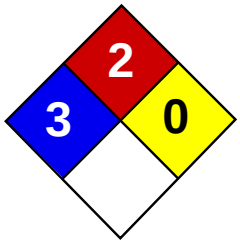

Material Safety Data Sheet

Hydrobromic Acid, 33% Solution in AceticAcid MSDS

Section 1: Chemical Product and Company Identification

Product Name: Hydrobromic Acid, 33% Solution in AceticAcid

Catalog Codes: SLH2785

CAS#: Mixture.

RTECS: Not applicable.

TSCA: TSCA 8(b) inventory: Hydrogen bromide; Acetic acid

CI#: Not applicable.

Synonym:

Chemical Name: Not applicable.

Chemical Formula: Not applicable.

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
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 bromide	10035-10-6	33
Acetic acid	64-19-7	67

Toxicological Data on Ingredients: Hydrogen bromide: GAS (LC50): Acute: 2858 ppm 1 hours [Rat]. 814 ppm 1 hours [Mouse]. Acetic acid: ORAL (LD50): Acute: 3310 mg/kg [Rat]. 4960 mg/kg [Mouse]. 3530 mg/kg [Rat]. DERMAL (LD50): Acute: 1060 mg/kg [Rabbit]. VAPOR (LC50): Acute: 5620 ppm 1 hours [Mouse].

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 (corrosive, permeator), of eye contact (corrosive). Slightly hazardous in case of inhalation (lung sensitizer). 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. 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:

Hazardous in case of skin contact (irritant), of ingestion, of inhalation. CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. [Acetic acid]. Mutagenic for bacteria and/or yeast. [Acetic acid]. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, liver, upper respiratory tract, central nervous system (CNS). 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.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. 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:
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 if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: The lowest known value is 463°C (865.4°F) (Acetic acid).

Flash Points: CLOSED CUP: 40°C (104°F).

Flammable Limits: The greatest known range is LOWER: 4% UPPER: 19.9% (Acetic acid)

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

Fire Hazards in Presence of Various Substances:
Flammable in presence of open flames and sparks, of heat. Slightly flammable to flammable in presence of oxidizing materials, of metals. Non-flammable in presence of shocks, of reducing materials, of combustible materials, of organic materials, of acids, of alkalis, of moisture.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

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. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards:
Reacts with metals to produces flammable hydrogen gas. It will ignite on contact with potassium-tert-butoxide. A mixture of ammonium nitrate and acetic acid ignites when warmed, especially if warmed. (Acetic acid)

Special Remarks on Explosion Hazards:
Acetic acid vapors may form explosive mixtures with air. Reactions between acetic acid and the following materials are potentially explosive: 5-azidotetrazole, bromine pentafluoride, chromium trioxide, hydrogen peroxide, potassium permanganate, sodium peroxide, and phorphorus trichloride. Dilute acetic acid and dilute hydrogen can undergo an exothermic reaction if heated, forming peracetic acid which is explosive at 110 degrees C. Reaction between chlorine trifluoride and acetic acid is very violent, sometimes explosive. (Acetic acid)

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. If necessary: Neutralize the residue with a dilute solution of sodium carbonate.

Large Spill:
Flammable liquid. Corrosive 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. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of sodium carbonate. 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, reducing agents, metals, acids, alkalis, moisture. May corrode metallic surfaces. Store in a metallic or coated fiberboard drum using a strong polyethylene inner package.

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 bromide TWA: 3 CEIL: 3 (ppm) from OSHA (PEL) [United States] TWA: 10 CEIL: 10 (mg/m3) from OSHA (PEL) [United States] CEIL: 10 (mg/m3) from NIOSH [United States] CEIL: 3 (ppm) from NIOSH [United States] STEL: 10 (mg/m3)

[United Kingdom (UK)] STEL: 3 (ppm) [United Kingdom (UK)] TWA: 3 CEIL: 3 (ppm) from ACGIH (TLV) [United States] TWA: 10 CEIL: 10 (mg/m3) from ACGIH (TLV) [United States] Acetic acid TWA: 10 STEL: 15 (ppm) [Australia] TWA: 25 STEL: 27 (mg/m3) [Australia] TWA: 10 STEL: 15 (ppm) from NIOSH TWA: 25 STEL: 37 (mg/m3) from NIOSH TWA: 10 STEL: 15 (ppm) [Canada] TWA: 26 STEL: 39 (mg/m3) [Canada] TWA: 25 STEL: 37 (mg/m3) TWA: 10 STEL: 15 (ppm) from ACGIH (TLV) [United States] [1999] TWA: 10 (ppm) from OSHA (PEL) [United States] TWA: 25 (mg/m3) from OSHA (PEL) [United States] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid. (Fuming liquid.)

Odor: Pungent.

Taste: Not available.

Molecular Weight: Not applicable.

Color: Yellow. (Light.)

pH (1% soln/water): Acidic.

Boiling Point: The lowest known value is 118.1°C (244.6°F) (Acetic acid).

Melting Point: May start to solidify at 16.6°C (61.9°F) based on data for: Acetic acid.

Critical Temperature: The lowest known value is 321.67°C (611°F) (Acetic acid).

Specific Gravity: 1.4 (Water = 1)

Vapor Pressure: The highest known value is 1.5 kPa (@ 20°C) (Acetic acid).

Vapor Density: The highest known value is 2.07 (Air = 1) (Acetic acid).

Volatility: Not available.

Odor Threshold: The highest known value is 0.48 ppm (Acetic acid)

Water/Oil Dist. Coeff.: The product is more soluble in water.

Ionicity (in Water): Not available.

Dispersion Properties:
Partially dispersed in methanol, diethyl ether, n-octanol. See solubility in water, methanol, diethyl ether, n-octanol, acetone.

Solubility:
Easily soluble in hot water. Soluble in cold water. Partially soluble in methanol, diethyl ether, n-octanol, acetone. Solulbility in water: >500 g/l @ 20 deg. C.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources, incompatible materials, light

Incompatibility with various substances: Reactive with oxidizing agents, reducing agents, metals, acids, alkalis, moisture.

Corrosivity:
Extremely corrosive in presence of aluminum, of zinc, of copper, of stainless steel(304), of stainless steel(316). Corrosive in presence of steel. Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Incompatible with amines, halogens, copper, zinc, brass, fluorine, ammonia, iron oxide, caustics (ammonium hydroxide, sodium hydroxide, postassium hydroxide, calcium hydroxide), acetaldehyde, 2-aminoethanol, ammonium nitrate, bromine pentafluoride, chlorine, trifluoride, chlorosuolfonic acid, chromic acid, acetic anhydride, chromic anyhydride, diallyl meethyl

carbinol + ozone, ethylene diamine, ethyleneimine, hydrogen peroxide, nitric acid, nitric acid + acetone, oleum, perchloric acid, permanganates, potassium hydroxide, potassium -tert-butoxide, sodium peroxide, xylene. Sensitive to light.

Special Remarks on Corrosivity:
Highly corrosive to most metals. Highly corrosive to brass.

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): 3310 mg/kg [Rat]. (Acetic acid). Acute dermal toxicity (LD50): 1060 mg/kg [Rabbit]. (Acetic acid).

Chronic Effects on Humans:
MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. [Acetic acid]. Mutagenic for bacteria and/or yeast. [Acetic acid]. May cause damage to the following organs: kidneys, liver, upper respiratory tract, central nervous system (CNS).

Other Toxic Effects on Humans:
Very hazardous in case of skin contact (irritant), of ingestion, . Hazardous in case of skin contact (corrosive, permeator), of eye contact (corrosive), of inhalation (lung corrosive).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:
May affect genetic material and may cause reproductive effects based on animal data. No human data found. (Acetic acid)

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: Causes skin burns and ulcerations. May be harmful if absorbed through skin. Eyes: Causes eye burns. May cause chemical conjunctivitis and corneal damage. Inhalation: Causes chemical burns to the respiratory tract. Causes respiratory tract irritation with burning pain in the nose and throat, coughing, wheezing, shortness of breath, tachypnea, dyspnea, pulmonary edema, rhinitis, nausea, salivation. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Vapors may cause dizziness, giddiness, muscular weakness, and suffocation. Ingestion: Causes digestive/gastrointestinal tract burns, nausea, ulceration, bleeding, abdominal spasms, vomiting, hematemesis, diarrhea. May cause perforation of the digestive tract. May cause permanent damage of the esophagus, and digestive tract. May Also affect the liver (impaired liver function), behavior (convulsions, giddines, muscular weakness), and the urinary system - kidneys (Hematuria, Albuminuria, Nephrosis, acute renal failure, acute tubular necrosis). May also cause dyspnea or asphyxia. May also lead to shock, coma and death. Chronic Potential Health Effects: Chronic exposure via ingestion may cause blackening or erosion of the teeth and jaw necrosis, pharyngitis, and gastritis. It may also behavior (similar to acute ingestion), and metabolism (weight loss). Chronic exposure via inhalation may cause asthma and/or bronchitis with cough, phlegm, and/or shortness of breath . It may also affect the blood (decreased leukocyte count), and urinary system (kidneys). Repeated or prolonged skin contact may cause thickening, blackening, and cracking of the skin.

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: Not available.

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:
: CORROSIVE LIQUIDS, FLAMMABLE, N.O.S. (Acetic acid, Hydrogen bromide) (Acetic acid) UNNA: 2920 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Connecticut hazardous material survey.: Hydrogen bromide Illinois toxic substances disclosure to employee act: Hydrogen bromide New York release reporting list: Acetic acid Rhode Island RTK hazardous substances: Hydrogen bromide; Acetic acid Pennsylvania RTK: Hydrogen bromide; Acetic acid Florida: Acetic acid Minnesota: Hydrogen bromide; Acetic acid Massachusetts RTK: Hydrogen bromide; Acetic acid New Jersey: Hydrogen bromide; Acetic acid California Director's List of Hazardous Substances: Acetic Acid; Hydrogen Bromide TSCA 8(b) inventory: Hydrogen bromide; Acetic acid CERCLA: Hazardous substances.: Acetic acid: 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):
R10- Flammable. R34- Causes burns. S7/9- Keep container tightly closed and in a well-ventilated place. 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 the label where possible).

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 2

Reactivity: 0

Personal Protection:

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

Health: 3

Flammability: 2

Reactivity: 0

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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