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Material Safety Data Sheet

Hydrochloric Acid, 0.5 N in Methanol MSDS

Section 1: Chemical Product and Company Identification

Product Name: Hydrochloric Acid, 0.5 N in Methanol

Catalog Codes: SLH2077

CAS#: Mixture.

RTECS: Not applicable.

TSCA: TSCA 8(b) inventory: Hydrochloric acid; Methyl alcohol

CI#: Not applicable.

Synonym:

Chemical Name: Not applicable.

Chemical Formula: Not applicable.

Contact Information:

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International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Hydrogen chloride	7647-01-0	1-2.28
Water	7732-18-5	3.1-4.8
Methyl alcohol	67-56-1	94-95

Toxicological Data on Ingredients: Hydrogen chloride: GAS (LC50): Acute: 4701 ppm 0.5 hours [Rat]. Methyl alcohol: ORAL (LD50): Acute: 5628 mg/kg [Rat]. DERMAL (LD50): Acute: 15800 mg/kg [Rabbit]. VAPOR (LC50): Acute: 64000 ppm 4 hours [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:

Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, . Hazardous in case of skin contact (permeator). Slightly hazardous in case of skin contact (corrosive), of eye contact (corrosive). Non-corrosive for lungs. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:

Slightly hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Hydrogen chloride]. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. [Methyl alcohol]. Mutagenic for bacteria and/or yeast. [Methyl alcohol]. TERATOGENIC EFFECTS: Classified POSSIBLE for human [Methyl alcohol]. DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male [POSSIBLE] [Methyl alcohol]. The substance is toxic to eyes. The substance may be toxic to blood, kidneys, liver, mucous membranes, brain, peripheral nervous system, upper respiratory tract, skin, , central nervous system (CNS), optic nerve, teeth. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention immediately.

Skin Contact:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: The lowest known value is 464°C (867.2°F) (Methyl alcohol).

Flash Points: The lowest known value is CLOSED CUP: 12°C (53.6°F). OPEN CUP: 16°C (60.8°F). (Methyl alcohol)

Flammable Limits: The greatest known range is LOWER: 6% UPPER: 36.5% (Methyl alcohol)

Products of Combustion: These products are carbon oxides (CO, CO₂).

Fire Hazards in Presence of Various Substances:

Highly flammable in presence of open flames and sparks, of heat. Non-flammable in presence of shocks, of oxidizing materials, of reducing materials, of combustible materials, of organic materials, of metals, of acids, of alkalis, of moisture.

Explosion Hazards in Presence of Various Substances:

Explosive in presence of open flames and sparks. Non-explosive in presence of shocks.

Fire Fighting Media and Instructions:

Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog.

Special Remarks on Fire Hazards:

Explosive in the form of vapor when exposed to heat or flame. Vapor may travel considerable distance to source of ignition and flash back. When heated to decomposition, it emits acrid smoke and irritating fumes. CAUTION: MAY BURN WITH NEAR INVISIBLE FLAME (Methyl alcohol)

Special Remarks on Explosion Hazards:

Forms an explosive mixture with air due to its low flash point. Explosive when mixed with Chloroform + sodium methoxide and diethyl zinc. It boils violently and explodes. (Methyl alcohol)

Section 6: Accidental Release Measures

Small Spill:

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill:

Flammable liquid. Corrosive liquid. Poisonous liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, metals, acids.

Storage:

Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

Hydrogen chloride STEL: 7.5 (mg/m³) from ACGIH (TLV) [United States] STEL: 5 (ppm) from ACGIH (TLV) [United States] CEIL: 5 (ppm) from NIOSH CEIL: 7.5 (mg/m³) from NIOSH CEIL: 5 (ppm) from OSHA (PEL) [United States] CEIL: 7 (mg/m³) from OSHA (PEL) [United States] Methyl alcohol TWA: 200 from OSHA (PEL) [United States] TWA: 200 STEL: 250 (ppm) from ACGIH (TLV) [United States] [1999] STEL: 250 from NIOSH [United States] TWA: 200 STEL: 250 (ppm) from NIOSH SKIN TWA: 200 STEL: 250 (ppm) [Canada] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Alcohol like.

Taste: Not available.

Molecular Weight: Not applicable.

Color: Colorless. Slightly yellow

pH (1% soln/water): Not Available

Boiling Point: The lowest known value is 64.5°C (148.1°F) (Methyl alcohol). Weighted average: 65.92°C (150.7°F)

Melting Point: May start to solidify at -97.8°C (-144°F) based on data for: Methyl alcohol.

Critical Temperature: The lowest known value is 240°C (464°F) (Methyl alcohol).

Specific Gravity: Weighted average: 0.8 (Water = 1)

Vapor Pressure: The highest known value is 12.3 kPa (@ 20°C) (Methyl alcohol). Weighted average: 11.9 kPa (@ 20°C)

Vapor Density: The highest known value is 1.11 (Air = 1) (Methyl alcohol). Weighted average: 1.09 (Air = 1)

Volatility: Not available.

Odor Threshold: The highest known value is 100 ppm (Methyl alcohol)

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Non-ionic.

Dispersion Properties: See solubility in water, methanol, diethyl ether.

Solubility:

Easily soluble in cold water, hot water, methanol. Soluble in diethyl ether.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources, incompatible materials

Incompatibility with various substances:

Reactive with oxidizing agents, metals, acids. Slightly reactive to reactive with alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:

Can react vigorously with oxidizers. Violent reaction with alkyl aluminum salts, acetyl bromide, chloroform + sodium methoxide, chromic anhydride, cyanuric chloride, lead perchlorate, phosphorous trioxide, nitric acid. Exothermic reaction with sodium hydroxide + chloroform. Incompatible with beryllium dihydride, metals (potassium and magnesium), oxidants (barium perchlorate, bromine, sodium hypochlorite, chlorine, hydrogen peroxide), potassium tert-butoxide, carbon tetrachloride, alkali metals, metals (aluminum, potassium magnesium, zinc), and dichloromethane. Rapid autocatalytic dissolution of aluminum, magnesium or zinc in 9:1 methanol + carbon tetrachloride - sufficiently vigorous to be rated as potentially hazardous. May attack some plastics, rubber, and coatings. (Methyl alcohol)

Special Remarks on Corrosivity: Not available

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:

Acute oral toxicity (LD50): 5628 mg/kg [Rat]. (Methyl alcohol). Acute dermal toxicity (LD50): 15800 mg/kg [Rabbit]. (Methyl alcohol).

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Hydrogen chloride]. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. [Methyl alcohol]. Mutagenic for bacteria and/or yeast. [Methyl alcohol]. TERATOGENIC EFFECTS: Classified POSSIBLE for human [Methyl alcohol]. DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male [POSSIBLE] [Methyl alcohol]. Contains material which may cause damage to the following organs: blood, kidneys, liver, mucous membranes, brain, peripheral nervous system, upper respiratory tract, skin, , central nervous system (CNS), optic nerve, teeth.

Other Toxic Effects on Humans:

Very hazardous in case of skin contact (irritant), of ingestion, . Hazardous in case of skin contact (permeator), of inhalation (lung corrosive). Slightly hazardous in case of skin contact (corrosive), of eye contact (corrosive).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:

Passes through the placental barrier. May affect genetic material. May cause birth defects and adverse reproductive effects(paternal and maternal effects and fetotoxicity) based on animal studies. (Methyl alcohol)

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health effects: Skin: Corrosive. Can cause redness, pain, and severe skin burns. Methanol can be absorbed through the skin, producing systemic effects that include visual disturbances. Eyes: Corrosive. Causes eye irritation. May cause burns and damage to the eyes. Inhalation: Corrosive. May cause respiratory tract irritation with coughing and wheezing, choking, inflammation of the nose, throat, and upper respiratory tract, pulmonary edema. May affect behavior/central nervous system/peripheral nervous system, gastrointestinal tract, respiration, lungs, and blood, and heart / cardiovascular system (bradycardia, tachyrdardia). May also cause metabolic acidosis and severe visual effects which may include reduced reactivity/and or increased sensitivity to light, blurred, double/and or snowy vision, and blindness. Ingestion: Corrosive. It may cause immediate pain and burns of the mouth, throat, esophagus, and gastrointestinal tract. It may cause gastrointestinal tract irritation with abdominal pain, fatigue, nausea, vomiting, and diarrhea or constipation. It may affect the eyes/vision (cause significant visual disturbances including blindness) if swallowed. May affect behavior/central nervous system/peripheral nervous system (general anesthetic, dizziness, delirium, confusion, restlessness, giddiness, back pain, headache, muscle weakness, somnolence, spastic paralysis, muscle contraction, ataxia, seizures, unconsciousness, coma), brain, blood(leukocytosis), metabolism, respiration (dyspnea, apnea, hyperventilation, pulmonary edema, coughing, respiratory failure), liver, urinary system (kidneys - renal failure, hematuria), endocrine system (spleen, pancreas (pancreatitis, hyperglycemia)), cardiovascular system (tachycardia, bradycardia, cardiac failure, hypotension). May also cause metabolic acidosis. Narcotic. Chronic Potential Effects: Prolonged or repeated exposure by inhalation or ingestion will have effects similar to those of acute inhalation or ingestion. Methanol is very slowly eliminated from the body. Because of this slow elimination, methanol should be regarded as a cumulative poison. Though a single exposure may cause no effect, daily exposures may result in the accumulation of harmful amounts Prolonged or repeated skin contact may cause deffating dermatitis with dryness and cracking.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation:

Methanol in water is rapidly biodegraded and volatilized. Aquatic hydrolysis, oxidation, photolysis, adsorption to sediment, and bioconcentration are not significant fate processes. The half-life of methanol in surfact water ranges from 24 hrs. to 168 hrs. Based on its vapor pressure, methanol exists almost entirely in the vapor phase in the ambient atmosphere. It is degraded by

reaction with photochemically produced hydroxyl radicals and has an estimated half-life of 17.8 days. Methanol is physically removed from air by rain due to its solubility. Methanol can react with NO₂ in polluted air to form methyl nitrate. The half-life of methanol in air ranges from 71 hrs. (3 days) to 713 hrs. (29.7 days) based on photooxidation half-life in air. (Methyl alcohol)

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification:

CLASS 3: Flammable liquid. Class 8: Corrosive material

Identification: : Flammable liquid, corrosive, n.o.s.(Methanol; Hydrochloric acid solution) (Methyl alcohol) UNNA: 2924 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

Connecticut hazardous material survey.: Hydrochloric acid; Methyl alcohol Illinois toxic substances disclosure to employee act: Hydrochloric acid; Methyl alcohol Illinois chemical safety act: Hydrochloric acid; Methyl alcohol New York release reporting list: Hydrochloric acid; Methyl alcohol Rhode Island RTK hazardous substances: Hydrochloric acid; Methyl alcohol Pennsylvania RTK: Hydrochloric acid; Methyl alcohol Minnesota: Hydrochloric acid; Methyl alcohol Massachusetts RTK: Hydrochloric acid; Methyl alcohol Massachusetts spill list: Hydrochloric acid; Methyl alcohol New Jersey: Hydrochloric acid; Methyl alcohol New Jersey spill list: Hydrochloric acid; Methyl alcohol Louisiana RTK reporting list: Hydrochloric acid Louisiana spill reporting: Hydrochloric acid; Methyl alcohol California Director's List of Hazardous Substances: Methyl alcohol; Hydrochloric acid TSCA 8(b) inventory: Hydrochloric acid; Methyl alcohol TSCA 4(a) proposed test rules: Hydrochloric acid SARA 302/304/311/312 extremely hazardous substances: Hydrochloric acid SARA 313 toxic chemical notification and release reporting: Hydrochloric acid 5.5%; Methyl alcohol 94.5% CERCLA: Hazardous substances.: Hydrochloric acid: 5000 lbs. (2268 kg); Methyl alcohol: 5000 lbs. (2268 kg);

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):

CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS E: Corrosive liquid.

DSCL (EEC):

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 3

Reactivity: 0

Personal Protection:

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 3

Reactivity: 1

Specific hazard:

Protective Equipment:

Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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