glasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166. Contact lenses should not be worn.

Respiratory Protection:

A respiratory protection program that meets OSHA's 29 CFR 51910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirators use.

Other:

Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	liquid	Vapour Pressure:	no data
Colour/Appearance:	bluish-green solution	Vapour Density:	> 1
Odour:	none reported	Odour Threshold:	no data
pH:	< 1	Evaporation Rate:	no data
Boiling Point °C:	no data	Specific Gravity:	> 1
Freezing Point °C:	no data	Solubility:	no data
Melting Point °C:	not applicable	Coefficient of Water/Oil Distribution:	no data

10. STABILITY AND REACTIVITY

Chemical Stability:

Stable under normal temperatures and pressures. Hazardous polymerization has not been reported.

Materials to Avoid:

Avoid contact with metals, strong oxidizing agents, strong reducing agents, bases, cyanides and amines. Refer to MSDS for H₂SO₄ for other possible incompatible materials.

Hazardous Decomposition Products:

mechanical shock, incompatible materials, metals, excess heat, combustible and organic materials, oxidizers, amines, bases

Conditions of Reactivity:

carbon monoxide, oxides of sulphur, irritating and toxic fumes and gases, carbon dioxide

11. TOXICOLOGICAL INFORMATION

Irritancy of Product: No Data

Sensitization to Product: No Data

Carcinogenicity:

Sulphuric Acid ACGIH: A2 – Suspected human carcinogen (contained in strong inorganic acid mists) IARC: Group 1 carcinogen

Arsenic ACGIH: A1 – Confirmed Human Carcinogen, NIOSH: Potential occupational carcinogen, OSHA: Select carcinogen, IARC: Group 1 carcinogen
 Reproductive Toxicity: No Data
 Teratogenicity and Embryotoxicity:
 Specific Developmental Abnormalities: Inhalation rabbit: TCLo = 20 mg/m³/7H (female 6-18 days after conception).
 Mutagenicity:
 Cytogenic Analysis: Hamster ovary = 4 mmol/L
 Name of Toxicologically Synergistic Products: No Data

12. ECOLOGICAL INFORMATION

Ecotoxicity:
 Fish: Bluegill/Sunfish: 49 mg/L; 48 Hr; CAS # 7664-93-9: TLm (tap water @ 20 C)
 Fish: Bluegill/Sunfish: 24.5 ppm; 48 Hr; CAS # 7664-93-9: TLm (fresh water)
 For more information see “HANDBOOK OF ENVIRONMENTAL FATE AND EXPOSURE DATA”.

13. DISPOSAL CONSIDERATIONS

This information applies to the material as manufactured or supplied; processing, use, or contamination may make the information inappropriate, inaccurate, or incomplete. The responsibility for proper waste disposal is with the owner of the waste.
 Dispose of in accordance with local, state, and federal regulations. State or local regulations/restrictions are complex and may differ from federal regulations and, laws may change or be reinterpreted. Any regulation may also apply to empty containers, liners and rinsate.

14. TRANSPORT INFORMATION

SHIPPING NAME	CLASSIFICATION	P I N	PACKING GROUP
Corrosive Liquids, Toxic n.o.s. “Sulphuric Acid Solution”	Class 8	UN 2922	III
Special Shipping Information:	none		

15. REGULATORY INFORMATION

General Information:
Risk Phrases:
 Hazard Symbol – C, Risk Phrase – R 35 causes severe burns
Safety Phrases:
 S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S45 In case of accident or if you feel unwell, seek medical advice immediately (show label where possible)
Other:
 This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR. Refer to MSDS for Sulphuric Acid(H₂SO₄) for more complete regulatory information.

WHMIS Symbol(s)



16. OTHER INFORMATION

None.

DISCLAIMER

All information is given in good faith but without guarantee in respect of accuracy, and no responsibility is accepted for errors or omissions or the consequences thereof. It is the user's obligation to determine the conditions of safe use of the material, all risks of use of the product are therefore assumed by the user and we expressly disclaim all warranties of every kind and nature, including warranties of merchantability and fitness for a particular purpose in respect to the use or suitability of the product.