**SECTION 1: Physical Data**

**Appearance:** Clear, colorless liquid.

**Odor:** Strong, vinegar-like.

**Solubility:** Infinite in water.

**Boiling Point:** 118°C (244°F).

**Melting Point:** 16.5°C (62°F).

**Density:** 1.05

**Vapor Density (Air = 1):** 2.1

**Vapor Pressure (mm Hg):** 11 @ 20°C (66°F).

**Evaporation Rate:** 0.97

**SECTION 2: Fire and Explosion Information**

**Fire:** Combustible. Flashpoint: 40°C (104°F) (closed cup). Autoignition temperature: 427°C (800°F).

**Flammable limits, in air, % by volume at 100°C (212°F):** IEL: 5.4; UEL: 16.0.

**Explosion:** Above flash point, vapor-air mixtures are explosive within flammable limits noted above.

**Fire Extinguishing Media:** Water, dry chemical, foam or carbon dioxide. Water spray may be used to keep fire exposed containers cool.

**Special Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Water may be used to flush spills away from exposures and to dilute spills to non-flammable mixtures. Vapors can flow along surfaces to distant ignition source and flash back. Water diluted acid can react with metals to form hydrogen gas.

**SECTION 3: Reactivity Data**

**Stability:** Stable under ordinary conditions of use and storage. Heat and sunlight can contribute to instability.

**Hazardous Decomposition Products:** When heated to decomposition may emit toxic gases and vapors such as carbon monoxide.

**Hazardous Polymerization:** Will not occur.

**Incompatibilities:** Oxidizers, chronic acid, sodium peroxide, nitric acid, strong caustics, heat, flame.

**SECTION 4: Leak/Spill Disposal Information**

Ventilate and evacuate area. Clean-up personnel require protective clothing and respiratory protection from vapors. Allow only qualified personnel to handle the spill. If a leak or spill has not ignited, use water spray to disperse the vapors and to protect men attempting to stop leak. Water may be used to flush spills away from exposures and to dilute spills to non-flammable mixtures. Contain and recover liquid when possible. Absorb with vermiculite, dry sand, earth, or similar material. Scoop up with non-sparking tools and place in a closed container, and dispose in a RCRA approved facility. Do not flush to the sewer.

**Reportable Quantity (RQ) (CWA/CERCLA):** 5000 lbs.

Ensure compliance with local, state and federal regulations.
SECTION 5 Health Hazard Information

A. EXPOSURE / HEALTH EFFECTS

Inhalation:
Inhalation of concentrated vapors may cause serious damage to the lining of the nose, throat, and lungs. Breathing difficulties may occur. Neither odor nor degree of irritation are adequate to indicate vapor concentration.

Ingestion:
Swallowing can cause severe injury leading to death. Symptoms include sore throat, vomiting, diarrhea. Ingestion of as little as 1.0 ml has resulted in perforation of the esophagus.

Skin Contact:
Contact with concentrated solution may cause serious damage to the skin. Effects may include redness, pain, skin burns. High vapor concentrations may cause skin sensitization.

Eye Contact:
Eye contact with concentrated solutions may cause severe eye damage followed by loss of sight. Exposure to vapor may cause intense watering and irritation to eyes.

Chronic Exposure:
Repeated or prolonged exposures may cause darkening of the skin, erosion of exposed front teeth, and chronic inflammation of the nose, throat, and bronchial tubes.

Aggravation of Pre-existing Conditions:
Persons with pre-existing skin disorders or eye problems, or impaired respiratory function may be more susceptible to the effects of this substance.

B. FIRST AID

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion:
DO NOT INDUCE VOMITING! Give large quantities of water or milk if available. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin Exposure:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician.

Eye Exposure:
Wash eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

C. TOXICITY DATA (RTECS, 1982)

Oral rat LD50: 3310 mg/kg. Dermal rabbit LD50: 1,060mg/Kg. Mutation references cited.

SECTION 6 Occupational Control Measures

Airborne Exposure Limits:
- OSHA Permissible Exposure Limit (PEL): 10 ppm (TWA).
- ACGIH Threshold Limit Value (TLV): 10 ppm (TWA); 15 ppm (STEL).

Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

Personal Respirators: (NIOSH Approved)
If the TLV is exceeded a full facepiece chemical cartridge respirator may be worn, in general, up to 100 times the TLV or the maximum use concentration specified by the respirator supplier, whichever is less. Alternatively, a supplied air full facepiece respirator or airlined hood may be worn.

Skin Protection:
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls to prevent skin contact.

Eye Protection:
Use chemical safety goggles and/or a full face shield where splashing is possible. Contact lenses should not be worn when working with this material. Maintain eye wash fountain and quick-drench facilities in work area.

SECTION 7 Storage and Special Information

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from incompatible substances.

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ALGIA