Safety Data Sheet

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifier

Product Name • **Hydrogen Bromide**

Synonyms • Anhydrous hydrobromic acid; HBr

CAS Number • 10035-10-6

Product Code • 80004

EC Number • 233-113-0

Molecular Formula • :H 1:Br 1:

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified use(s) • Semiconductor Uses

1.3 Details of the supplier of the safety data sheet

Manufacturer • Air Liquide

2700 Post Oak Blvd.
Houston, TX 77056
United States
www.us.airliquide.com
sds@airliquide.com

Telephone (Technical) • 713-896-2896

Telephone (Technical) • 800-819-1704

1.4 Emergency telephone number

Manufacturer • 800-424-9300 - CHEMTREC

Manufacturer • +1 703-527-3887 - Outside United States

Section 2: Hazards Identification

EU/EEC

According to Regulation (EC) No 1272/2008 (CLP)/REACH 1907/2006 [amended by 453/2010]
According to EU Directive 67/548/EEC (DSD) or 1999/45/EC (DPD)

2.1 Classification of the substance or mixture

CLP • Liquefied Gas - H280
Skin Corrosion 1A - H314
Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation - H335

DSD/DPD • Corrosive (C)
Irritant (Xi)

R35, R37

2.2 Label Elements

CLP

DANGER

Precautionary statements

Prevention
- P260 - Do not breathe fume/gas.
P264 - Wash thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.

Response
- P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P310 - Immediately call a POISON CENTER or doctor/physician.
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P363 - Wash contaminated clothing before reuse.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P321 - Specific treatment, see supplemental first aid information.

Storage/Disposal
- P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.
P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

DSD/DPD

Risk phrases
- R35 - Causes severe burns.
R37 - Irritating to respiratory system.

Safety phrases
- S1/2 - Keep locked up and out of the reach of children.
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.
S36 - Wear suitable protective clothing.
S37 - Wear suitable gloves.
S39 - Wear eye/face protection.
S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

2.3 Other Hazards

CLP
- According to Regulation (EC) No. 1272/2008 (CLP) this material is considered hazardous.

DSD/DPD
- This product is considered dangerous according to the European Directive 67/548/EEC.

United States (US)

According to OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

OSHA HCS 2012
- Liquefied Gas - H280
Skin Corrosion 1A - H314
Serious Eye Damage 1 - H318
Acute Toxicity Inhalation 3 - H331

2.2 Label elements

OSHA HCS 2012

DANGER

Hazard statements

- Contains gas under pressure; may explode if heated - H280
  Causes severe skin burns and eye damage - H314
  Causes serious eye damage - H318
  Toxic if inhaled - H331

Precautionary statements

Prevention

- Do not breathe fume/gas. - P260
  Wash thoroughly after handling. - P264
  Do not eat, drink or smoke when using this product. - P270
  Use only outdoors or in a well-ventilated area. - P271
  Wear protective gloves/protective clothing/eye protection/face protection. - P280

Response

- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. - P304+P340
  Immediately call a POISON CENTER or doctor/physician. - P310
  IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. - P303+P361+P353
  Wash contaminated clothing before reuse. - P363
  IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. - P305+P351+P338
  Call a POISON CENTER or doctor/physician. - P311
  IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. - P301+P330+P331
  Specific treatment, see supplemental first aid information. - P321

Storage/Disposal

- Store in a well-ventilated place. Keep container tightly closed. - P403+P233
  Store locked up. - P405
  Dispose of content and/or container in accordance with local, regional, national, and/or international regulations. - P501

2.3 Other hazards

OSHA HCS 2012

- Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.

Canada

According to WHMIS

2.1 Classification of the substance or mixture

WHMIS

- Compressed Gas - A
  Very Toxic - D1A
  Corrosive - E

2.2 Label elements

WHMIS

- Compressed Gas - A
  Very Toxic - D1A
  Corrosive - E

2.3 Other hazards

WHMIS

- In Canada, the product mentioned above is considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

Section 3 - Composition/Information on Ingredients

3.1 Substances

Composition					
Chemical Name	**Identifiers**	**%**	**LD50/LC50**	**Classifications According to Regulation/Directive**	**Comments**
Hydrogen Bromide	**CAS:**10035-10-6 **EC Number:**233-113-0 **EU Index:**035-002-00-0	100%	Inhalation-Rat LC50 • 2858 ppm 1 Hour(s)	**EU DSD/DPD:** Annex VI, Table 3.2: C; R35 Xi; R37 **EU CLP:** Annex VI, Table 3.1: Press. Gas - Liq., H280; Skin Corr. 1A, H314; STOT SE 3, H335 **OSHA HCS 2012:** Eye Dam. 1; Skin Corr. 1A; Press. Gas - Liq.; Acute Tox. 3 (inhl)	NDA

3.2 Mixtures

- Material does not meet the criteria of a mixture in accordance with Regulation (EC) No 1272/2008.

Section 4 - First Aid Measures

4.1 Description of first aid measures

Inhalation

- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing. If signs/symptoms continue, get medical attention.

Skin

- If frostbite has occurred, seek medical attention immediately; do NOT rub the affected area(s) or flush them with water. In order to prevent further tissue damage, do NOT attempt to remove frozen clothing from frostbitten areas. If frostbite has not occurred, immediately and thoroughly wash contaminated skin with soap and water.

Eye

- If eye tissue is frozen, seek medical attention immediately; if tissue is not frozen, immediately and thoroughly flush the eyes with large amounts of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If irritation, pain, swelling, lacrimation or photophobia persist, get medical attention as soon as possible.

Ingestion

- If frostbite has occurred, seek medical attention immediately; do NOT rub the affected area(s) or flush them with water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to Physician

- All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

4.4 Other information

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO GASES WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT. At a minimum, Self-Contained Breathing Apparatus must be worn. Victim(s) who experience any adverse effect after over-exposure to this gas mixture must be taken for medical attention. Rescuers should be taken for medical attention if necessary. Take a copy of the label and the MSDS to physician or other health professional with victim(s).

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media
- Use extinguishing agent suitable for type of surrounding fire.
SMALL FIRES: Dry chemical or CO2.
LARGE FIRES: Water spray or fog.

Unsuitable Extinguishing Media
- No data available

5.2 Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards
- TOXIC; may be fatal if inhaled, ingested or absorbed through skin.
Vapors are extremely irritating and corrosive.
Cylinders exposed to fire may vent and release toxic and/or corrosive gas through pressure relief devices.
Containers may explode when heated.
Ruptured cylinders may rocket.

Hazardous Combustion Products
- No data available

5.3 Advice for firefighters

- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.
Always wear thermal protective clothing when handling refrigerated/cryogenic liquids.
Wear positive pressure self-contained breathing apparatus (SCBA).
Move containers from fire area if you can do it without risk.
FIRE: If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.
FIRE INVOLVING TANKS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
FIRE INVOLVING TANKS: Cool containers with flooding quantities of water until well after fire is out.
FIRE INVOLVING TANKS: Do not direct water at source of leak or safety devices; icing may occur.
FIRE INVOLVING TANKS: Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
FIRE INVOLVING TANKS: ALWAYS stay away from tanks engulfed in fire.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal Precautions
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Self contained breathing apparatus and fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire. Do not touch or walk through spilled material. Ventilate the area before entry.

Emergency Procedures
- Stop leak if you can do it without risk. Keep unauthorized personnel away. Keep out of low areas. Stay upwind. Do not direct water at spill or source of leak. LARGE SPILL: Consider initial downwind evacuation for at least 500 meters (1/3 mile)

6.2 Environmental precautions

- Prevent spreading of vapors through sewers, ventilation systems and confined areas.

6.3 Methods and material for containment and cleaning up

Containment/Clean-up Measures
- Stop leak if you can do it without risk.
Do not direct water at spill or source of leak.
Use water spray to reduce vapors; do not put water directly on leak, spill area or inside container.
If possible, turn leaking containers so that gas escapes rather than liquid.
Isolate area until gas has dispersed.
Ventilate the area.
Allow substance to evaporate.

6.4 Reference to other sections

- Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

Handling

- Use only with adequate ventilation. Ventilate closed spaces before entering. Wear appropriate personal protective equipment, avoid direct contact. Be aware of any signs of dizziness or fatigue, especially if work is done in a poorly ventilated area; exposures to fatal concentrations of this gas mixture could occur without any significant warning symptoms, due to olfactory fatigue or oxygen deficiency. Cylinders should be firmly secured to prevent falling or being knocked-over. Do not attempt to repair, adjust, or in any other way modify cylinders. If there is a malfunction or another type of operational problem, contact nearest distributor immediately. Empty containers retain product residue and can be hazardous. Do not cut, weld, puncture or incinerate container.

7.2 Conditions for safe storage, including any incompatibilities

Storage

- Store in a cool, dry, well-ventilated place. Protect cylinders against physical damage. Cylinders should be firmly secured to prevent falling or being knocked-over.

7.3 Specific end use(s)

- Refer to Section 1.2 - Relevant identified uses.

Section 8 - Exposure Controls/Personal Protection

8.1 Control parameters

Exposure Limits/Guidelines						
	Result	**ACGIH**	**Canada Ontario**	**Canada Quebec**	**China**	**France**
Hydrogen Bromide (10035-10-6)	Ceilings	2 ppm Ceiling	2 ppm Ceiling	3 ppm Ceiling; 9.9 mg/m3 Ceiling	10 mg/m3 Ceiling [MAC]	Not established
	STELs	Not established	Not established	Not established	Not established	2 ppm STEL [VLCT] (indicative limit); 6.7 mg/m3 STEL [VLCT] (indicative limit)

Exposure Limits/Guidelines (Con't.)						
	Result	**Germany DFG**	**Germany TRGS**	**Ireland**	**Israel**	**Italy**
Hydrogen Bromide (10035-10-6)	STELs	Not established	Not established	2 ppm STEL; 6.6 mg/m3 STEL	Not established	2 ppm STEL; 6.7 mg/m3 STEL
	Ceilings	2 ppm Peak; 6.7 mg/m3 Peak	Not established	Not established	2 ppm Ceiling	Not established
	TWAs	Not established	6.7 mg/m3 TWA AGW (exposure factor 1)	Not established	Not established	Not established
	MAKs	2 ppm TWA MAK; 6.7 mg/m3 TWA MAK	Not established	Not established	Not established	Not established

Exposure Limits/Guidelines (Con't.)						
	Result	**NIOSH**	**OSHA**	**OSHA Vacated**	**Portugal**	**Spain**
Hydrogen Bromide (10035-10-6)	Ceilings	3 ppm Ceiling; 10 mg/m3 Ceiling	Not established	3 ppm Ceiling; 10 mg/m3 Ceiling	2 ppm Ceiling [VLE-CM]	Not established
	STELs	Not established	Not established	Not established	Not established	2 ppm STEL [VLA-EC]; 7 mg/m3 STEL [VLA-EC]

	TWAs	Not established	3 ppm TWA; 10 mg/m3 TWA	Not established	Not established	Not established

Exposure Limits/Guidelines (Con't.)		
	Result	**Sweden**
Hydrogen Bromide (10035-10-6)	Ceilings	2 ppm CLV; 7 mg/m3 CLV
	TWAs	1 ppm LLV; 3.5 mg/m3 LLV

Exposure Control Notations

Germany DFG

•Hydrogen Bromide (10035-10-6): **Pregnancy:** (classification not yet possible)

8.2 Exposure controls

Engineering Measures/Controls

- Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Personal Protective Equipment

Respiratory

- In case of insufficient ventilation, wear suitable respiratory equipment. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or symptoms are experienced.

Eye/Face

- Wear safety glasses.

Skin/Body

- Wear leather gloves when handling cylinders.

Environmental Exposure Controls

- Follow best practice for site management and disposal of waste. Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways.

Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene

MAK = Maximale Arbeitsplatz Konzentration is the maximum permissible concentration

MAC = Maximum Allowable Concentration

NIOSH = National Institute of Occupational Safety and Health

OSHA = Occupational Safety and Health Administration

STEL = Short Term Exposure Limits are based on 15-minute exposures

TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

LLV = Limit Level Value is the exposure limit for 8-hour work day

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Gas	Appearance/Description	Colorless gas with irritating pungent odor.
Color	Colorless	Odor	Suffocating pungent odor.
Odor Threshold	Not relevant		
General Properties			
Boiling Point	-67 C(-88.6 F)	Melting Point	-87 C(-124.6 F)
Decomposition Temperature	Data lacking	pH	Not relevant
Specific Gravity/Relative Density	Data lacking	Density	Data lacking
Water Solubility	Soluble	Viscosity	Data lacking
Explosive Properties	Data lacking	Oxidizing Properties:	Data lacking

Volatility			
Vapor Pressure	22.77 atm @ 21.1 C(69.98 F)	Vapor Density	2.79 Air=1
Evaporation Rate	Data lacking		
Flammability			
Flash Point	Not relevant	UEL	Not relevant
LEL	Not relevant	Autoignition	Not relevant
Flammability (solid, gas)	Nonflammable		
Environmental			
Octanol/Water Partition coefficient	Data lacking		

9.2 Other Information

- No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity

10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

- Stable under normal temperatures and pressures.

10.3 Possibility of hazardous reactions

- Hazardous polymerization will not occur.

10.4 Conditions to avoid

- Keep away from heat, sparks and flame.

10.5 Incompatible materials

- Reacts vigorously with ammonia, explosively with ozone, and oxidizing agents.

10.6 Hazardous decomposition products

- Hydrobromic acid on hydrolysis.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

	CAS	
Hydrogen Bromide	10035-10-6	**Acute Toxicity:** Inhalation-Rat LC50 • 2858 ppm 1 Hour(s)

GHS Properties	Classification
Acute toxicity	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Acute Toxicity - Inhalation 3
Aspiration Hazard	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Carcinogenicity	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Germ Cell Mutagenicity	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met

Skin corrosion/Irritation	**EU/CLP** • Skin Corrosion 1A **OSHA HCS 2012** • Skin Corrosion 1A
Skin sensitization	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
STOT-RE	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
STOT-SE	**EU/CLP** • Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation **OSHA HCS 2012** • Classification criteria not met
Toxicity for Reproduction	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Respiratory sensitization	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Serious eye damage/Irritation	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Serious Eye Damage 1

Potential Health Effects

Inhalation

Acute (Immediate)
- Toxic if inhaled. May cause respiratory irritation.

Chronic (Delayed)
- No data available

Skin

Acute (Immediate)
- Causes severe skin burns and eye damage.

Chronic (Delayed)
- No data available

Eye

Acute (Immediate)
- Causes serious eye damage.

Chronic (Delayed)
- No data available

Ingestion

Acute (Immediate)
- Ingestion can cause burns similar to frostbite.

Chronic (Delayed)
- No data available

Key to abbreviations

LC = Lethal Concentration

Section 12 - Ecological Information

12.1 Toxicity

- Material data lacking.

12.2 Persistence and degradability

- Material data lacking.

12.3 Bioaccumulative potential

- Material data lacking.

12.4 Mobility in Soil

- Material data lacking.

12.5 Results of PBT and vPvB assessment

- PBT and vPvB assessment has not been conducted for this material.

12.6 Other adverse effects

- No studies have been found.

Section 13 - Disposal Considerations

13.1 Waste treatment methods

Product waste

- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Packaging waste

- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	UN1048	Hydrogen bromide, anhydrous	2.3,8	NDA	NDA
TDG	UN1048	HYDROGEN BROMIDE, ANHYDROUS	2.3,8	NDA	NDA
IMO/IMDG	UN1048	HYDROGEN BROMIDE, ANHYDROUS	2.3,8	NDA	NDA
IATA/ICAO	NDA	Forbidden	NDA	NDA	NDA

14.6 Special precautions for user

- Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles can present serious safety hazards. If transporting these cylinders in vehicles, ensure these cylinders are not exposed to extremely high temperatures (as may occur in an enclosed vehicle on a hot day). Additionally, the vehicle should be well-ventilated during transportation. Hydrogen Bromide carries a Special Provision 3 Inhalation Hazard Zone C.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Not relevant.

Section 15 - Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Hazard Classifications

- Acute, Pressure(Sudden Release of)

State Right To Know				
Component	**CAS**	**MA**	**NJ**	**PA**
Hydrogen Bromide	10035-10-6	Yes	Yes	Yes

Inventory						
Component	**CAS**	**Canada DSL**	**Canada NDSL**	**China**	**EU EINECS**	**EU ELNICS**
Hydrogen Bromide	10035-10-6	Yes	No	Yes	Yes	No

Inventory (Con't.)		
Component	**CAS**	**TSCA**
Hydrogen Bromide	10035-10-6	Yes

Canada

Labor

Canada - WHMIS - Classifications of Substances

• Hydrogen Bromide	10035-10-6	A, D1A, E

Canada - WHMIS - Ingredient Disclosure List

• Hydrogen Bromide	10035-10-6	1 %

Environment

Canada - CEPA - Priority Substances List

• Hydrogen Bromide	10035-10-6	Not Listed

China

Environment

China - Ozone Depleting Substances - First Schedule

• Hydrogen Bromide	10035-10-6	Not Listed

China - Ozone Depleting Substances - Second Schedule

• Hydrogen Bromide	10035-10-6	Not Listed

China - Ozone Depleting Substances - Third Schedule

• Hydrogen Bromide	10035-10-6	Not Listed

Other

China - Annex I & II - Controlled Chemicals Lists

• Hydrogen Bromide	10035-10-6	Not Listed

China - Dangerous Goods List

• Hydrogen Bromide	10035-10-6	(anhydrous or Hydrobromic acid)

China - Export Control List - Part I Chemicals

• Hydrogen Bromide	10035-10-6	Not Listed

Europe

Other

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Classification

• Hydrogen Bromide	10035-10-6	C; R35 Xi; R37

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Concentration Limits

• Hydrogen Bromide	10035-10-6	Not Listed

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Labelling

• Hydrogen Bromide	10035-10-6	C R:35-37 S:(1/2)-7/9-26-45

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Notes - Substances and Preparations

• Hydrogen Bromide	10035-10-6	Not Listed

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Safety Phrases

• Hydrogen Bromide	10035-10-6	S:(1/2)-7/9-26-45

Germany

Environment

Germany - TA Luft - Types and Classes

• Hydrogen Bromide	10035-10-6	Not Listed

Germany - Water Classification (VwVwS) - Annex 1

• Hydrogen Bromide	10035-10-6	Not Listed

Germany - Water Classification (VwVwS) - Annex 2 - Water Hazard Classes

• Hydrogen Bromide	10035-10-6	ID Number 217, hazard class 1 - low hazard to waters

Germany - Water Classification (VwVwS) - Annex 3

• Hydrogen Bromide	10035-10-6	Not Listed

Other

Germany - Specifically Regulated Chemicals in TRGS

• Hydrogen Bromide	10035-10-6	Not Listed

Portugal

Other

Portugal - Prohibited Substances

• Hydrogen Bromide	10035-10-6	Not Listed

United Kingdom

Environment

United Kingdom - Pollution Inventory - Schedule 1 - Thresholds for Releases to Air

• Hydrogen Bromide	10035-10-6	Not Listed

Other

United Kingdom - Workplace Exposure Limits (WELs) - Substances in Review

• Hydrogen Bromide	10035-10-6	Not Listed

United Kingdom - List of Dangerous Substances in Water

• Hydrogen Bromide	10035-10-6	Not Listed

United States

Labor

U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals

• Hydrogen Bromide	10035-10-6	5000 lb TQ

U.S. - OSHA - Specifically Regulated Chemicals

• Hydrogen Bromide	10035-10-6	Not Listed

Environment

U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants

• Hydrogen Bromide	10035-10-6	Not Listed

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

• Hydrogen Bromide	10035-10-6	Not Listed

U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities

• Hydrogen Bromide	10035-10-6	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs

• Hydrogen Bromide	10035-10-6	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs

• Hydrogen Bromide	10035-10-6	Not Listed

U.S. - CERCLA/SARA - Section 313 - Emission Reporting

• Hydrogen Bromide	10035-10-6	Not Listed

U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing

• Hydrogen Bromide	10035-10-6	Not Listed

United States - California

Environment

U.S. - California - Proposition 65 - Carcinogens List

• Hydrogen Bromide	10035-10-6	Not Listed

U.S. - California - Proposition 65 - Developmental Toxicity

• Hydrogen Bromide	10035-10-6	Not Listed

U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)

• Hydrogen Bromide	10035-10-6	Not Listed

U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)

• Hydrogen Bromide	10035-10-6	Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Female

• Hydrogen Bromide	10035-10-6	Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Male

• Hydrogen Bromide	10035-10-6	Not Listed

United States - Pennsylvania

Labor

U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

• Hydrogen Bromide	10035-10-6	Not Listed

U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances

• Hydrogen Bromide	10035-10-6	Not Listed

15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

Section 16 - Other Information

Last Revision Date
- 17/October/2014

Preparation Date
- 17/October/2014

Disclaimer/Statement of Liability
- To the best of Air Liquide's knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The

information contained herein relates only to this specific product. If this gas mixture is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.

Key to abbreviations

NDA = No Data Available