



1. Chemical Product

PRODUCT NAME: ISOBUTYLENE

CHEMICAL NAME: Isobutylene

COMMON NAMES/SYNONYMS: 2-Methylpropene, Isobutene

TDG (Canada) CLASSIFICATION: 2.1

WHMIS CLASSIFICATION: A, B1, D2B

2. Composition, Information on Ingredients

INGREDIENT % VOLUME PEL-OSHA¹ TLV-ACGIH² LD₅₀ or LC₅₀

Route/Species

Isobutylene

FORMULA: C₄H₈

CAS: 115-11-7

RTECS #: UDo890000

99.0 to 99.8 Simple Asphyxiant Simple Asphyxiant LC₅₀

620 mg/m₃/3H(rat)

¹ As stated in 29 CFR 1910, Subpart Z (revised July 1, 1993)

² As stated in the ACGIH 1994-95 Threshold Limit Values for Chemical Substances and Physical Agents

3. Hazards Identification

EMERGENCY OVERVIEW

This product does not contain oxygen and may cause asphyxia if released in a confined area.

Simple

hydrocarbons can cause irritation and central nervous system depression at high concentrations. flammable.

ROUTE OF ENTRY:

Skin Contact Yes

Skin Absorption No

Eye Contact Yes

Inhalation Yes

Ingestion No

PRODUCT NAME: ISOBUTYLENE

HEALTH EFFECTS:

Exposure Limits

No

Irritant

Yes

Sensitization

No

Teratogen

No

Reproductive Hazard

No

Mutagen

No

Synergistic Effects

None Reported

Carcinogenicity: -- NTP: No IARC: No OSHA: No

EYE EFFECTS:

Irritation may occur.

SKIN EFFECTS:

None anticipated as product is a gas at room temperature.

INGESTION EFFECTS:

Ingestion is unlikely.

INHALATION EFFECTS:

Product is relatively nontoxic. Simple hydrocarbons can irritate the eyes, mucous membranes and respiratory

system at high concentrations.

Inhalation of high concentrations may cause dizziness, disorientation, incoordination, narcosis, nausea or

narcotic effects.

This product may displace oxygen if released in a confined space. Maintain oxygen levels above 19.5% at sea

level to prevent asphyxiation.

Effects of oxygen deficiency resulting from simple asphyxiants may include: rapid breathing, diminished mental

alertness, impaired muscular coordination, faulty judgement, depression of all sensations, emotional instability,

and fatigue. As asphyxiation progresses, nausea, vomiting, prostration, and loss of consciousness may result,

eventually leading to convulsions, coma, and death.

Oxygen deficiency during pregnancy has produced developmental abnormalities in humans and experimental

animals.

NFPA HAZARD CODES HMIS HAZARD CODES RATINGS SYSTEM

Health: 1 Health: 1 0 = No Hazard

Flammability: 4 Flammability: 4 1 = Slight Hazard

Reactivity: 0 Reactivity: 0 2 = Moderate Hazard

3 = Serious Hazard

4 = Severe Hazard

4. First Aid Measures

EYES:

Never introduce oil or ointment into the eyes without medical advice! If pain is present, refer the victim to an

ophthalmologist for further treatment and follow up.

SKIN:

PRODUCT NAME: ISOBUTYLENE

Remove contaminated clothing and wash affected area with soap and water. If irritation persists, seek medical

attention.

INGESTION:

Not normally required. Seek immediate medical attention.

INHALATION:

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO PRODUCT. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED

BREATHING

APPARATUS. Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Quick

removal from the contaminated area is most important. Unconscious persons should be moved to an

uncontaminated area, given assisted (artificial) respiration and supplemental oxygen. Further treatment should

be symptomatic and supportive.

5. Fire Fighting Measures

Conditions of Flammability: Flammable liquid and vapor

Flash point:

-105 °F (-76 °C)

Method:

Closed Cup

Autoignition

Temperature: 869 °F (465 °C)

LEL(%): 1.8 UEL(%): 9.6

Hazardous combustion products: Carbon monoxide, Carbon dioxide

Sensitivity to mechanical shock: None

Sensitivity to static discharge: Not Available

FIRE AND EXPLOSION HAZARDS:

Isobutylene is heavier than air and may travel a considerable distance to an ignition source.

Isobutylene is a

flammable gas! Keep away from open flame and other sources of ignition. Do not allow smoking in storage

areas or when handling.

EXTINGUISHING MEDIA:

Water, carbon dioxide, dry chemical.

FIRE FIGHTING INSTRUCTIONS:

If possible, stop the flow of gas with a remote valve. Use water spray to cool fire exposed containers. If fire is

extinguished and flow of gas is continued, increase ventilation to prevent a build up of a flammable/ explosive

atmosphere. Extinguish sources of ignition.

Be cautious of a Boiling Liquid Evaporating Vapor Explosion, BLEVE, if flame is impinging on surrounding

containers. Direct 500 GPM water stream onto containers above the liquid level with remote monitors. Limit

the number of personnel in proximity to the fire. Evacuate surrounding areas to at least 3000 feet in all

directions.

6. Accidental Release Measures

Evacuate all personnel from affected area. Use appropriate protective equipment. Increase ventilation to

prevent build up of a flammable/explosive atmosphere. Extinguish all sources of ignition! If leak is in user's

equipment, be certain to purge piping with inert gas prior to attempting repairs. If leak is in container or

container valve, contact the appropriate emergency telephone number listed in Section 1 or call your closest

BOC location

PRODUCT NAME: ISOBUTYLENE

7. Handling and Storage

Earth bond and ground all lines and equipment associated with the product system. Electrical equipment should

be non-sparking and explosion proof.

Use only in well-ventilated areas. Valve protection caps must remain in place unless container is secured with

valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder

movement. Use a pressure regulator when connecting cylinder to lower pressure (<250 psig) piping or systems.

Do not heat cylinder by any means to increase the discharge rate of product from the cylinder.

Use a check

valve or trap in the discharge line to prevent hazardous back flow into the cylinder. Protect cylinders from physical damage. Store in cool, dry, well-ventilated area away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 130°F (54°C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in-first out" inventory system to prevent full cylinders from being stored for excessive periods of time. Post "No Smoking" signs in storage or use areas. For additional recommendations consult Compressed Gas Association Pamphlet P-1. Never carry a compressed gas cylinder or a container of a gas in cryogenic liquid form in an enclosed space such as a car trunk, van or station wagon. A leak can result in a fire, explosion, asphyxiation or a toxic exposure.

8. Exposure Controls, Personal Protection

EXPOSURE LIMITS¹:

INGREDIENT % VOLUME PEL-OSHA² TLV-ACGIH³ LD₅₀ or LC₅₀

Route/Species

Isobutylene

FORMULA: C₄H₈

CAS: 115-11-7

RTECS #: UDO890000

99.0 to 99.8 Simple Asphyxiant Simple Asphyxiant LC₅₀

620 mg/m³/3H

(rat)

¹ Refer to individual state of provincial regulations, as applicable, for limits which may be more stringent than those listed here.

² As stated in 29 CFR 1910, Subpart Z (revised July 1, 1993)

³ As stated in the ACGIH 1994-1995 Threshold Limit Values for Chemical Substances and Physical Agents.

ENGINEERING CONTROLS:

Use local exhaust to prevent accumulation. Use general ventilation to prevent build up of flammable concentrations. May use hood with forced ventilation when handling small quantities. If product is handled routinely where the potential for leaks exists, all electrical equipment must be rated for use in potentially flammable atmospheres. Consult the National Electrical Code for details.

EYE/FACE PROTECTION:

Safety goggles or glasses.

SKIN PROTECTION:

Protective gloves made of plastic or rubber.

PRODUCT NAME: ISOBUTYLENE

RESPIRATORY PROTECTION:

Positive pressure air line with full-face mask and escape bottle or self-contained breathing apparatus should be available for emergency use.

OTHER/GENERAL PROTECTION:

Safety shoes, safety shower, eyewash.

9. Physical and Chemical Properties

PARAMETER VALUE UNITS

Physical state (gas, liquid, solid) : Gas

Vapor pressure at 70°F : 39 psia

Vapor density at STP (Air = 1) : 1.98

Evaporation point : Not Available

Boiling point : 19.5

: -6.9°F°C

Freezing point : -220.6

: -140.3°F/C

pH : Not Available

Specific gravity : Not Available

Oil/water partition coefficient : Not Available

Solubility (H₂O) : Insoluble

Odor threshold : Not Available

Odor and appearance : A colorless gas with an unpleasant odor similar to that of burning coal.

10. Stability and Reactivity

STABILITY:

Stable

CONDITIONS TO AVOID (STABILITY):

None

INCOMPATIBLE MATERIALS:

Oxidizers

PRODUCT NAME: ISOBUTYLENE

HAZARDOUS DECOMPOSITION PRODUCTS:

Carbon monoxide

11. Toxicological Information

Oxygen deficiency during pregnancy has produced developmental abnormalities in humans and experimental animals.

No chronic effects data given in the Registry of Toxic Effects of Chemical Substances (RTECS) or Sax,

Dangerous Properties of Industrial Materials, 7th ed.

12. Ecological Information

No data given.

13. Disposal Considerations

Do not attempt to dispose of residual waste or unused quantities. Return in the shipping container PROPERLY

LABELED, WITH ANY VALVE OUTLET PLUGS OR CAPS SECURED AND VALVE PROTECTION CAP

IN PLACE to BOC Gases or authorized distributor for proper disposal.

14. Transport Information

PARAMETER United States DOT Canada TDG

PROPER SHIPPING NAME: Isobutylene Isobutylene

HAZARD CLASS: 2.1 2.1

IDENTIFICATION NUMBER: UN 1055 UN 1055

SHIPPING LABEL: FLAMMABLE GAS FLAMMABLE GAS

15. Regulatory Information

Isobutylene is listed under the accident prevention provisions of section 112(r) of the Clean Air Act (CAA) with a

threshold quantity (TQ) of 10,000 pounds.

SARA TITLE III NOTIFICATIONS AND INFORMATION

SARA TITLE III - HAZARD CLASSES:

Acute Health Hazard

Fire Hazard

Sudden Release of Pressure Hazard

16. Other Information

Compressed gas cylinders shall not be refilled without the express written permission of the owner. Shipment of

a compressed gas cylinder which has not been filled by the owner or with his/her (written) consent is a

violation of transportation regulations.

PRODUCT NAME: ISOBUTYLENE

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES:

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make
No representations as to the accuracy or completeness of the information contained herein, and assume no
Responsibility regarding the suitability of this information for the user's intended purposes or for the
Consequences of its use. Each individual should make a determination as to the suitability of the information for
their particular purpose(s).

www.sparchem.com