

Material Safety Data Sheet

Hydrobromic Acid 33-35%, in Acetic Acid

ACC# 40066

Section 1 - Chemical Product and Company Identification

MSDS Name: Hydrobromic Acid 33-35%, in Acetic Acid

Catalog Numbers: O3123-500

Synonyms: None.

Company Identification:

Fisher Scientific

1 Reagent Lane

Fair Lawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
64-19-7	Glacial acetic acid	68-70	200-580-7
10035-10-6	Hydrogen bromide	33-35	233-113-0

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear to yellow liquid. Flash Point: 40 deg C.

Danger! Corrosive. Causes eye and skin burns. Causes digestive and respiratory tract burns. **Flammable liquid and vapor.** May be harmful if absorbed through the skin. Light sensitive. Air sensitive.

Target Organs: Respiratory system, teeth, eyes, skin.

Potential Health Effects

Eye: Causes eye burns. Causes redness and pain. May cause chemical conjunctivitis and corneal damage.

Skin: Causes skin burns. May be harmful if absorbed through the skin. Contact with the skin may cause blackening and hyperkeratosis of the skin of the hands.

Ingestion: Causes gastrointestinal tract burns. Causes severe pain, nausea, vomiting, diarrhea, and shock. May cause corrosion and permanent tissue destruction of the esophagus and digestive tract. May cause polyuria, oliguria (excretion of a diminished amount of urine in relation to the fluid intake) and anuria (complete suppression of urination). Rapidly absorbed from the gastrointestinal tract.

Inhalation: Causes chemical burns to the respiratory tract. Aspiration may lead to pulmonary edema. Vapors may cause dizziness or suffocation. Exposure may lead to bronchitis, pharyngitis, and dental erosion. May be absorbed through the lungs.

Chronic: May cause reproductive and fetal effects. Effects may be delayed. Laboratory experiments have resulted in mutagenic effects. Chronic exposure to acetic acid may cause erosion of dental enamel, bronchitis, eye irritation, darkening of the skin, and chronic inflammation of the respiratory tract. Acetic acid can cause occupational asthma. One case of a delayed asthmatic response to glacial acetic acid has been reported in a person with bronchial asthma. Skin sensitization to acetic acid is rare, but has occurred.

Section 4 - First Aid Measures

Eyes: Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed. Extensive irrigation with water is required (at least 30 minutes).

Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Destroy contaminated shoes.

Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation: Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Get medical aid. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Will burn if involved in a fire. Use water spray to keep fire-exposed containers cool. Reacts with most metals to form highly flammable hydrogen gas which can form explosive mixtures with air. Containers may explode in the heat of a fire. Flammable liquid and vapor. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.

Extinguishing Media: For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. For large fires, use water spray, fog, or alcohol-resistant foam. Use water spray to cool fire-exposed containers. Water may be ineffective. Do NOT use straight streams of water.

Flash Point: 40 deg C (104.00 deg F)
Autoignition Temperature: 427 deg C (800.60 deg F)
Explosion Limits, Lower:4.0 vol %
Upper: 19.9 vol %
NFPA Rating: (estimated) Health: 3; Flammability: 2; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation. Place under an inert atmosphere. A vapor suppressing foam may be used to reduce vapors.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well-ventilated area. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Do not get in eyes, on skin, or on clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Keep away from heat, sparks and flame. Do not ingest or inhale. Store protected from light. Handle under an inert atmosphere. Store protected from air. Discard contaminated shoes. Keep away from strong bases and metals. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

Storage: Keep away from heat, sparks, and flame. Keep away from sources of ignition. Keep container closed when not in use. Store in a tightly closed container. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area. Do not store in metal containers. Keep away from strong bases. Do not expose to air. Store in glass containers. Store protected from light. Store under an inert atmosphere.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Glacial acetic acid	10 ppm TWA; 15 ppm STEL	10 ppm TWA; 25 mg/m3 TWA 50 ppm IDLH	10 ppm TWA; 25 mg/m3 TWA
Hydrogen bromide	2 ppm Ceiling	30 ppm IDLH	3 ppm TWA; 10 mg/m3 TWA

OSHA Vacated PELs: Glacial acetic acid: 10 ppm TWA; 25 mg/m3 TWA Hydrogen bromide: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear butyl rubber gloves, apron, and/or clothing. Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Appearance: clear to yellow

Odor: acetic odor

pH: 2.4 (Acetic Acid-AA)

Vapor Pressure: 11.4 mm Hg @ 20 deg (AA)

Vapor Density: 2.7 (air=1) (AA)

Evaporation Rate:0.97 (butyl acetate=1) (AA)

Viscosity: 1.22 (AA)

Boiling Point: < 200 deg C

Freezing/Melting Point:21 deg C

Decomposition Temperature:Not available.

Solubility: soluble in water: >500 g/l (20C)

Specific Gravity/Density:1.4200g/cm3

Molecular Formula:BrH.C2H4O2

Molecular Weight:80.911

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Incompatible materials, light, ignition sources, exposure to air, excess heat.

Incompatibilities with Other Materials: Strong oxidizing agents, acetic anhydride, amines, ammonia, ammonium nitrate, brass, chlorine trifluoride, copper, fluorine, halogens, iron oxide, nitric acid, permanganates, sodium hydroxide, sodium peroxide, zinc, hydrogen peroxide, acetaldehyde, caustics (e.g. ammonia, ammonium hydroxide, calcium hydroxide, potassium hydroxide, sodium hydroxide), chlorosulfonic acid, oleum, potassium hydroxide, alkalis, bromine pentafluoride, perchloric acid, chromic anhydride, potassium tert-butoxide, moisture,

air, ethyleneimine, 2-aminoethanol, ethylene diamine, diallyl methyl carbinol + ozone, nitric acid + acetone, xylene, chromic acid.
Hazardous Decomposition Products: Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide, hydrogen bromide.
Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#:

CAS# 64-19-7: AF1225000

CAS# 10035-10-6: MW3850000

LD50/LC50:

CAS# 64-19-7:

Draize test, rabbit, skin: 50 mg/24H Mild;

Inhalation, mouse: LC50 = 5620 ppm/1H;

Oral, rat: LD50 = 3310 mg/kg;

Skin, rabbit: LD50 = 1060 uL/kg;

CAS# 10035-10-6:

Inhalation, mouse: LC50 = 814 ppm/1H;

Inhalation, rat: LC50 = 2858 ppm/1H;

Carcinogenicity:

CAS# 64-19-7: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

CAS# 10035-10-6: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information found

Teratogenicity: **CAS#** 64-19-7: Oral, rat: TDLo = 700 mg/kg (lactating female 18 day(s) post-birth) Effects on Newborn - behavioral.

Reproductive Effects: **CAS#** 64-19-7: Intratesticular, rat: TDLo = 400 mg/kg (male 1 day(s) pre-mating) Fertility - male fertility index (e.g. # males impregnating females per # males exposed to fertile nonpregnant females).

Mutagenicity: **CAS#** 64-19-7: Sister Chromatid Exchange: Human, Lymphocyte = 5 mmol/L.

Neurotoxicity: No information found

Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Fish: Bluegill/Sunfish: LC50 = 75 mg/L; 96 Hr; **CAS#** 64-19-7: UnspecifiedFish: Goldfish: LC50 = 423 mg/L; 24 Hr; **CAS#** 64-19-7: UnspecifiedWater flea Daphnia: EC50 = 32-47 mg/L; 24-48 Hr; **CAS#** 64-19-7: UnspecifiedBacteria: Phytobacterium phosphoreum: EC50 = 8.86-11 mg/L; 5,15,25 min; **CAS#** 64-19-7: Microtox testFish: Fathead Minnow: LC50 = 88 mg/L; 96 Hr; **CAS#** 64-19-7: Static bioassay @ 18-22°C **CAS#** 64-19-7: If released to water or soil, acetic acid will biodegrade readily. Evaporation from dry surfaces is likely to occur. When spilled on soil, the liquid will spread on the surface and penetrate into the soil at a rate dependent on the soil type and its water content. Acetic acid shows no potential for biological accumulation or food chain contamination.

Environmental: **CAS#** 64-19-7: If released to the atmosphere, it is degraded in the vapor-phase by reaction with photochemically produced hydroxyl radicals (estimated typical half-life of 26.7 days). It occurs in atmospheric particulate matter in acetate form and physical removal from air can occur via wet and dry deposition.

Physical: **CAS#** 64-19-7: Natural waters will neutralize dilute solutions to acetate salts.

Other: No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	CORROSIVE LIQUIDS, FLAMMABLE, N.O.S.	No information available.
Hazard Class:	8	
UN Number:	UN2920	
Packing Group:	II	

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 64-19-7 is listed on the TSCA inventory.

CAS# 10035-10-6 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

CAS# 64-19-7: 5000 lb final RQ; 2270 kg final RQ

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 64-19-7: immediate, delayed, fire.

CAS # 10035-10-6: immediate, delayed.

Section 313 No chemicals are reportable under Section 313.**Clean Air Act:**

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

CAS# 64-19-7 is listed as a Hazardous Substance under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

CAS# 10035-10-6 is considered highly hazardous by OSHA.

STATE

CAS# 64-19-7 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

CAS# 10035-10-6 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations**European Labeling in Accordance with EC Directives****Hazard Symbols:**

C

Risk Phrases:

R 10 Flammable.

R 34 Causes burns.

Safety Phrases:

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 35 This material and its container must be disposed of in a safe way.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 64-19-7: 1

CAS# 10035-10-6: 1

Canada - DSL/NDSL

CAS# 64-19-7 is listed on Canada's DSL List.

CAS# 10035-10-6 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of E, B3.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 64-19-7 is listed on the Canadian Ingredient Disclosure List.

CAS# 10035-10-6 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 7/22/1999

Revision #7 Date: 6/22/2006

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.