



# SDS

COD:BI-HSE-SFO-0250-00

**Product Name:** BUTANE

**Company:** Bandar Imam Petrochemical Company- Faravaresh

**Catalogue NO:** S.B.1011.2

**Unit:** NF

## Section 1: Identification

<b>Product Name :</b> Butane	<b>Other Name:</b> n-Butane, Normal butane(NC4), Isobutane(IC4).			
<b>Formula:</b> C <sub>4</sub> H <sub>10</sub>	<b>CAS NO:</b> 106-97-8	<b>UN NO:</b> 1011	<b>Class:</b> 2	
<b>Identified Uses:</b> Industrial use, Welding.				
<b>Telephone &amp; Telefax:</b> 0615225-2300 ,2311		<b>Email Address:</b> dmooffice@bipc.org.ir		
<b>Emergency phone number:</b> 2222-125-119 / 2242-115				

## Section 2: Hazard(s) Identification

<b>Classification of the substance or mixture:</b> Flammable gases, Gases under pressure.		<b>Hazard pictogram</b>	
<b>Label elements:</b> Labelling according Regulation (EC) No 1272/2008.			
Signal word: DANGER.		<b>Flammable</b>	<b>compressed gas</b>

**Hazard statements :** EXTREMELY FLAMMABLE GAS. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED MAY CAUSE FROSTBITE. MAY FORM EXPLOSIVE MIXTURES WITH AIR.

### Precautionary statements

- **Prevention:** Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. Use only outdoors or in a well-ventilated area.
- **Response:** IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. In case of leakage, eliminate all ignition sources.
- **Storage:** Store in a well-ventilated place. Keep container tightly closed. Store locked up. Protect from sunlight. Store in a well-ventilated place.
- **Disposal:** Dispose of contents/ container to an approved waste disposal plant.

**Other hazards:** None.

## Section 3: Composition/Information on Ingredients

Name	Formula	CAS NO	Concentration%	Classification
Butane	C <sub>4</sub> H <sub>10</sub>	106-97-8	<= 100 %	Flammable gases, Gases under pressure.

**Mixture:** Not applicable.

## Section 4: First-Aid Measures

### Description of first aid measures

**After inhalation:** Move to fresh air. Artificial respiration and/or oxygen may be necessary. Seek medical advice.

**Following skin contact :** In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Wash contaminated clothing before reuse. Seek medical advice.

**After eye contact:** Remove contact lenses. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

**After swallowing:** Inhalation is greater hazard and first aid measures for this route of exposure should be considered first.

**Most important symptoms and effects,both acute and delayed:**First aider needs to protect himself.

**Indication of any immediate medical attention and special treatment needed:** None.

## Section 5: Fire-Fighting Measures

### Extinguishing Media

**Suitable extinguishing media:**Carbon dioxide, Dry chemical, Water spray or fog.

**Unsuitable extinguishing media:**No additional information available.

### Special hazards arising from the substance or mixture

- **Fire hazard:** EXTREMELY FLAMMABLE GAS. If venting or leaking gas catches fire, do not extinguish flames. Flammable vapors may spread from leak, creating an explosive reignition hazard. Vapors can be ignited by pilot lights, other flames, smoking, sparks, heaters, electrical equipment, static discharge, or other ignition sources at locations distant from product handling point. Explosive atmospheres may linger. Before entering an area, especially a confined area, check the atmosphere with an appropriate device.
- **Explosion hazard:**EXTREMELY FLAMMABLE GAS. Forms explosive mixtures with air and oxidizing agents.
- **Reactivity in case of fire:**No reactivity hazard other than the effects described in sub-sections up.

**Advice for firefighters:** Evacuate all personnel from the danger area. Use self-contained breathing apparatus (SCBA) and protective clothing. Immediately cool containers with water from maximum distance. Stop flow of gas if safe to do so, while continuing cooling water spray. Remove ignition sources if safe to do so. Remove containers from area of fire if safe to do so. On-site fire brigades must comply with their provincial and local fire code regulations.



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**Special protective equipment for firefighters:** Compressed gas: asphyxiant. Suffocation hazard by lack of oxygen. Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.

**Further information:** Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas containers to rupture. Cool endangered containers with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems. Stop flow of product if safe to do so. Use water spray or fog to knock down fire fumes if possible. Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive reignition may occur. Extinguish any other fire.

## Section 6: Accidental Release Measures

**Personal precautions ,protective equipment and emergency procedures for:**

**General measures:** Evacuate area. Ensure adequate air ventilation. Eliminate ignition sources. Prevent from entering sewers, basements and workpits , or any place where its accumulation can be dangerous. Consider the risk of potentially explosive atmospheres. Try to stop release. Wear self-contained breathing apparatus when entering area unless atmosphere is proven to be safe. Evacuate area. Ensure adequate ventilation. Stop leak if safe to do so.

**Advice for non-emergency personnel:** No additional information available.

**Advice for emergency responders:** Protective equipment see section 8.

**Environmental precautions:** Try to stop release. Prevent waste from contaminating the surrounding environment. Prevent soil and water pollution. Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.

**Methods and materials for containment and cleaning up:** Keep area evacuated and free from ignition sources until any spilled liquid has evaporated(ground free from frost)

**Reference to other sections:** See also sections 8 and 13.

## Section 7: Handling and Storage

**Precautions for safe handling**

- **Safe use of the product:** The product must be handled in accordance with good industrial hygiene and safety procedures. Only experienced and properly instructed persons should handle gases under pressure. Consider pressure relief device(s) in gas installations. Ensure the complete gas system was (or is regularly) checked for leaks before use. Do not smoke while handling product. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. Avoid suck back of water, acid and alkalis. Assess the risk of potentially explosive atmospheres and the need for explosion-proof equipment. Purge air from system before introducing gas. Take precautionary measures against static discharge. Keep away from ignition sources (including static discharges). Consider the use of only non-sparking tools. Do not breathe gas. Avoid release of product into atmosphere. Ensure equipment is adequately earthed.
- **Safe handling of the gas receptacle:** Refer to supplier's container handling instructions. Do not allow backfeed into the container. Protect cylinders from physical damage; do not drag, roll, slide or drop. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use. If user experiences any difficulty operating cylinder valve discontinue use and contact supplier. Never attempt to repair or modify container valves or safety relief devices. Damaged valves should be reported immediately to the supplier. Keep container valve outlets clean and free from contaminants particularly oil and water. Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment. Close container valve after each use and when empty, even if still connected to equipment. Never attempt to transfer gases from one cylinder/container to another. Never use direct flame or electrical heating devices to raise the pressure of a container. Do not remove or deface labels provided by the supplier for the identification of the cylinder contents. Suck back of water into the container must be prevented. Open valve slowly to avoid pressure shock.

**Conditions for safe storage, including any incompatibilities**

- Observe all regulations and local requirements regarding storage of containers. Containers should not be stored in conditions likely to encourage corrosion. Container valve guards or caps should be in place. Containers should be stored in the vertical position and properly secured to prevent them from falling over. Stored containers should be periodically checked for general condition and leakage. Keep container below 50°C in a well ventilated place. Store containers in location free from fire risk and away from sources of heat and ignition. Keep away from combustible materials. Segregate from oxidant gases and other oxidants in store. All electrical equipment in the storage areas should be compatible with the risk of a potentially explosive atmosphere.

**Specific end use(s):** None.

## Section 8: Exposure Controls/Personal Protection

**Engineering measures**

- **Appropriate engineering controls:** Provide adequate general and local exhaust ventilation. Product to be handled in a closed system. Systems under pressure should be regularly checked for leakages. Ensure exposure is below occupational exposure limits (where available). Gas detectors should be used when flammable gases/vapours may be released. Consider the use of a work permit system e.g. for maintenance activities.



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**Individual protection measures:** A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk. The following recommendations should be considered: PPE compliant to the recommended EN/ISO standards should be selected.

**Eye/face protection :** Wear goggles when transfilling or breaking transfer connections. Standard EN 166 - Personal eye-protection - specifications.

**Skin protection:**

- **Hand protection:** Wear working gloves when handling gas containers. Standard EN 388 - Protective gloves against mechanical risk. Wear cold insulating gloves when transfilling or breaking transfer connections. Standard EN 511 - Cold insulating gloves. Neoprene rubber (HNBR).
- **Other:** Consider the use of flame resistant anti-static safety clothing. Standard EN ISO 14116 - Limited flame spread materials. Standard EN ISO 1149-5 - Protective clothing: Electrostatic properties. Wear safety shoes while handling containers. Standard EN ISO 20345 - Personal protective equipment - Safety footwear.

**Respiratory protection :** Gas filters may be used if all surrounding conditions e.g. type and concentration of the contaminant(s) and duration of use are known. Use gas filters with full face mask, where exposure limits may be exceeded for a short-term period, e.g. connecting or disconnecting containers. Recommended: Filter AX (brown). Gas filters do not protect against oxygen deficiency. Standard EN 14387 - Gas filter(s), combined filter(s) and full face mask - EN 136.

**Thermal hazards:** None in addition to the above sections.

**Environmental exposure controls:** Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.

## Section 9: Physical and Chemical Properties

<b>From:</b> Gas.	<b>Relative density, gas (air=1):</b> 2.1	<b>PH:</b> Not applicable.
<b>Color:</b> Colourless.	<b>Relative density, liquid (water=1):</b> 0.6	<b>FLASH POINT:</b> -60 °C
<b>Odour:</b> Unpleasant.	<b>Vapour pressure [20°C]:</b> 2 bar.	<b>AUTOIGNITION TEMP:</b> 365 °C
<b>Molar Mass:</b> 58 g/mol	<b>Viscosity dynamic:</b> Not applicable.	<b>LEL (V/V %):</b> 1.4 %
<b>Solubility in water:</b> 88 mg/l	<b>Oxidizing properties:</b> Not applicable.	<b>UEL (V/V %):</b> 8.4 %
<b>Melting point/range:</b> -138 °C	<b>Decomposition temperat:</b> Not applicable.	
<b>Boiling point/range:</b> -0.5 °C	<b>Explosive properties:</b> Not applicable.	

## Section 10: Stability and Reactivity

**Reactivity:** No reactivity hazard other than the effects described in sub-sections below.

**Chemical stability:** Stable under normal conditions.

**Possibility of hazardous reactions**

**Violent reactions possible with:** Can form explosive mixture with air. May react violently with oxidants.

**Conditions to avoid:** Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Avoid moisture in installation systems.

**Incompatible materials:** Air, Oxidisers. For additional information on compatibility refer to ISO 11114.

**Hazardous decomposition products:** Under normal conditions of storage and use, hazardous decomposition products should not be Produced.

## Section 11: Toxicological Information

Information on toxicological effects		Endpoint	Species	Exposure route	Value
OT: 5000 PPM	TLV-TWA: 600 PPM	LD50	-	-	-
IDLH: -	TLV-STEL: 800 PPM	LC50	rat	inhalation	658 g/m <sup>3</sup> (Exposure time: 4 h)

**Sensitisation:** No known effects from this product. **Carcinogenicity:** No known effects from this product. **Carcinogenicity:** No known effects from this product.

**Specific target organ toxicity - single exposur:** No known effects from this product.

**Specific target organ toxicity - repeated exposure:** No known effects from this product.

**Aspiration hazard :** Not applicable for gases and gas mixtures.

**Further information:** -

## Section 12: Ecological Information (non-mandatory)

**Toxicity**

- **Bioaccumulative potential:** No ecological damage caused by this product.

**Persistence and degradability:** The substance is biodegradable. Unlikely to persist.

**Bioaccumulative potential:** Not expected to bioaccumulate due to the low log Kow (log Kow < 4).

**Mobility in soil:** Because of its high volatility, the product is unlikely to cause ground or water pollution. Partition into soil is unlikely.

**Other adverse effects**

- Effect on ozone layer: none.
- Effect on the global warming: No known effects from this product.



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## Section 13: Disposal Considerations (non-mandatory)

### Sewage disposal-relevant information :

- Contact supplier if guidance is required. Do not discharge into areas where there is a risk of forming an explosive mixture with air. Waste gas should be flared through a suitable burner with flash back arrestor. Do not discharge into any place where its accumulation could be dangerous. Ensure that the emission levels from local regulations or operating permits are not exceeded. Refer to the EIGA code of practice Doc.30 "Disposal of Gases", downloadable at <http://www.eiga.org> for more guidance on suitable disposal methods. Return unused product in original cylinder to supplier.

**Waste treatment of containers/packagings :** See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

**Additional information:** External treatment and disposal of waste should comply with applicable local and/or national regulations.

## Section 14: Transport Information (non-mandatory)

Basic shipping description:		Labelling
In accordance with TDG		
Transport hazard class : Flammable Gas.		
Proper shipping name: BUTANE	UN number:1011	Class: 2.1
Packing group : Not established.	Environmentally hazardous: None.	Special precautions for user : P200.

### Special transport precautions :

Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers: Ensure there is adequate ventilation. Ensure that containers are firmly secured. Ensure cylinder valve is closed and not leaking. Ensure valve outlet cap nut or plug (where provided) is correctly fitted. Ensure valve protection device (where provided) is correctly fitted.

## Section 15: Regulatory Information

### Safety , Health and Environmental regulations / legislation specific for the substance or mixture

#### EU regulations

- Restrictions on use: none.
- Seveso Directive : 2012/18/EU (Seveso III): Listed.

**National legislation:** Ensure all national/local regulations are observed.

**Chemical safety assessment:** A CSA has been carried out.

## Section 16: Other information

### Further information

**Training advice:** Ensure operators understand the flammability hazard.

**Other information:** When you mix two or more chemicals, you can create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an industrial hygienist or other trained person when you evaluate the end product. Before using any plastics, confirm their compatibility with this product.

To promote safe use of this product, a user should (1) notify employees, agents, and contractors of the information in this SDS and of any other known product hazards and safety information, (2) furnish this information to each purchaser of the product, and (3) ask each purchaser to notify its employees and customers of the product hazards and safety information.

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**Version:** 1.1

**Editors:** HS&E Manager.

### Reference:

according to Regulation (EC) No. 1907/2006

### DISCLAIMER OF LIABILITY

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.