# Material Safety Data Sheet (MSDS)

## Isobutylene

### Product Identification

- **D.O.T. Shipping Name:** Isobutylene
- **Synonym (s):** Liquefied Petroleum Gas, Isobutene, 2 Methylpropene
- **D.O.T. I.D. Number:** UN-1055
- **D.O.T. Hazard Class:** 2.1 Flammable Gas
- **D.O.T. Label (s):** Flammable Gas
- **C.A.S. Number:** 115-11-7
- **Chemical Formula:** \( \text{C}_4\text{H}_8 \) or \((\text{CH}_3)_2\text{C}:\text{CH}_2\)

### Physical Data

- **Molecular Weight:** 56.108
- **Freezing Point:** \(-140.4^\circ\text{C}, -220.6^\circ\text{F}\)
- **Boiling Point:** \(-6.9^\circ\text{C}, 19.6^\circ\text{F}\)
- **Vapor Pressure:** 168 kPa (gauge), 24.3 psig @21.1°C
- **Specific Volume:** 0.418 m\(^3\)/kg, 6.7 ft\(^3\)/lb @ 1 atm, 21.1°C
- **Relative Density, (air=1):** 1.947 @ 1 atm, 25°C
- **Solubility in Water:** Negligible
- **Description:** At room temperature and atmospheric pressure isobutene is a colorless, flammable gas, with an unpleasant odor. It is shipped as a liquefied gas under its own vapor pressure.

### Fire and Explosion Hazard Data

- **Flammable Limits in Air:** 1.8 – 9.6 % by volume
- **Auto-Ignition Temperature:** 465°C, 869°F
- **Fire Fighting Procedures:**

  The only safe way to extinguish an isobutylene fire is to stop the flow of gas. If the flow cannot be stopped, let the fire burn out while cooling the cylinder and the surroundings using a water spray. Personnel may have to wear approach type protective suits and positive pressure self-contained breathing apparatus. Firefighters’ turnout gear may be inadequate. Small secondary fires may be brought under control by using carbon dioxide or a dry chemical fire extinguisher and stopping the flow.

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**UNUSUAL HAZARDS**

1. Cylinders exposed to fire may rupture with violent force. Extinguish surrounding fire and keep cylinders cool by applying water from a maximum possible distance with a water spray.
2. Flammable gases may spread from a spill after the fire is extinguished and be subject to re-ignition.

**HEALTH HAZARD DATA**

<table>
<thead>
<tr>
<th>PERMISSIBLE EXPOSURE LIMITS</th>
<th>OSHA TWA</th>
<th>None established.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASGIH TWA</td>
<td></td>
<td>None established.</td>
</tr>
</tbody>
</table>

**ACUTE EFFECTS**

Isobutylene is a simple asphyxiant. Inhalation of high concentrations may cause rapid respiration, dizziness, fatigue, and nausea. Massive exposure may cause unconsciousness and death. Contact with the liquid phase or with the cold has escaping from a cylinder may cause frostbite.

**CHRONIC EFFECTS**

None known.

**FIRST AID INFORMATION**

**INHALATION**

Move victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

**CONTACT**

Treat for frostbite.

**REACTIVITY DATE**

<table>
<thead>
<tr>
<th>STABILITY</th>
<th>( X ) Stable. (   ) Unstable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>INCOMPATIBILITY</td>
<td>Oxidizing materials and compounds that can add across double bonds.</td>
</tr>
<tr>
<td>HAZARDOUS DECOMPOSITION/OXIDATION PRODUCTS</td>
<td>Carbon monoxide, carbon dioxide.</td>
</tr>
<tr>
<td>POLYMERIZATION</td>
<td>( X ) Will not occur (   ) May occur</td>
</tr>
</tbody>
</table>

**SPILL OR LEAKAGE PROCEDURE**

Shut off all ignition sources and ventilate the area. For controlling large flow, personnel may have to wear approach-type protective suits and positive pressure self-contained breathing apparatus.

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**PRECAUTIONS**

- **STORAGE RECOMMENDATIONS**
  Cylinders should be stored and used in dry, cool, well-ventilated areas away from sources of heat or ignition. Do not store with oxidizers.

- **PERSONAL PROTECTIVE EQUIPMENT**
  1. Eye protection – Safety glasses should be worn.
  2. Respiratory protection – Approved respiratory equipment must be worn when airborne concentrations exceed safe levels.
  2. Skin protection – No specific equipment is required. Gloves are recommended for cylinder handling.

- **BEFORE USING THE GAS**
  1. Secure the cylinder to prevent it from failing or being knocked over.
  2. Leak check the lines and equipment.
  3. Have an emergency plan covering steps to be taken in the event of an accidental release.

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**DISCLAIMER**

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