**Section 1 - IDENTIFICATION**

Manufacturer Information
MATHESON TRI-GAS, INC.
150 Allen Road, Suite 302
Basking Ridge, NJ 07920

General Information: 1-800-416-2505
Emergency #: 1-800-424-9300 (CHEMTREC)
Outside the US: 703-527-3887 (Call collect)

Product Identifier: HYDROGEN BROMIDE

Trade Names/Synonyms
MTG MSDS 50; HYDROBROMIC ACID; ANHYDROUS HYDROBROMIC ACID; HYDROGEN MONOBROMIDE;
HYDROGEN BROMIDE (HBR); HYDROGEN BROMIDE (H2BR2); UN 1048; HBR; RTECS: MW3850000

Chemical Family
acids, inorganic

Product Use
industrial

Restrictions on Use
None known.

**Section 2 - HAZARDS IDENTIFICATION**

GHS Classification
Gas under pressure, Liquefied gas
Acute toxicity, Category 3
Skin corrosion/irritation, Category 1
Eye damage/irritation, Category 1
Specific target organ systemic toxicity following single exposure, Category 1
Specific target organ systemic toxicity following repeated exposure, Category 1

GHS LABEL ELEMENTS
Symbol(s)

Signal Word
DANGER

Hazard Statement(s)
Contains gas under pressure; may explode if heated
Toxic if inhaled
Causes severe skin burns and eye damage
Causes serious eye damage
Causes damage to organs
Causes damage to organs through prolonged or repeated exposure
Safety Data Sheet

Material Name: HYDROGEN BROMIDE

Precautionary Statement(s)
Do not breathe gas. Use only outdoors or in a well-ventilated area. Wear respiratory protection. Wear protective gloves/clothing and eye/face protection. Wash thoroughly after handling. Do not eat, drink, or smoke when using this product. IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. IF ON SKIN: Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician. Specific treatment may be needed, see first aid section of Safety Data Sheet. Protect from sunlight and store in well-ventilated place. Store locked up. Store container tightly closed in well-ventilated place. Dispose in accordance with all applicable regulations.

* * *Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS* * *

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Component</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>10035-10-6</td>
<td>HYDROGEN BROMIDE</td>
<td>100.0</td>
</tr>
</tbody>
</table>

* * *Section 4 - FIRST AID MEASURES* * *

Inhalation
If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

Skin
Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get immediate medical attention. Thoroughly clean and dry contaminated clothing before reuse. Destroy contaminated shoes.

Eyes
Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

Ingestion
If swallowed, drink plenty of water, do NOT induce vomiting. Get immediate medical attention.

Note to Physicians
For inhalation, consider oxygen.
Avoid gastric lavage or emesis.

Symptoms: Immediate
respiratory tract burns, skin burns, eye burns, mucous membrane burns

Symptoms: Delayed
respiratory tract burns, skin burns, eye burns, mucous membrane burns, tooth erosion

* * *Section 5 - FIRE FIGHTING MEASURES* * *

See Section 9 for Flammability Properties

Specific Hazards Arising from the Chemical
Negligible fire hazard. Containers may rupture or explode if exposed to heat.

Extinguishing Media
carbon dioxide, regular dry chemical
Large fires: Use regular foam or flood with fine water spray.

Unsuitable Extinguishing Media
None known.

Protective Equipment and Precautions for Firefighters
Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.
**Section 6 - ACCIDENTAL RELEASE MEASURES**

**Personal Precautions**
Wear personal protective clothing and equipment, see Section 8.

**Environmental Precautions**
Avoid release to the environment.

**Methods for Containment**
Stop leak if possible without personal risk. Keep unnecessary people away, isolate hazard area and deny entry.
Stay upwind and keep out of low areas. Evacuation radius: 150 feet.

**Cleanup Methods**
Reduce vapors with water spray. Ventilate closed spaces before entering. Damaged cylinders should be handled only by specialists.

**Section 7 - HANDLING AND STORAGE**

**Handling Procedures**

**Storage Procedures**
Store and handle in accordance with all current regulations and standards. Protect from physical damage. Store in a cool, dry place. Store in a well-ventilated area. Keep separated from incompatible substances.

**Incompatibilities** bases, combustible materials, halogens, oxidizing materials

**Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION**

**Component Exposure Limits**

**HYDROGEN BROMIDE (10035-10-6)**

<table>
<thead>
<tr>
<th>Source</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>2 ppm Ceiling</td>
</tr>
<tr>
<td>Europe</td>
<td>2 ppm STEL; 6.7 mg/m3 STEL</td>
</tr>
<tr>
<td>OSHA (Final)</td>
<td>3 ppm TWA; 10 mg/m3 TWA</td>
</tr>
<tr>
<td>OSHA (Vacated)</td>
<td>3 ppm Ceiling; 10 mg/m3 Ceiling</td>
</tr>
<tr>
<td>NIOSH</td>
<td>3 ppm Ceiling; 10 mg/m3 Ceiling</td>
</tr>
</tbody>
</table>

**Component Biological Limit Values**
There are no biological limit values for any of this product's components.

**IDLH**
30 ppm

**Engineering Controls**
Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

**PERSONAL PROTECTIVE EQUIPMENT**

**Eyes/ Face**
Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

**Protective Clothing**
Wear appropriate chemical resistant clothing.

**Glove Recommendations**
Wear appropriate chemical resistant gloves.
Safety Data Sheet

Material Name: HYDROGEN BROMIDE

Respiratory Protection
The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.
30 ppm
- Any supplied-air respirator operated in a continuous-flow mode.
- Any powered, air-purifying respirator with acid gas cartridge(s).
- Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted acid gas canister.
- Any self-contained breathing apparatus with a full facepiece.
- Any supplied-air respirator with a full facepiece.
Emergency or planned entry into unknown concentrations or IDLH conditions -
- Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.
- Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.
Escape -
- Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted acid gas canister.
- Any appropriate escape-type, self-contained breathing apparatus.

* * *Section 9 - PHYSICAL AND CHEMICAL PROPERTIES* * *

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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<tbody>
<tr>
<td>Physical State</td>
<td>Gas</td>
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<tr>
<td>Color</td>
<td>colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>pungent odor</td>
</tr>
<tr>
<td>pH</td>
<td>acidic in solution</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>-67 °C</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapor Density (air = 1)</td>
<td>2.8</td>
</tr>
<tr>
<td>Specific Gravity (water=1)</td>
<td>2.16 @ -67 °C</td>
</tr>
<tr>
<td>Log KOW</td>
<td>Not available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not available</td>
</tr>
<tr>
<td>Molecular Formula</td>
<td>H-BR</td>
</tr>
<tr>
<td>Appearance</td>
<td>Not available</td>
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<tr>
<td>Physical Form</td>
<td>gas</td>
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<tr>
<td>Odor Threshold</td>
<td>Not available</td>
</tr>
<tr>
<td>Melting/Freezing Point</td>
<td>-86 °C</td>
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<tr>
<td>Decomposition</td>
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<tr>
<td>Vapor Pressure</td>
<td>15750 mmHg @ 20 °C</td>
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<tr>
<td>Density</td>
<td>3.5 g/L @ 0 °C</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>194 %</td>
</tr>
<tr>
<td>Auto Ignition</td>
<td>Not available</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>80.92</td>
</tr>
</tbody>
</table>

Solvent Solubility
Slightly Soluble: alcohol

* * *Section 10 - STABILITY AND REACTIVITY* * *

Chemical Stability
Stable at normal temperatures and pressure.

Conditions to Avoid
Minimize contact with material. Avoid inhalation of material or combustion by-products. Containers may rupture or explode if exposed to heat.

Possibility of Hazardous Reactions
Will not polymerize.

Incompatible Materials
bases, combustible materials, halogens, oxidizing materials
**Safety Data Sheet**

**Material Name:** HYDROGEN BROMIDE

**Decomposition Products**
miscellaneous decomposition products

**Hazardous Decomposition**
Water or Moisture: hydrobromic acid

***Section 11 - TOXICOLOGICAL INFORMATION***

**Acute and Chronic Toxicity**

**Component Analysis - LD50/LC50**
The components of this material have been reviewed in various sources and the following selected endpoints are published:

**HYDROGEN BROMIDE (10035-10-6)**
Inhalation LC50 Rat 2858 ppm 1 h

**RTECS Acute Toxicity (selected)**
The components of this material have been reviewed, and RTECS publishes the following endpoints:

**HYDROGEN BROMIDE (10035-10-6)**
Inhalation: 814 ppm/1 hour Inhalation Mouse LC50
3000 ppm/30 minute(s) Inhalation Rat LC50; 2858 ppm/1 hour Inhalation Rat LC50

**Acute Toxicity Level**

**HYDROGEN BROMIDE (10035-10-6)**
Moderately Toxic: inhalation

**Immediate Effects**
respiratory tract burns, skin burns, eye burns, mucous membrane burns

**Delayed Effects**
respiratory tract burns, skin burns, eye burns, mucous membrane burns, tooth erosion

**Irritation/Corrosivity Data**
No animal testing data available for skin or eyes.

**RTECS Irritation**
The components of this material have been reviewed and RTECS publishes no data as of the date on this document.

**Local Effects**

**HYDROGEN BROMIDE (10035-10-6)**
Corrosive: inhalation, skin, eye, ingestion

**Respiratory Sensitizer**
No data available.

**Dermal Sensitizer**
No data available.

**Carcinogenicity**

**Component Carcinogenicity**
None of this product's components are listed by ACGIH, IARC, NTP, OSHA or DFG.

**RTECS Mutagenic**
The components of this material have been reviewed, and RTECS publishes data for one or more components.

**Reproductive Effects Data**
No data available.

**RTECS Tumorigenic**
The components of this material have been reviewed, and RTECS publishes data for one or more components.

**Specific Target Organ Toxicity - Single Exposure**
respiratory system
**Section 12 - ECOLOGICAL INFORMATION**

Component Analysis - Aquatic Toxicity
No LOI ecotoxicity data are available for this product's components.

Abiotic Degradation
Dissociates in water to H+ and Br- ions.

Persistence and Degradability
No data available.

Bioaccumulative Potential
No data available.

Mobility in Environmental Media
No data available.

**Section 13 - DISPOSAL CONSIDERATIONS**

Disposal Methods
Dispose in accordance with all applicable regulations.

Component Waste Numbers
The U.S. EPA has not published waste numbers for this product's components.

**Section 14 - TRANSPORT INFORMATION**

US DOT Information
Shipping Name: Hydrogen bromide, anhydrous
UN/NA #: UN1048 Hazard Class: 2.3
Required Label(s): 2.3, 8
Additional Info.: Toxic-Inhalation Hazard Zone C

IMDG Information
Shipping Name: Hydrogen bromide, anhydrous
UN #: UN1048 Hazard Class: 2.3
Required Label(s): 8

**Section 15 - REGULATORY INFORMATION**

Component Analysis

U.S. Federal Regulations
This material contains one or more of the following chemicals required to be identified under SARA Section 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

HYDROGEN BROMIDE (10035-10-6)
OSHA (safety): 5000 lb TQ

SARA 311/312 Hazardous Categories

Acute Health: Yes Chronic Health: No Fire: No Pressure: Yes Reactive: No
**Safety Data Sheet**

Material Name: HYDROGEN BROMIDE

**U.S. State Regulations**

The following components appear on one or more of the following state hazardous substances lists:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>CA</th>
<th>MA</th>
<th>MN</th>
<th>NJ</th>
<th>PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>HYDROGEN BROMIDE</td>
<td>10035-10-6</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Not regulated under California Proposition 65

**Component Analysis - Inventory**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>US</th>
<th>CA</th>
<th>EU</th>
<th>AU</th>
<th>PH</th>
<th>JP</th>
<th>KR</th>
<th>CN</th>
<th>NZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>HYDROGEN BROMIDE</td>
<td>10035-10-6</td>
<td>Yes</td>
<td>DSL</td>
<td>EIN</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**NFPA Ratings:**

Health: 3 Fire: 0 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

**Key / Legend**

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; RID - European Rail Transport; RTECS - Registry of Toxic Effects of Chemical Substances®; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States

**Other Information**

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End of Sheet MAT11140