



Material Safety Data Sheet

<p>NFPA</p>	<p>HMIS</p> <table border="1" style="margin: auto;"> <tr><td style="background-color: #00FFFF;">Health Hazard</td><td style="text-align: center; font-weight: bold;">3</td></tr> <tr><td style="background-color: #FFCCCC;">Fire Hazard</td><td style="text-align: center; font-weight: bold;">2</td></tr> <tr><td style="background-color: #FFFF00;">Reactivity</td><td style="text-align: center; font-weight: bold;">0</td></tr> </table>	Health Hazard	3	Fire Hazard	2	Reactivity	0	<p>Personal Protective Equipment</p> <p style="text-align: center;">See Section 15.</p>
Health Hazard	3							
Fire Hazard	2							
Reactivity	0							

Section 1. Chemical Product and Company Identification		<i>Page Number: 1</i>
Common Name/Trade Name	Hydrogen bromide, 33% Solution in Acetic Acid	Catalog Number(s). H1141
Manufacturer	SPECTRUM CHEMICAL MFG. CORP. 14422 S. SAN PEDRO STREET GARDENA, CA 90248	CAS# Mixture.
Commercial Name(s)	Not available.	RTECS Not applicable.
Synonym	Not available.	TSCA TSCA 8(b) inventory: Hydrogen bromide; Acetic acid
Chemical Name	Hydrogen bromide, 33% Solution in Acetic Acid	CI# Not applicable.
Chemical Family	(Acid.)	<p style="text-align: center; margin: 0;"><u>IN CASE OF EMERGENCY</u> <u>CHEMTREC (24hr) 800-424-9300</u></p> <p style="text-align: center; margin: 0;">CALL (310) 516-8000</p>
Chemical Formula	Not applicable.	
Supplier	SPECTRUM CHEMICAL MFG. CORP. 14422 S. SAN PEDRO STREET GARDENA, CA 90248	

Section 2. Composition and Information on Ingredients					
		<i>Exposure Limits</i>			
Name	CAS #	TWA (mg/m ³)	STEL (mg/m ³)	CEIL (mg/m ³)	% by Weight
1) Hydrogen bromide	10035-10-6	10			33
2) Acetic acid	64-19-7	10			67
Toxicological Data on Ingredients		<p>Hydrogen bromide: GAS (LC50): Acute: 142.5 ppm 4 hour(s) [Rat].</p> <p>Acetic acid: ORAL (LD50): Acute: 3310 mg/kg [Rat]. 4960 mg/kg [Mouse]. 3530 mg/kg [Rat]. DERMAL (LD50): Acute: 1060 mg/kg [Rat].</p>			

Section 3. Hazards Identification	
Potential Acute Health Effects	Extremely hazardous in case of skin contact (corrosive). Hazardous in case of eye contact (irritant), of ingestion, of inhalation (lung irritant). 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.

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Potential Chronic Health Effects	Extremely hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs, mucous membranes, blood, kidneys, bladder, gastrointestinal tract, upper respiratory tract. 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 an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs. Repeated or prolonged inhalation of vapors may lead to chronic respiratory irritation.
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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. Do not use an eye ointment. Seek medical attention.
Skin Contact	If the chemical got onto the clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical got on the victim's exposed skin, such as the hands : Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cold water may be used. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.
Serious Skin Contact	Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.
Inhalation	Allow the victim to rest in a well ventilated area. Seek immediate medical attention.
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. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.
Serious Ingestion	Not available.

Section 5. Fire and Explosion Data

Flammability of the Product	Non-flammable.
Auto-Ignition Temperature	Not applicable.
Flash Points	Not applicable.
Flammable Limits	Not applicable.
Products of Combustion	Not available.
Fire Hazards in Presence of Various Substances	Not applicable.
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. Slightly explosive to explosive in presence of oxidizing materials.
Fire Fighting Media and Instructions	Not applicable.
Special Remarks on Fire Hazards	Not available.

Special Remarks on Explosion Hazards Not available.

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 Corrosive liquid. 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 locked up Keep container dry. Do not ingest. Do not breathe gas/fumes/ vapour/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 metals, acids, alkalis.

May corrode metallic surfaces and glass. Store in a polyethylene container.

Storage May corrode metallic surfaces. Store in a metallic or coated fiberboard drum using a strong polyethylene inner package. May corrode glass. Store in an appropriate container. Corrosive materials should be stored in a separate safety storage cabinet or room.

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 (ppm) from ACGIH (TLV)
 TWA: 10 (mg/m³) from ACGIH

Acetic acid
 TWA: 10 STEL: 15 (ppm) from ACGIH (TLV) [1998]
 TWA: 10 (ppm) from NIOSH
 Australia: TWA: 10 (ppm)

Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical state and appearance	Liquid.	Odor	Not available.
Molecular Weight	Not applicable.	Taste	Not available.
pH (1% soln/water)	Acidic.	Color	Not available.
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	Not available.		
Specific Gravity	Weighted average: 1.37 (Water = 1)		
Vapor Pressure	The highest known value is 11 mm of Hg (@ 20°C) (Acetic acid).		

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Hydrogen bromide, 33% Solution in Acetic Acid

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Vapor Density	The highest known value is 2.07 (Air = 1) (Acetic acid).
Volatility	Not available.
Odor Threshold	The highest known value is 1.018 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 cold water, hot water. Partially soluble in methanol, diethyl ether, n-octanol, acetone.

Section 10. Stability and Reactivity Data

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	Not available.
Incompatibility with various substances	Highly reactive with metals, alkalis. Reactive with acids.
Corrosivity	Extremely corrosive in presence of aluminum, of zinc. Highly corrosive in presence of copper. Corrosive in presence of glass, of steel, of stainless steel(304), of stainless steel(316).
Special Remarks on Reactivity	Not available.
Special Remarks on Corrosivity	Not available.
Polymerization	No.

Section 11. Toxicological Information

Routes of Entry	Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.
Toxicity to Animals	WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 3310 mg/kg [Rat]. (Acetic acid). Acute dermal toxicity (LD50): 1060 mg/kg [Rat]. (Acetic acid). Acute toxicity of the gas (LC50): 142.5 ppm 4 hour(s) [Rat]. (Hydrogen bromide).
Chronic Effects on Humans	The substance is toxic to lungs, mucous membranes, blood, kidneys, bladder, gastrointestinal tract, upper respiratory tract.
Other Toxic Effects on Humans	Extremely hazardous in case of skin contact (corrosive). Hazardous in case of ingestion, of inhalation (lung irritant).
Special Remarks on Toxicity to Animals	Not available.
Special Remarks on Chronic Effects on Humans	Not available.
Special Remarks on other Toxic Effects on Humans	Not available.

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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

Section 14. Transport Information

DOT Classification	CLASS 8: Corrosive liquid.
Identification	: Corrosive Liquid, Flammable, n.o.s (Acetic Acid, Hydrogen Bromide, Solution) (Acetic acid) : UN2920 PG: II
Special Provisions for Transport	Not available.
DOT (Pictograms)	

Section 15. Other Regulatory Information and Pictograms

Federal and State Regulations
 Rhode Island RTK hazardous substances: Acetic acid
 Pennsylvania RTK: Hydrogen bromide; Acetic acid
 Florida: Acetic acid
 Minnesota: Acetic acid
 Massachusetts RTK: Hydrogen bromide; Acetic acid
 New Jersey: Acetic acid
 TSCA 8(b) inventory: Hydrogen bromide; Acetic acid
 CERCLA: Hazardous substances.: Acetic acid: 5000 lbs. (2268 kg);

California Proposition 65 Warnings

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

Other Classifications	WHMIS (Canada)	CLASS D-2A: Material causing other toxic effects (VERY TOXIC). CLASS E: Corrosive liquid.
	DSCL (EEC)	R26- Very toxic by inhalation. R35- Causes severe burns.

HMIS (U.S.A.)

Health Hazard	3
Fire Hazard	2
Reactivity	0

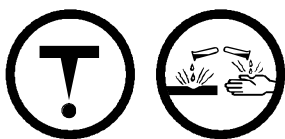
National Fire Protection Association (U.S.A.)

Health  Flammability
 ACID Reactivity

Personal Protection

Specific hazard

**WHMIS (Canada)
(Pictograms)**



**DSCL (Europe)
(Pictograms)**



**TDG (Canada)
(Pictograms)**



**ADR (Europe)
(Pictograms)**



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

MSDS Code H3281

References Not available.

Other Special Considerations Not available.

Validated by Sonia Owen on 8/11/2006.

Verified by Sonia Owen.

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CALL (310) 516-8000

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Notice to Reader

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.