BCEHS | BC Emergency Health Services

Paramedic Specialist

Chemical Response Data Sheet

H2SO4 2018 1.0

Chemical Name: Sulfuric Acid (H2S04)

Identifying Data: UN# 1830 CAS 7664-93-9
Classification: Corrosive

Placard

NFPA Rating

WHMIS 2015 Symbols

Physical Properties:

Colour	Colourless to dark brown liquid
Vapour Density	>1
Solubility	Completely soluble
Boiling point	337 C
PH	<3 (Strong Acid)
Specific Gravity	2.13
Vapor Pressure	0 mmHg at 20C (May pose inhalation hazard if heated or reacting)

General Description:
Colourless oily liquid. A **strong acid found in various concentrations**. Not an inhalation hazard unless product is heated or is reacting with incompatibles. Extreme eye hazard and skin hazard. Will react vigorously when added to water.

Commonly Found Locations: (Various concentrations)

- Transport
- Steel/metal Manuf.
- Pulp/Paper Mills (98%)
- Chemical Industry
- Illegal Drug labs
- Battery Acid (38% approx.)
- Fertilizer production
- Acid Drain cleaners
- Cleaning agents
- Mineral processing
- Metal
- Various cleaning agents
- Waste water treatment

Work Safe BC Permissible Limits

TWA 0.2mg/m3 **STEL/Ceiling** **IDLH** 15mg/m3

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Paramedic Specialist Procedures to Consider.

- Do initial Size-up of incident. (# of patients, LOC, hazards present)
- Evacuate immediate area and deny entry to anyone not in appropriate PPE.
- Have patients to perform self Decon if capable. (Shirts not to be pulled over face)
- **DO NOT DELAY PATIENT DECONTAMINATION** (See Decon section below)
- **Eyes take precedence.**
- Fire Department or site workers in appropriate PPE will be required for patients unable to self decon.

(See also)

TDG **Reference:** Guide 137

Emergency Decontamination:

- Have patient Self-Decon with direction as needed from safe distance. Assist removing clothing if needed with appropriate PPE to prevent secondary contamination and injury.
- Do not remove shirts over face. Cut off to prevent further injury to face/eyes.
- Use water for decontamination. Large volume/low pressure. Tepid if Immediately available.
- **Eyes take precedence.**
- Goal is to begin Decon within 1 minute of contact if possible (Time = Tissue).
- Ensure patient is fully decontaminated. Do not forget skinfolds, armpits, groin, buttocks and feet.
- Use PH paper to test for contaminant remaining.
- Do not cause hypothermia. Focus on symptomatic areas (pain, visible burns).
- See Pre-Hospital Care below for further information.

PPE

- Respiratory protection. NIOSH approved supplied air respirator recommended. Up to IDLH level; Full face air purifying with HEPA cartridges to protect from dusts/mists. Full face supplied air (SCBA) for concentrations considered to be IDLH. Always follow your sites Respiratory program recommendations.
- Face shield with non- vented safety goggles if exposure to gas or liquid may occur.
- Gloves/Boots; Chemical resistant to Sulfuric Acid. Check manufacture's compatibility chart. Ensure compatibility listed has been tested for the concentration on hand.
- Chemical protective clothing to protect skin.
- Consider utilizing class A, B or C Personal Protective Clothing (PPC) in higher or IDLH concentrations to prevent corrosive burns to skin. Consider level A over B to protect SCBA.

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Toxidrome: Corrosive

Primary route of exposure: Eyes/Skin/Inhalation

Primary Targets of Toxicity: Skin/Eyes/Lungs

- Sulfuric Acid is an extremely corrosive Acid. Injuries by strong acids produce coagulation necrosis. Tissue destruction and cell death result in eschar (scab) formation, which is believed to protect against deeper injury.
- Eyes: Sulfuric Acid extreme eye hazard. Delayed effects of up to 72 hours have been seen. Permanent vision loss may occur.
- Toxic by ingestion, rare in Industry (intentional only). May cause upper airway burns/swelling and GI tract burns and bleeding.
- Inhalation of Sulfuric Acid fumes/mists or vapour may result in upper airway stridor, dyspnea (shortness of breath) and pulmonary edema.

Pre - Hospital Care:

- Remove victim from hazardous area utilizing appropriate PPE for hazard.
- **Immediately** remove all contaminated clothing from victim(s) Begin flushing with water while removing clothing if immediately available. **Large volume/low pressure only. Remove any nozzles from hoses.**
- **Eyes take priority.** Flush immediately as per training and continue to flush en route to Hospital or until medical aid arrives. Flushing should continue until hospital PH test of surface of eyes proves all contaminant has been removed.
- **Immediate Decontamination of skin required. DO NOT DELAY. Flush with water as per training for chemical burns. Ensure all areas of body are thoroughly flushed and decontaminated. (*Head, eyes, hair, armpits, groin, genitalia, all skin folds etc.*) Serious lasting burns have resulted by neglecting these areas during decontamination of corrosives and oxidizers.**
- **Burns with visible blisters; blisters must be broken to flush chemical beneath blisters. Unlike thermal burns; these blisters must be broken to facilitate best patient care. Soft wiping with wet sponge or cloth is sufficient to break blisters.**
- Utilize PH paper to check for effectiveness of Decon.
- Treat patient following support of ABC's as per training.
- Any Cardiovascular (Tachycardia, Bradycardia, hypotension and/or Neurologic symptoms confusion/DLOC/seizures) may be secondary due to hypoxia or fluid loss due to extensive burns.
- In the event of severe inhalation exposure patient may present with non-Cardiogenic pulmonary edema (Bilateral crackles heard with auscultation at lung bases, may be delayed finding.
- Exposed patients with underlying lung disease (Asthma, COPD) may become symptomatic at lower concentrations then healthy individuals. Utilize their prescribed inhalers as required.
- Contact BC Poison Control at 1-800-567-8911 or 604-842-1869 for Physician advisement on patient care.
- **Patients to be transported to Hospital for further Physician assessment and monitoring for delayed effects.**

Fire and Reactivity:

- Non-combustible. Utilize extinguishing methods applicable for nearby fires. Keep water away. C02 or dry chemical if available.
- Keep fire involved containers cool with water spray. Do not apply water to spilled Sulfuric Acid.
- Will react with water causing vigorous exothermic reaction.
- Organic materials, chlorinates, carbides, fulminates, water, powdered metals. Reacts with alkalies, releasing heat. Reacts with metals (carbon steel), releasing hydrogen gas.
- Reacts with picrates, chlorates, nitrates, and many other materials.
- Numerous less common incompatibles

References and Links:

WISER (Wireless Information System for Emergency Responders)

AHLS Provider Manual/4th edition.

CAMEO Chemicals

WorkSafe BC/Exposure Limits