Safety Data Sheet

according to 29 CFR 1910.1200 and 1907/2006/EC, Article 31

Date Printed: 05/22/2018 Version 3 Date Reviewed: 05/22/2018

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

· **Product Identifier:** **Isobutane**

· **Synonyms:** 2-methylpropane, i-butane

· **CAS Number:**
75-28-5

· **EC Number:**
200-857-2

· **Index Number:**
601-004-00-0

· **Product Use:** Various industrial uses.

· **Manufacturer/Supplier:**
Formosa Hydrocarbons
103 Fannin Road
Point Comfort, TX 77978 USA
+1 (361) 987-7000
E-Mail: MSDS@fpcusa.com

· **Business Division:** Formosa Hydrocarbons

· **Emergency Telephone Number:**
In case of a chemical emergency, contact CHEMTREC (24 hrs) at:
+1 (800) 424-9300 (United States, Canada, Puerto Rico, Virgin Islands)
+1 (703) 527-3887 (International & Maritime)

Section 2: Hazards Identification

· **Hazard Classification:**

GHS02

Flam. Gas 1 H220 Extremely flammable gas.

Press. Gas L H280 Contains gas under pressure; may explode if heated.

· **Other Hazards:** Exposure to rapidly expanding gas or vaporizing liquid may cause frostbite.

· **Signal Word:** DANGER

· **Precautionary Statements:**

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P241	Use explosion-proof electrical/ventilating/lighting/equipment.
P377	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381	Eliminate all ignition sources if safe to do so.
P403+P235	Store in a well-ventilated place. Keep cool.

· **NFPA Ratings (scale 0 - 4):**

Health = 0
Fire = 4
Reactivity = 0

(Contd. on Page 2)

Safety Data Sheet

according to 29 CFR 1910.1200 and 1907/2006/EC, Article 31

Product Identifier: Isobutane

(Contd. from Page 1)

· **Additional Information:**
If you do not understand the hazards or safety precautions described in this data sheet, contact your supervisor or safety administrator before handling this product.

Section 3: Composition/Information on Ingredients

· **Substances:**
· **CAS No. Description**
75-28-5 isobutane

· **EC Number:** 200-857-2

· **Index Number:** 601-004-00-0

Section 4: First Aid Measures

· **General information:**
Rescue personnel must wear appropriate protective equipment during removal of victims from contaminated areas.
Provide symptomatic and supportive care.

· **After Inhalation:**
Remove victim to fresh air.
Administer oxygen if breathing is difficult.
Administer artifical respiration if breathing has stopped.
Get immediate medical attention.

· **After Skin Contact:**
Remove contaminated clothing and shoes. Wash affected area with soap and water.
Get immediate medical attention.

· **After Eye Contact:**
In case of accidental contact, immediately flush eyes with water.
Hold eyelids open to ensure adequate flushing.
Remove contact lenses, if present and easy to do. Continue rinsing.
Get immediate medical attention.

· **After Swallowing:**
Administer 1-2 glasses of water to dilute ingested material.
Never give anything by mouth to an unconscious person.
Get immediate medical attention.

· **Most Important Symptoms and Effects:** No further relevant information available.

Section 5: Firefighting Measures

· **Suitable Extinguishing Agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

· **Special Firefighting Hazards:**
Extremely flammable gas.
Closed containers exposed to heat may explode.

(Contd. on Page 3)

Safety Data Sheet

according to 29 CFR 1910.1200 and 1907/2006/EC, Article 31

Date Printed: 05/22/2018 Version 3 Date Reviewed: 05/22/2018

Product Identifier: Isobutane

(Contd. from Page 2)

· **Protective Equipment:**
In the event of a fire, wear a NIOSH (USA) or CEN (EU) approved self-contained breathing apparatus (SCBA) and full protective clothing.

· **Additional Information:**
Water spray may be used to cool fire exposed containers, dilute spills to non-flammable mixtures, protect personnel attempting to stop leaks and disperse vapors.
Evacuate all non-essential personnel from the danger area.

Section 6: Accidental Release Measures

· **Personal Precautions, Protective Equipment and Emergency Procedures:**
In case of a spill or other accidental release of this material, contact your supervisor, safety administrator, or emergency response team immediately.
Restrict access to keep out unauthorized or unprotected personnel.
Stay upwind of spilled material.
Wear appropriate personal protective equipment during all clean-up activities. See Section 8 for more information.
Avoid inhalation and direct contact.
All clean-up personnel must be properly trained.

· **Environmental Precautions:** Keep spilled material out of sewage/drainage systems and waterways.

· **Methods for Containment and Clean-Up:**
Ensure adequate ventilation.
Secure the source of the leak if conditions are safe.
Place waste in an appropriate container for disposal.
Use care during clean-up to avoid exposure to the material and injury from broken containers.

Section 7: Handling and Storage

· **Precautions for Safe Handling:**
Use only in well ventilated areas.
Avoid inhalation and direct contact.

· **Protection Against Fires and Explosions:**
Keep away from heat, sparks, open flames and hot surfaces. No smoking.
Take precautions against static discharge.
Transfer and store in properly bonded and grounded containers.
Use spark and explosion-proof tools and equipment.

· **Conditions for Safe Storage:**
Store in closed, properly labeled containers.
Protect containers from heat, physical damage, ignition sources and incompatible materials.
Have emergency equipment for fires and spills readily available.

· **Additional Information:**
If you do not understand the hazards or safety precautions described in this data sheet, contact your supervisor or safety administrator before handling this product.

(Contd. on Page 4)

Safety Data Sheet

according to 29 CFR 1910.1200 and 1907/2006/EC, Article 31

Date Printed: 05/22/2018 Version 3 Date Reviewed: 05/22/2018

Product Identifier: Isobutane

(Contd. from Page 3)

Section 8: Exposure Controls/Personal Protection

· **Occupational Exposure Limits:**

75-28-5 isobutane

TLV (USA) Short-Term Value: 2370 mg/m³, 1000 ppm

· **Exposure Controls:**
Use local exhaust ventilation to control vapors.
Check ventilation for proper operation before starting work.
Ensure emergency eyewash and shower facilities are available.

· **General Protective and Hygienic Measures:**
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Contaminated work clothing must not be allowed out of the workplace.
Follow all safety precautions, posted signs and warnings.

· **Respiratory Protection:**
An industrial hygiene risk assessment is required to determine appropriate respiratory protection.
Wear a self-contained breathing apparatus (SCBA) if there is a potential for uncontrolled release, exposure levels are not known, or in other circumstances where air-purifying respirators may not provide adequate protection.

· **Hand Protection:**

Protective gloves.

Use caution when removing gloves to avoid exposure to hazardous chemicals.

· **Eye/Face Protection:**

Safety glasses with side shields.

· **Body Protection:** Flame resistant clothing (FRC).

· **Additional Information:**
If unusual exposures are expected, an industrial hygiene review of work practices, engineering controls and personal protective equipment is recommended.

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Section 9: Physical/Chemical Properties

· **Form:**	Gaseous
· **Color:**	Colorless
· **Odor:**	Odorless
· **Odor Threshold:**	Not determined.
· **pH Value:**	Not determined.

(Contd. on Page 5)

Safety Data Sheet

according to 29 CFR 1910.1200 and 1907/2006/EC, Article 31

Date Printed: 05/22/2018 Version 3 Date Reviewed: 05/22/2018

Product Identifier: Isobutane

(Contd. from Page 4)

· **Melting Point:**	-159.4 °C (-254.9 °F)
· **Boiling Point:**	-11.7 °C (10.9 °F)
· **Flash Point:**	Not determined. Not applicable.
· **Autoignition Temperature:**	460 °C (860 °F)
· **Lower Explosive Limit (LEL):**	1.8 Vol %
· **Upper Explosive Limit (UEL):**	8.5 Vol %
· **Vapor Pressure at 20 °C (68 °F):**	3,000 hPa (2,250.2 mm Hg)
· **Density at 20 °C (68 °F):**	0.55 g/cm³ (4.59 lbs/gal)
· **Vapor Density:**	Not determined.
· **Evaporation Rate:**	Not determined.
· **Solubility in Water at 20 °C (68 °F):**	0.049 g/l
· **Partition Coefficient (n-octanol/water):**	Not determined.

Section 10: Stability and Reactivity

· **Chemical Stability/Reactivity:** Stable if used and stored according to the specifications listed below.

· **Conditions to Avoid:**
Keep away from heat, sparks and open flames.
Keep away from incompatible materials.

· **Possibility of Hazardous Reactions/Incompatible Materials:**
Keep away from strong acids and bases.
Keep away from strong oxidizers.
Contact with strong oxidizers presents a serious explosion hazard.

· **Hazardous Decomposition Products:** No data available.

Section 11: Toxicological Information

· **Acute Toxicity:** Adverse nervous system effects.

· **Skin Irritation:** Based on available data, the classification criteria are not met.

· **Eye Irritation:** Based on available data, the classification criteria are not met.

· **Sensitization/Allergic Reaction:** No data available.

· **Additional Toxicological Information:**
High concentrations of aliphatic hydrocarbons may cause central nervous system depression. C1-C4 aliphatic hydrocarbon gases can cause potentially fatal cardiac arhythmias.

Section 12: Ecological Information

· **Aquatic Toxicity:** No data available.

(Contd. on Page 6)

Safety Data Sheet

according to 29 CFR 1910.1200 and 1907/2006/EC, Article 31

Date Printed: 05/22/2018 Version 3 Date Reviewed: 05/22/2018

Product Identifier: Isobutane

(Contd. from Page 5)

· **Persistence and Degradability:** No data available.

· **Bioaccumulative Potential:** No data available.

Section 13: Disposal Considerations

· **Disposal Instructions:**
Keep spilled material out of sewage/drainage systems and waterways.
Maximize product recovery for reuse or recycling.
Dispose of waste in accordance with applicable laws and regulations.

· **Additional Information:**
It is the responsiblity of the product user to determine at the time of disposal whether a material containing or derived from this product should be classified as hazardous waste.

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Section 14: Transport Information

· **UN Number:**

· **DOT, ADR, IMDG, IATA** UN1969

· **UN Proper Shipping Name:**

· **DOT:** Isobutane

· **ADR:** 1969 Isobutane

· **IMDG, IATA** ISOBUTANE

· **Transport Hazard Class(es):**

· **DOT:**

· **Class:** 2 Gases

· **Label:** 2.1

· **ADR:**

· **Class:** 2 2F Gases

· **Label:** 2.1

(Contd. on Page 7)

Safety Data Sheet

according to 29 CFR 1910.1200 and 1907/2006/EC, Article 31

Date Printed: 05/22/2018 Version 3 Date Reviewed: 05/22/2018

Product Identifier: Isobutane

(Contd. from Page 6)

· **IMDG, IATA**

· **Class:** 2 Gases

· **Label:** 2.1

· **Packing Group:**

· **DOT, ADR, IMDG, IATA** Not Applicable

· **Environmental Hazards:** Not applicable.

· **Marine Pollutant:** No

· **Special Precautions:** Warning: Gases

· **Danger Code (Kemler):** 23

· **EMS Number:** F-D,S-U

· **Stowage Category** E

· **Stowage Code** SW2 Clear of living quarters.

· **Additional Information:**

· **DOT:**

· **Quantity Limitations:** On passenger aircraft/rail: Forbidden
On cargo aircraft only: 150 kg

· **Remarks:** Shippers must consult transportation regulations for packaging instructions, quantity limitations and other regulatory information applicable to the desired mode of transport.

· **ADR:**

· **Excepted Quantities (EQ):** Code: E0
Not permitted as Excepted Quantity

· **Tunnel Restriction Code:** B/D

· **IMDG:**

· **Limited Quantities (LQ):** 0

· **Excepted Quantities (EQ):** Code: E0
Not permitted as Excepted Quantity

Section 15: Regulatory Information

· **U.S. Superfund Amendments & Reauthorization Act (SARA) 355 (Extremely Hazardous Substances):**
Substance is not listed.

· **U.S. Superfund Amendments & Reauthorization Act (SARA) 313 (Specific Toxic Chemical Listings):**
Substance is not listed.

· **U.S. Toxic Substances Control Act (TSCA):**
Substance is listed.

(Contd. on Page 8)

Safety Data Sheet

according to 29 CFR 1910.1200 and 1907/2006/EC, Article 31

Date Printed: 05/22/2018 Version 3 Date Reviewed: 05/22/2018

Product Identifier: Isobutane

(Contd. from Page 7)

· **California Proposition 65 Carcinogens:**
Substance is not listed.

· **Canadian Domestic Substances List (DSL):**
Substance is listed.

· **Canadian Ingredient Disclosure List (limit 0.1%)**
Substance is not listed.

· **Canadian Ingredient Disclosure List (limit 1%):**
Substance is not listed.

· **Container Labeling According to Regulation (EC) No 1272/2008:**
The substance is classified and labeled according to the CLP regulation.

· **Hazard Pictograms:**

GHS02

· **Signal Word:** DANGER

· **Hazard Statements:**
H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.

· **Other Hazards:** Exposure to rapidly expanding gas or vaporizing liquid may cause frostbite.

· **Precautionary Statements:**
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P241 Use explosion-proof electrical/ventilating/lighting/equipment.
P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 Eliminate all ignition sources if safe to do so.
P403+P235 Store in a well-ventilated place. Keep cool.

Section 16: Other Information

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Formosa Plastics Corporation, U.S.A. at the time it was prepared. Formosa Plastics Corporation, U.S.A. does not assume any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, Formosa Plastics Corporation, U.S.A. and its subsidiaries cannot guarantee that these are the only hazards that exist. Formosa Plastics Corporation, U.S.A. assumes no legal responsibility for loss, damage or expense arising out of, or in any way connected with, the handling, storage, use or disposal of this product.

· **Department Issuing Safety Data Sheet:** Corporate Environment, Health & Safety

· **Sources & References:**
This Safety Data Sheet conforms to regulation 1907/2006/EC (REACH). This product has been classified in accordance with European CLP regulations (1272/2008/EC) and the U.S. Hazard Communication standard (29 CFR 1910.1200).

(Contd. on Page 9)

Safety Data Sheet

according to 29 CFR 1910.1200 and 1907/2006/EC, Article 31

Date Printed: 05/22/2018 Version 3 Date Reviewed: 05/22/2018

Product Identifier: Isobutane

(Contd. from Page 8)

* - Indicates that data has been updated from the previous version.