

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

|                |                                                    |
|----------------|----------------------------------------------------|
| Product form   | : Substance                                        |
| Substance name | : Halothane                                        |
| Chemical name  | : Ethane, 2-bromo-2-chloro-1,1,1-trifluoro-, (+-)- |
| CAS No         | : 151-67-7                                         |
| Product code   | : SG-1001-00567                                    |
| Formula        | : C2HBrClF3                                        |

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

|                              |                                                  |
|------------------------------|--------------------------------------------------|
| Use of the substance/mixture | : Anesthetic Liquid<br>Test gas/Calibration gas. |
|------------------------------|--------------------------------------------------|

#### 1.3. Details of the supplier of the safety data sheet

Air Liquide  
2700 Post Oak Boulevard  
Houston, TX 77056 - USA  
T 1-800-819-1704  
[www.us.airliquide.com](http://www.us.airliquide.com)

#### 1.4. Emergency telephone number

|                  |                            |
|------------------|----------------------------|
| Emergency number | : CHEMTREC: 1-800-424-9300 |
|------------------|----------------------------|

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification (GHS-US)

|                           |      |
|---------------------------|------|
| Acute Tox. 4 (Inhalation) | H332 |
| Skin Irrit. 2             | H315 |
| Eye Dam. 1                | H318 |
| Repr. 2                   | H361 |
| STOT SE 3                 | H336 |
| STOT SE 3                 | H335 |

Full text of H-phrases: see section 16

#### 2.2. Label elements

##### GHS-US labeling

Hazard pictograms (GHS-US)



Signal word (GHS-US)

: Danger

Hazard statements (GHS-US)

: H315 - Causes skin irritation  
H318 - Causes serious eye damage  
H332 - Harmful if inhaled  
H336 - May cause drowsiness or dizziness  
H361 - Suspected of damaging fertility or the unborn child  
CGA-HG22 - Corrosive to the respiratory tract.

Precautionary statements (GHS-US)

: P202 - Do not handle until all safety precautions have been read and understood  
P261 - Avoid breathing gas  
P271 - Use only outdoors or in a well-ventilated area  
P280 - Wear eye protection, face protection, protective gloves, protective clothing  
P284 - Wear respiratory protection. Consult respiratory device supplier's product information for the selection of the appropriate device.  
P302+P352 - If on skin: Wash with plenty of water  
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing  
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P307+P311 - If exposed: Call a poison center/doctor

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P362 - Take off contaminated clothing and wash before reuse  
P403 - Store in a well-ventilated place  
P405 - Store locked up  
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations  
CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52°C (125°F)  
CGA-PG05 - Use a back flow preventive device in the piping  
CGA-PG06 - Close valve after each use and when empty  
CGA-PG10 - Use only with equipment rated for cylinder pressure  
CGA-PG14 - Approach suspected leak area with caution  
CGA-PG21 - Open valve slowly

### 2.3. Other hazards

No additional information available

### 2.4. Unknown acute toxicity (GHS-US)

Not applicable

## SECTION 3: Composition/information on ingredients

### 3.1. Substance

Substance type : Mono-constituent

| Name                            | Product identifier | %    | Classification (GHS-US)                                                                                                           |
|---------------------------------|--------------------|------|-----------------------------------------------------------------------------------------------------------------------------------|
| Halothane<br>(Main constituent) | (CAS No) 151-67-7  | > 99 | Acute Tox. 4 (Inhalation), H332<br>Skin Irrit. 2, H315<br>Eye Dam. 1, H318<br>Repr. 2, H361<br>STOT SE 3, H336<br>STOT SE 3, H335 |

Full text of H-phrases: see section 16

### 3.2. Mixture

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.

First-aid measures after skin contact : Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention.

First-aid measures after eye contact : Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.

First-aid measures after ingestion : Ingestion is not considered a potential route of exposure.

### 4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : Harmful if inhaled. May cause drowsiness or dizziness. Corrosive to the respiratory tract.

Symptoms/injuries after skin contact : Causes skin irritation.

Symptoms/injuries after eye contact : Causes serious eye damage.

Symptoms/injuries after ingestion : Ingestion is not considered a potential route of exposure.

Symptoms/injuries upon intravenous administration : Not known.

Chronic symptoms : Suspected of damaging fertility. Suspected of damaging the unborn child.

### 4.3. Indication of any immediate medical attention and special treatment needed

If you feel unwell, seek medical advice. If breathing is difficult, give oxygen.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.

Unsuitable extinguishing media : Do not use water jet to extinguish.

### 5.2. Special hazards arising from the substance or mixture

Fire hazard : The product is not flammable.

Explosion hazard : Product is not explosive. Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.

Reactivity : None known.

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### 5.3. Advice for firefighters

- Firefighting instructions : In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire.
- Protection during firefighting : Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus) for fire fighters. Do not enter fire area without proper protective equipment, including respiratory protection.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

- General measures : Ensure adequate ventilation.

#### 6.1.1. For non-emergency personnel

- Protective equipment : Wear protective equipment consistent with the site emergency plan.
- Emergency procedures : Escape the danger area by the closest safe route. Close doors and windows of adjacent premises. Keep containers closed. Mark the danger area. Seal off low-lying areas. Keep upwind.

#### 6.1.2. For emergency responders

- Protective equipment : Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus) for fire fighters. Equip cleanup crew with proper protection.
- Emergency procedures : Evacuate and limit access. Ventilate area.

### 6.2. Environmental precautions

Try to stop release if safe to do so.

### 6.3. Methods and material for containment and cleaning up

- For containment : Try to stop release if safe to do so.
- Methods for cleaning up : Dispose of this material and its container in accordance with local regulations.

### 6.4. Reference to other sections

See also Sections 8 and 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

- Additional hazards when processed : Pressurized container: Do not pierce or burn, even after use. Use equipment rated for cylinder pressure. Close valve after each use and when empty.
- Precautions for safe handling : Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area.
- Hygiene measures : Do not eat, drink or smoke when using this product.

### 7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Comply with applicable regulations.
- Storage conditions : Do not expose to temperatures exceeding 52°C (125°F). Keep container closed when not in use. Protect cylinder from physical damage. Store in well ventilated area. Store locked up.
- Incompatible products : None known.
- Incompatible materials : None known.

### 7.3. Specific end use(s)

See Section 1.2.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

| Halothane (151-67-7) |                |
|----------------------|----------------|
| ACGIH                | Not applicable |
| OSHA                 | Not applicable |

### 8.2. Exposure controls

- Appropriate engineering controls : Ensure exposure is below occupational exposure limits. Provide adequate general and local exhaust ventilation. Systems under pressure should be regularly checked for leakages. Oxygen detectors should be used when asphyxiating gases may be released. Consider work permit system e.g. for maintenance activities.

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|                                 |                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hand protection                 | : Wear working gloves when handling gas containers. 29 CFR 1910.138: Hand Protection. Wear chemically resistant protective gloves when making or breaking process connections.                                                                                                                                                          |
| Eye protection                  | : Wear safety glasses with side shields. Wear goggles and a face shield when transfilling or breaking transfer connections. 29 CFR 1910.133: Eye and Face Protection.                                                                                                                                                                   |
| Skin and body protection        | : Wear suitable protective clothing, e.g. - lab coats, coveralls or flame resistant clothing.                                                                                                                                                                                                                                           |
| Respiratory protection          | : Wear a respirator when performing non-routine tasks not limited to line breaking or sampling. Wear a respirator during routine operations if determined to be necessary during a process-specific review. Consult respirator suppliers' product information or their representatives for the selection of the appropriate respirator. |
| Thermal hazard protection       | : None necessary during normal and routine operations.                                                                                                                                                                                                                                                                                  |
| Environmental exposure controls | : Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.                                                                                                                                                                                               |
| Other information               | : Wear safety shoes while handling containers. 29 CFR 1910.136: Foot Protection.                                                                                                                                                                                                                                                        |

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

|                                             |                                                                                                                                                   |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Physical state                              | : Gas                                                                                                                                             |
| Appearance                                  | : Clear, colorless gas.                                                                                                                           |
| Molecular mass                              | : Not applicable for gas-mixtures.                                                                                                                |
| Color                                       | : Colorless                                                                                                                                       |
| Odor                                        | : Odorless                                                                                                                                        |
| Odor threshold                              | : 33 ppm<br>No Data Available                                                                                                                     |
| pH                                          | : No data available                                                                                                                               |
| Relative evaporation rate (butyl acetate=1) | : No data available                                                                                                                               |
| Melting point                               | : No Data Available                                                                                                                               |
| Freezing point                              | : -118 °C                                                                                                                                         |
| Boiling point                               | : No Data Available                                                                                                                               |
| Flash point                                 | : No Data Available                                                                                                                               |
| Critical temperature                        | : 496.3 K                                                                                                                                         |
| Auto-ignition temperature                   | : No data available                                                                                                                               |
| Decomposition temperature                   | : No data available                                                                                                                               |
| Flammability (solid, gas)                   | : See Section 2.1 and 2.2                                                                                                                         |
| Vapor pressure                              | : 40.26 (232.65 - 243) kPa mm Hg @ 20 deg C                                                                                                       |
| Relative vapor density at 20 °C             | : No data available                                                                                                                               |
| Relative density                            | : No data available                                                                                                                               |
| Relative gas density                        | : Similar to air                                                                                                                                  |
| Solubility                                  | : Water: 3 g/l<br>Organic solvent: Miscible with alcohol, chloroform, acetone, benzene, ether, petroleum ether, trichloroethylene, and fixed oils |
| Log Pow                                     | : No data available                                                                                                                               |
| Log Kow                                     | : No data available                                                                                                                               |
| Viscosity, kinematic                        | : No data available                                                                                                                               |
| Viscosity, dynamic                          | : No data available                                                                                                                               |
| Explosive properties                        | : Not applicable - not flammable.                                                                                                                 |
| Oxidizing properties                        | : None.                                                                                                                                           |
| Explosive limits                            | : Not applicable - not flammable                                                                                                                  |

### 9.2. Other information

|             |                                                                                                                      |
|-------------|----------------------------------------------------------------------------------------------------------------------|
| Miscibility | : Miscible with alcohol, chloroform, trichloroethylene, acetone, benzene, ether, petroleum ether and with fixed oils |
|-------------|----------------------------------------------------------------------------------------------------------------------|

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

None known.

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### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

None known.

### 10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

### 10.5. Incompatible materials

None known.

### 10.6. Hazardous decomposition products

Under normal conditions of storage and use hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Inhalation: Harmful if inhaled.

| Halothane ( f )151-67-7    |                  |
|----------------------------|------------------|
| LD50 oral rat              | 5450 µl/kg       |
| LC50 inhalation rat (mg/l) | 120 mg/l/4h      |
| LC50 inhalation rat (ppm)  | 29000 ppm/4h     |
| ATE US (gases)             | 4500.000 ppmV/4h |
| ATE US (dust, mist)        | 1.500 mg/l/4h    |

Skin corrosion/irritation : Causes skin irritation.

Serious eye damage/irritation : Causes serious eye damage.

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

(Based on available data, the classification criteria are not met. This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.)

Reproductive toxicity : Suspected of damaging fertility or the unborn child.

Specific target organ toxicity (single exposure) : May cause drowsiness or dizziness. May cause respiratory irritation.

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

Symptoms/injuries after inhalation : Harmful if inhaled. May cause drowsiness or dizziness. Corrosive to the respiratory tract.

Symptoms/injuries after skin contact : Causes skin irritation.

Symptoms/injuries after eye contact : Causes serious eye damage.

Symptoms/injuries after ingestion : Ingestion is not considered a potential route of exposure.

Symptoms/injuries upon intravenous administration : Not known.

Chronic symptoms : Suspected of damaging fertility. Suspected of damaging the unborn child.

## SECTION 12: Ecological information

### 12.1. Toxicity

No additional information available

### 12.2. Persistence and degradability

No additional information available

### 12.3. Bioaccumulative potential

No additional information available

### 12.4. Mobility in soil

No additional information available

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### 12.5. Other adverse effects

Effect on ozone layer : No known effects from this product.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste treatment methods : Contact supplier if guidance is required. Do not discharge into any place where its accumulation could be dangerous. Ensure that the emission levels from local regulations or operating permits are not exceeded.

Waste disposal recommendations : Refer to the CGA Pamphlet P-63 "Disposal of Gases" available at [www.cganet.com](http://www.cganet.com) for more guidance on suitable disposal methods.

## SECTION 14: Transport information

In accordance with DOT

Transport document description : UN3334 Aviation regulated liquid, n.o.s., 9, III

UN-No.(DOT) : UN3334

Proper Shipping Name (DOT) : Aviation regulated liquid, n.o.s.

Department of Transportation (DOT) Hazard Classes : 9 - Class 9 - Miscellaneous hazardous material 49 CFR 173.140

DOT Symbols : A - Material is regulated as a hazardous material only when be transported by air,G - Identifies PSN requiring a technical name

Packing group (DOT) : III - Minor Danger

DOT Special Provisions (49 CFR 172.102) : A35 - This includes any material which is not covered by any of the other classes but which has an anesthetic, narcotic, noxious or other similar properties such that, in the event of spillage or leakage on an aircraft, extreme annoyance or discomfort could be caused to crew members so as to prevent the correct performance of assigned duties.

DOT Packaging Exceptions (49 CFR 173.xxx) : 155

DOT Packaging Non Bulk (49 CFR 173.xxx) : 204

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : No limit

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : No limit

DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.

### Additional information

Other information : No supplementary information available.

### ADR

Transport document description : UN 3334 aviation regulated liquid, n.o.s., 9, III

Packing group (ADR) : III

Class (ADR) : 9 - Miscellaneous dangerous substances and articles

Classification code (ADR) : M11

### Transport by sea

UN-No. (IMDG) : 3334

### Air transport

UN-No.(IATA) : 3334

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

No additional information available

### 15.2. International regulations

#### CANADA

No additional information available

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### EU-Regulations

No additional information available

### Classification according to Regulation (EC) No. 1272/2008 [CLP]

|               |      |
|---------------|------|
| Skin Irrit. 2 | H315 |
| Eye Dam. 1    | H318 |
| Repr. 1B      | H360 |
| STOT SE 3     | H335 |

Full text of H-phrases: see section 16

### Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Not classified

### 15.2.2. National regulations

### 15.3. US State regulations

No additional information available

## SECTION 16: Other information

- Indication of changes : Revised safety data sheet in accordance with OSHA final rule on GHS implementation promulgated March 26, 2012.
- Other information : This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product.

Full text of H-phrases:

|                           |                                                             |
|---------------------------|-------------------------------------------------------------|
| Acute Tox. 4 (Inhalation) | Acute toxicity (inhalation) Category 4                      |
| Eye Dam. 1                | Serious eye damage/eye irritation Category 1                |
| Repr. 2                   | Reproductive toxicity Category 2                            |
| Skin Irrit. 2             | Skin corrosion/irritation Category 2                        |
| STOT SE 3                 | Specific target organ toxicity (single exposure) Category 3 |
| STOT SE 3                 | Specific target organ toxicity (single exposure) Category 3 |
| H315                      | Causes skin irritation                                      |
| H318                      | Causes serious eye damage                                   |
| H332                      | Harmful if inhaled                                          |
| H335                      | May cause respiratory irritation                            |
| H336                      | May cause drowsiness or dizziness                           |
| H361                      | Suspected of damaging fertility or the unborn child         |

SDS US (GHS HazCom 2012)

*This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of Air Liquide America Corporation'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 product 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.*