



AIR LIQUIDE AMERICA SPECIALTY GASES, LLC  
Air\_Liquide\_America\_Specialty\_Gases,\_LLC

MATERIAL SAFETY DATA SHEETS  
DATE: 10/31/07

SUPPLIER ADDRESS: 500 WEAVER PARK RD  
  
LONGMONT, CO 80501  
EMERGENCY PHONE: (888) 253-1635  
NUMBER

## 1. CHEMICAL PRODUCT

PRODUCT NAME: ISOBUTANE

SYNONYMS: 2-methylpropane

## 2. COMPOSITION, INFORMATION ON INGREDIENTS

| Ingredient Name | Formula | CAS#    | Concentration | Exposure Limits (PPM) |          |     |            |
|-----------------|---------|---------|---------------|-----------------------|----------|-----|------------|
|                 |         |         |               | ACGIH TLV             | OSHA PEL | MAC | Other STEL |
| ISOBUTANE       | i-C4H10 | 75-28-5 | 99+%          | S/A                   | S/A      | S/A | S/A        |

Note: S/A = SIMPLE ASPHYXIAN

## 3. HAZARD IDENTIFICATION

### \*\*\* EMERGENCY OVERVIEW \*\*\*

Flammable liquid and gas under pressure.

Can form explosive mixtures with air.

May cause frostbite.

Material can be an asphyxiant if released in a confined area.

### POTENTIAL HEALTH EFFECTS

ROUTES OF ENTRY: Inhalation

ACUTE EFFECTS: Material acts as a simple asphyxiant by displacing air necessary for life. Symptoms include rapid respiration, muscular incoordination, fatigue, dizziness, nausea, vomiting, unconsciousness, and death. Pressure drop through valves and piping may cause extreme cold and frostbite on contact.

CHRONIC EFFECTS: Isobutane may be a cardiac sensitizer.

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE: None known

OTHER EFFECTS OF OVEREXPOSURE: None

CARCINOGENICITY (US Only):

NTP - No

IARC MONOGRAPHS - No

OSHA REGULATED - No

Continued ...



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#### 4. FIRST AID MEASURES

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**INHALATION:** Immediately remove victim to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.

**EYE CONTACT:** Immediately flush eyes, including under the eyelids, gently but thoroughly with plenty of running water for at least 15 minutes.

**SKIN CONTACT:** If frostbite occurs, flush affected areas with lukewarm water.

**INGESTION:** None

**IN EVENT OF EXPOSURE, CONSULT A PHYSICIAN**

**NOTE TO PHYSICIAN:** Avoid the use of epinephrine or other sympathomimetic amines. Any significantly exposed victim should be observed on a cardiac monitor in a quiet, relaxed atmosphere.

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#### 5. FIRE FIGHTING MEASURES

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**FLASH POINT:** -83 deg. C

**AUTOIGNITION TEMPERATURE:** 460 deg. C

**FLAMMABLE LIMITS:** Vol. %

LOWER: 1.8

UPPER: 8.4

**EXTINGUISHING MEDIA:** Carbon dioxide, water spray, or dry chemical.

**SPECIAL FIRE FIGHTING INSTRUCTION AND EQUIPMENT:** Wear self-contained breathing apparatus and full protective clothing. Keep fire exposed cylinders cool with water spray. If possible, stop the product flow.

**HAZARDOUS COMBUSTION PRODUCTS:** Toxic carbon monoxide may be given off during combustion.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** Severe when exposed to heat or flame. Vapors may travel a considerable distance to the source of ignition and flash back. Cylinder rupture may occur under fire conditions.

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#### 6. ACCIDENTAL RELEASE MEASURES

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**CLEAN UP PROCEDURES:** Evacuate and ventilate area. Remove leaking cylinder to exhaust hood or safe outdoor area. Shut off source if possible and remove source of heat.

**SPECIALIZED EQUIPMENT:** None

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#### 7. HANDLING AND STORAGE

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**PRECAUTIONS TO BE TAKEN IN HANDLING:** Secure cylinder when using to protect from falling. Use suitable hand truck to move cylinders.

**PRECAUTIONS TO BE TAKEN IN STORAGE:** Store in well ventilated areas. Keep valve protection cap on cylinders when not in use.

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#### 8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

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**ENGINEERING CONTROLS:** Provide adequate general and local exhaust ventilation to maintain concentrations below flammable limits and to avoid asphyxiation.

##### PERSONAL PROTECTION

**EYE/FACE PROTECTION:** Safety glasses

**SKIN PROTECTION:** Protective gloves to prevent contact with cold equipment.

**RESPIRATORY PROTECTION:** In case of leakage, use self-contained breathing apparatus.

**OTHER PROTECTIVE EQUIPMENT:** Safety shoes when handling cylinders.

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#### 9. PHYSICAL AND CHEMICAL PROPERTIES

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**APPEARANCE:** Colorless

**ODOR:** Odorless

**PHYSICAL STATE:** Gas

**VAPOR PRESSURE:** @ 70 deg.F: 45 psia

**VAPOR DENSITY (AIR=1):** 2.06

**BOILING POINT (C):** -11.7

**SOLUBILITY IN WATER:** Slight

**SPECIFIC GRAVITY (H2O=1):** Gas

**EVAPORATION RATE:** Gas

**ODOR THRESHOLD:** N/Ap

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## 10.\_STABILITY\_AND\_REACTIVITY\_

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STABILITY: Stable under normal storage conditions.

CONDITIONS TO AVOID: Storage in poorly ventilated areas. Storage near a heat source.

MATERIALS TO AVOID: Oxidizing agents.

HAZARDOUS POLYMERIZATION: Will not occur.

HAZARDOUS DECOMPOSITION: Toxic carbon monoxide.

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## 11.\_TOXICOLOGICAL\_INFORMATION\_

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LETHAL CONCENTRATION (LC50): NONE ESTABLISHED

LETHAL DOSE 50 (LD50): N/Ap

TERATOGENICITY: N/Ap

REPRODUCTIVE EFFECTS: N/Ap

MUTAGENICITY: N/Ap

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## 12.\_ECOLOGICAL\_INFORMATION\_

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No adverse ecological effects are expected.

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## 13.\_DISPOSAL\_CONSIDERATIONS\_

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WASTE DISPOSAL METHOD: Dispose of non-refillable cylinders in accordance with federal, state and local regulations. Allow gas to vent slowly to atmosphere in an unconfined area or exhaust hood. If the cylinders are the refillable type, return cylinders to supplier with any valve outlet plugs or caps secured and valve protection caps in place.

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## 14.\_TRANSPORT\_INFORMATION\_

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CONCENTRATION: 99+%

DOT DESCRIPTION (US ONLY):

PROPER SHIPPING NAME: Isobutane

HAZARD CLASS: 2.1 (flammable)

IDENTIFICATION NUMBER: UN1969

REPORTABLE QUANTITIES: None

LABELING: FLAMMABLE GAS

ADR/RID (EU Only): Class 2,2F

SPECIAL PRECAUTIONS: Cylinders should be

transported in a secure upright position in a well ventilated truck.

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## 15.\_REGULATORY\_INFORMATION\_

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OSHA: Process Safety Management: Material is not listed in appendix A of 29 CFR 1910.119 as highly hazardous chemical.

TSCA: Material is listed in TSCA inventory.

SARA: The threshold planning quantity for material is 10,000 lbs.

EU NUMBER: 200-857-2

NUMBER IN ANNEX 1 OF DIR 67/548: Material is listed in annex 1.

EU CLASSIFICATION: N/Av

R: 13

S: 9-16-33

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## 16.\_OTHER\_INFORMATION\_

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OTHER PRECAUTIONS: Protect containers from physical damage. Do not deface cylinders or labels. Cylinders should be refilled by qualified producers of compressed gas. Shipment of a compressed gas cylinder which has not been filled by the owner or with his written consent is a violation of federal law (49 CFR).

### ABBREVIATIONS:

N/Ap - Not Applicable

N/Av - Not Available

SA - Simple Asphyxiant

NE - None Established

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