



# Material Safety Data

**Product Name :ISO BUTANE**

긴급전화번호 (Emerhency Telephone Number)  
061 - 688 - 6117 (24 hours)

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

### 1. Product

- Product Name : ISO BUTANE
- UN NO. : 1969

### 2. Advisable use and Restriction

- Advisable use : FUEL
- Restriction : Do not handle until all safety precautions have been read and understood.

### 3. Manufacturer information

- Manufacture company : YEOCHUN NCC
- Address: 2 Yeosusandan-3ro(205-6,Pyeongyeo-dong), Yeosu, Jeollanam-Do, Korea (555-210)
- Telephone: 82-61-688-6117

## 2. HAZARD IDENTIFICATION

### 1. Hazard classification

- FLAMMABLE GASES Category 1
- GASES UNDER PRESSURE Liqueied gas

### 2. Allocation label elements

- Symbol



- Signal Word : Danger
- Hazard statements
  - H220 Extremely flammable gas.
  - H280 Contains gas under pressure; may explode if heated.
- Precautionary statements
  - Prevention

P210 Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

– Response

P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

P381 Eliminate all ignition sources if safe to do so.

– Storage

P403 Store in a well-ventilated place.

P410 + P403 Protect from sunlight. Store in a well-ventilated place.

3. Other hazard information not included in hazard classification (NFPA)

Chemical Name	NFPA Level		
	Health	Flammability	Reactivity
ISOBUTANE	0	4	0

### 3. INGREDIENT INFORMATION

Components	Common name	CAS No.	PCT(M%)
ISOBUTANE	ISOBUTANE	75-28-5	95 ~ 100

### 4. FIRST AID MEASURES

1. Following eye contact

- It is unlikely that emergency treatment will be required for contact with the gas form.
- If contact with liquefied or compressed gas occurs, flush eyes with large amounts of water for at least 15–20 minutes until no evidence of chemical remains.
- Get medical attention immediately.

2. Following skin contact

- It is unlikely that emergency treatment will be required for contact with the gas form.
- If contact with liquefied or compressed gas occurs, flush skin with large amounts of water for at least 15–20 minutes until no evidence of chemical remains.
- Get medical aid immediately.
- Wash skin with soap and water.
- If frostbite or cryogenic burns occur, warm affected area in warm water at a temperature of 107°F(41.7°C).
- Seek immediate medical assistance.

3. Following inhalation

- Administer oxygen if breathing is difficult.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Give artificial respiration if victim is not breathing.
- Keep victim warm and quiet.
- Move to fresh air.
- Seek immediate medical assistance.

4. Following ingestion

- It is unlikely that emergency treatment will be required for contact with the gas form..

- It is unlikely that emergency treatment will be required.

#### 5. Advice to physician

- Do not apply drugs of the adrenaline ephedrine group.
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Exposures require specialized first aid with contact and medical follow-up .

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## 5. FIRE FIGHTING MEASURES

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### 1. Suitable/Unsuitable extinguishing media

#### Suitable extinguishing media

- CO2.
- Dry chemical.
- Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.
- Use dry sand or earth to smother fire.
- Water spray.

#### Unsuitable extinguishing media

- Direct water.

### 2. Specific hazards arising from the chemical

#### Pyrolytic product

- Can decompose at high temperatures forming toxic gases.

#### Risk of fire and explosion

- Containers may explode when heated.
- Cylinders exposed to fire may vent and release flammable gas through pressure relief devices.
- Extremely flammable gas.
- Extremely flammable.
- Fire may produce irritating and/or toxic gases.
- May ignited from heat, friction or contamination.
- May violently polymerize and result in fire and explosion.
- Some may burn but none ignite readily.
- When heated, vapors may form explosive mixtures with air: indoors, outdoors and sewers explosion hazards.
- Will be easily ignited by heat, sparks or flames.
- Will form explosive mixtures with air.

### 3. Special protective equipment for firefighters

- Contact may cause burns to skin and eyes.
- DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED.
- Evacuate area and fight fire from a safe distance.
- Fire involving Tanks: ALWAYS stay away from tanks engulfed in fire.
- 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: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
  
- Fire involving Tanks: For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

- Fire involving Tanks: Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Move containers from fire area if you can do it without risk.
- Rescuers should put on appropriate protective gear.
- Runoff may cause pollution.
- Ruptured cylinders may rocket.
- Substance may be transported hot.

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## 6. ACCIDENTAL RELEASE MEASURES

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### 1. Health considerations and protective equipment

- All equipment used when handling the product must be grounded.
- Do not direct water at source of leak.
- Do not enter areas which have more than 23.5% oxygen in the atmosphere, without respirator or air supplied mask.
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Do not touch or walk through spilled material.
- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- If possible, turn leaking containers so that gas escapes rather than liquid.
- Isolate area until gas has dispersed.
- Isolate hazard area.
- Keep unnecessary and unprotected personnel from entering.
- Please note that materials and conditions to be avoided.
- Stop leak if you can do it without risk.
- The very fine particles can cause a fire or explosion, eliminate all ignition sources.
- Ventilate the contaminated area.

### 2. Environmental precautions

- Prevent entry into waterways, sewers, basements or confined areas.

### 3. For cleaning up

- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
- Dike and collect water used to fight fire.
- Small Spill: Flush area with flooding quantities of water.

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## 7. HANDLING AND STORAGE

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### 1. Precautions for safe handling

- Caution: Dangerous fire hazard when exposed to heat, or flame, sparks.
- Use adequate machine for prevention when package handling.
- Wear an appropriate Personal protection. (See Exposure Controls/Personal Protection section.)

### 2. Conditions for safe storage (including any incompatibilities)

- Choose a place that can be protected from strong oxidizers and acid.
- Store containers: AVOID the place where can be damage and contamination.
- Store in a cool/low-temperature, well-ventilated {dry} place {away from heat and ignition sources}

## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

1. Exposure exposure limits, Biological exposure standard :

Components	Occupational exposure	ACGIH	Biological standard
ISOBUTANE	No data available	TWA 1000 ppm	No data available

2. Appropriate engineering controls

- Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
- Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

3. Personal protection equipment

- Respiratory protection
  - If high frequency of use or exposure, wear air respirator.
  - Wear breathing protection, which needs a confirmation from the Korea Occupational Safety and Health Agency.
- Eye protection
  - Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
  - Provide emergency showers and eyewash.
  - Wear suitable protective goggles and face shields.
- Hand protection
  - Wear Non-moisture permeable chemical resistance protective gloves(latex, nitrile rubber, PC) for prevent skin contact.
  - Wear insulated gloves.
  - Wear suitable protective gloves.
- Body protection
  - Wear suitable protective clothing.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Colorless gas
Odour	Gasoline-like or natural gas odor
Odour threshold	No data available
pH Values	N/A
Melting point/freezing point	-138.3℃
Initial boiling point and boiling range	-11.7℃
Flash point	-83℃ (Closed cup)
Evaporation rate	N/A
Flammability(solid, gas)	Extremely flammable gas
Upper/lower flammability or explosive limits	1.8~8.4 Vol %

Vapour pressure	3.48 x 10 <sup>2</sup> kPa (2611 mmHg (25°C))
Solubility(ies)	4.89 x 10 <sup>(-3)</sup> g/100mℓ (25°C, Water)
Vapor Densities	2 (Air =1)
Relative density	0.6 (Water = 1, Liquid)
n-octanol/water partition coefficient	2.76
Auto ignition temperature	460°C (Closed cup)
Decomposition temperature	No data available
Viscosity	0.238 cP (-10°C)
Molecular weight(mass)	58.12

## 10. STABILITY AND REACTIVITY

### 1. Stability and hazardous reactivity

- Can decompose at high temperatures forming toxic gases.
- Containers may explode when heated.
- Cylinders exposed to fire may vent and release flammable gas through pressure relief devices.
- Extremely flammable gas.
- Extremely flammable.
- Fire may produce irritating and/or toxic gases.
- Fire may produce irritating, corrosive and/or toxic gases.
- May cause toxic effects if inhaled.
- May violently polymerize and result in fire and explosion.
- Will form explosive mixtures with air.
- Some may burn but none ignite readily.
- Stable under normal temperatures and pressures.
- When heated, vapors may form explosive mixtures with air: indoors, outdoors and sewers explosion hazards.
- Will be easily ignited by heat, sparks or flames.

### 2. Conditions to avoid

- Ignition source(heat, spark, flame, etc.).

### 3. Materials to avoid

- Combustibles, reducing material.
- Irritating and/or toxic gas.

### 4. Hazardous decomposition products

- Corrosive/toxic fume.
- Irritating, corrosive and/or toxic gas.

## 11. TOXICOLOGICAL INFORMATION

### 1. Exposure route information

- Dermal, Inhalation exposure is possible since GAS

## 2. Health hazard information

※ No data of the product, thus data was described by the product component.

- Acute toxicity
  - Oral PRODUCT : N/A
    - ISOBUTANE : No data
  - Dermal PRODUCT : N/A
    - ISOBUTANE : No data
  - Inhalation–Gases PRODUCT : N/A
    - ISOBUTANE : N/A / LC50 520400 ~ 539600 ppm/2h Mouse ※ECHA
  - Inhalation–Vapours PRODUCT : N/A
    - ISOBUTANE : N/A
  - Inhalation–Dust/mist PRODUCT : N/A
    - ISOBUTANE : N/A
- SKIN CORROSION/IRRITATION PRODUCT : No data
  - ISOBUTANE : No data
- SERIOUS EYE DAMAGE/EYE IRRITATION PRODUCT : N/A
  - ISOBUTANE : N/A / Not irritating Rabbit
- RESPIRATORY SENSITIZATION PRODUCT : No data
  - ISOBUTANE : No data
- SKIN SENSITIZATION PRODUCT : No data
  - ISOBUTANE : No data
- CARCINOGENICITY PRODUCT : N/A
  - ISOBUTANE : N/A
    - OSHA : N/A
    - Notice of Employment and Labor : N/A
    - NTP : N/A
    - IARC : N/A
    - EU CLP : Carc. 1A (butadiene 0.1% or more)
    - ACGIH : N/A
- GERM CELL MUTAGENICITY PRODUCT : N/A
  - ISOBUTANE : N/A / Negative on the microbial retroactive mutation test EU CLP : 1B(butadiene 0.1% or more)
- REPRODUCTIVE TOXICITY PRODUCT : No data
  - ISOBUTANE : No data
- SPECIFIC TARGET ORGAN TOXICITY SINGLE EXPOSURE PRODUCT : No data
  - ISOBUTANE : No data
- SPECIFIC TARGET ORGAN TOXICITY REPEATED EXPOSURE PRODUCT : No data
  - ISOBUTANE : No data
- ASPIRATION HAZARD PRODUCT : No data
  - ISOBUTANE : No data

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## 12. ECOLOGICAL INFORMATION

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### 1. Aquatic toxicity PRODUCT

– ACUTE AQUATIC HAZARD : Not classified, LONG-TERM AQUATIC HAZARD : Not classified

- Fish
  - ISOBUTANE : No data
- Crustacea
  - ISOBUTANE : No data
- Aquatic algae
  - ISOBUTANE : No data

### 2. Persistence and degradation

- Degradation
  - ISOBUTANE : No data
- n-octanol water partition coefficient
  - ISOBUTANE : 2.76 log Kow

### 3. Bioaccumulative potential

- Bioaccumulation
  - ISOBUTANE : 1.57 ~ 1.97
- Biodegradation
  - ISOBUTANE : 65.7 (%) 35 day (aerobic, microbial, very well decomposed)

### 4. Mobility in soil

- Soil adsorption coefficient(Koc)
  - ISOBUTANE : No data

### 5. Other adverse effects

- Hazardous to ozone layer
  - ISOBUTANE : N/A
- Others
  - ISOBUTANE : No data

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## 13. DISPOSAL CONSIDERATIONS

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### 1. Disposal methods

– Dispose of container and unused contents in accordance with all applicable regulations.

### 2. Precautions (including disposal of contaminated container or package)

- Empty containers may explode and residues can be ignited when pressured, cut, weld, heated.
- Empty containers may rupture when pressured.
- Empty containers recycled under environmental laws.
- Wear an appropriate Personal protection. (See Exposure Controls/Personal Protection section.)

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## 14. TRANSPORT INFORMATION

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1. UN No : 1969
2. Proper shipping name : ISOBUTANE
3. Class or division : 2.1
4. Packing group : Not established
5. Marine pollutant : Not established
6. Special safety response for transportation or transportation measure :
  - Emergency measures in case of fire : F-D
  - Emergency measures in the effluent : S-U

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## 15. REGULATORY INFORMATION

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- EU Classification (CLASSIFICATION) PRODUCT : Not established
  - ISOBUTANE : F+; R12
- EU Classification (Risk Phrases) PRODUCT : Not established
  - ISOBUTANE : R12
- EU Classification (Safety Phrases) PRODUCT : Not established
  - ISOBUTANE : S:(2)-9-16
- 2006/507/EC PRODUCT : Not established
  - ISOBUTANE : Not established
- 689/2008/EC PRODUCT : Not established
  - ISOBUTANE : Not established
- Designation, Reportable Quantities, and Notification PRODUCT : Not established
  - ISOBUTANE : Not established
- Emergency Planning and Notification PRODUCT : Not established
  - ISOBUTANE : Not established
- Toxic Chemical Release Reporting – Community Right-to-Know PRODUCT : Not established
  - ISOBUTANE : Not established
- Process Safety Management of Highly Hazardous Chemicals PRODUCT : Not established
  - ISOBUTANE : Not established

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## 16. OTHER INFORMATION

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1. Reference
  - ACGIH
  - CCR
  - EU CLP
  - Exploring QSAR – Hydrophobic, Electronic, and Steric Constants.
  - HSDB

- IARC
- ICSC
- IUCLID
- NTP
- Non-Fluorinated Propellants and Solvents for Aerosols, chapter 6 pp 61-72.
- Non-Fluorinated Propellants and Solvents for Aerosols, chapter 6 pp 61-72. CRC Press, Cleveland, Ohio, USA
- OSHA
- Publication
- Study report
- The Estimation Programs Interface (EPI) Suite™ v4.00
- United States Environmental Protection Agency
- Washington, DC: American Chemical Society.

2. Prepare date : 2000.01.01

3. Revised date

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- 1.0.0 : 2016.09.09
- 2.0.0 : 2017.03.16
- 3.0.0 : 2018.01.31
- 4.0.0 : 2020.12.01

4. Other

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