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|  <p>National Petrochemical Company(NPC)</p> | <b>Material Safety Data Sheet (MSDS)</b><br><i>According to the Directives 91/155/CEE-2001/58/CE-ISO 11014-1</i> | Page: 1 of 8  |
|  | Product Name:  | Revision Number: 1  |
|  | <b>Propane</b>   |  <p>Reactivity<br/>Flammability<br/>Health</p> |

## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/ UNDERTAKING



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|--|--|
| <b>Identification of the substance or preparation:</b> | Alkanes (hydrocarbon) ,Aliphatic Hydrocarbon<br>Molecular Weight: 44.097<br>Formula: C <sub>3</sub> H <sub>8</sub> |
| <b>Country of origin:</b>                              | Iran (Islamic Republic of Iran)  |
| <b>CAS Number:</b>                                     | 74-98-6  |
| <b>Synonyms:</b>                                       | Dim ethyl methane, LP-Gas, Liquefied Petroleum Gas, (LPG), Propane, Propyl Hydride.                                |
| <b>Company/undertaking identification</b>              | National Petrochemical Company<br>Iran Petrochemical Commercial Company (IPCC)                                     |
| <b>Manufacturer subcontractor:</b>                     | None   |
| <b>Emergency phone number:</b>                         | 00982188881735   |
| <b>Contact email:</b>                                  | msds@petrochem-ir.net  |
| <b>Fax:</b>  | 00982188839511   |
| <b>Association/Organization:</b>                       | None   |
| <b>Use of the substance/Preparation:</b>               | None   |

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

|  |   |
|--|---|
| <b>Hazardous substances:</b>   | Flammable liquid gas under pressure. Can form explosive mixtures with air. Can rapid suffocation.<br>Liquid may cause freeze burn similar to frostbite. |
| <b>Hazardous label(s):</b>   | Flammable gases   |
| <b>Toxicological characteristics:</b>                                  | May be harmful if inhaled. Asphyxiant at high concentration.<br>CHS has not conducted specific toxicity tests on this product.                          |
| <b>Substances present at a concentration below the minimum danger:</b> | Propane may contain various percentages of these hazardous components, depending on the source of supply.   |
| <b>Other component:</b>  |   |

## 3. IDENTIFICATION OF HAZARDS

|                      |   |
|----------------------|---|
| <b>Risk phrases:</b> | Flammable liquid gas under pressure. Can form explosive mixtures with air. Can rapid suffocation. Liquid may cause freeze burn similar to frostbite |
|----------------------|---|

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**Skin contact:** Direct contact with liquid propane can result in skin burns (frostbite). This material is a gas under normal atmospheric conditions thus no harmful effects from skin absorption are expected.

**Eye contact:** Contact with liquid can cause momentary freezing followed by swelling and eye damage.

**Inhalation :** High concentrations in confined spaces may limit oxygen available for breathing.

**If swallowed:** This material is a gas under normal atmospheric conditions and ingestion not expected to occur in normal use.

**Other information:** None

#### 4. FIRST AID MEASURES

As a general rule, in case of doubt or if symptoms persist, always call a doctor  
**NEVER induce swallowing in an unconscious person.**

**Skin contact :** Direct contact with liquid propane can result in skin burns (frostbite). This material is a gas under normal atmospheric conditions thus no harmful effects from skin absorption are expected.  
 Person suffering from lack of oxygen should be removed to fresh air. If victim is not breathing, apply artificial respiration. Keep victim warm and get medical attention.



**In case of exposure by inhalation:** Contact with liquid can cause freezing of tissue, flush thoroughly with lukewarm water for 15 minutes, occasionally lifting the upper and lower lids, until no evidence of chemical remaining. Get medical attention immediately.

**In case of splashes or contact with eyes:**

**Skin contact**  
**In case of swallowing:** If swallowed, get immediate medical attention.  
**Note of physician:**

#### 5. FIRE FIGHTING MEASURES

**Flammable class:** Flash point : -104° C  
 Auto ignition: 467.7° C  
 UEL:2.1 LEL:9.5

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**Suitable extinguishing media:**

Use dry chemical , co2 , water spray or fog for surrounding area .Do not extinguish gas fire unless the gas leak can be stopped . Use dry chemical or co2 for small fire. For large fire use water spray or fog, if there is no risk, move containers from fire area.

**Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases:**

Propane is easily ignited. It is heavier than air therefore can collect in low and confined areas, where there is an ignition source .Due to heat , pressure in a container can built up and container may rupture/explode if pressure relief devices should fail to function. Propane released from a properly functioning relief valve on an overheated container can also became ignited. Hazard combustion products isnot produced. Incomplete combustion may form carbon monoxide.

**Special protective equipment for fire fighting :**

In confined space use self contained breathing apparatus

**Other information:**

Prevent from entering sewers, basement and work pits, or any place where its accumulation can be dangerous.

**6. ACCIDENTAL RELEASE MEASURES**

**Personal precautions:**

Evacuate immediate area.

**Environmental precautions:**

Eliminate any possible sources of ignition and provide maximum ventilation. Shut off source of propane, if possible.

**Methods for cleaning up and disposal:**

Ventilate area.

**Other information:**



If leaking from container, or valve, contact your supplier.

**7. HANDLING AND STORAGE**

The regulations relating to storage premises apply to workshop where the product is handled :

**Handling:**

Valve protection caps must remain in place unless container is secured .Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure reducing

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**Storage:**

regulator when connecting cylinder to lower pressure piping or systems .Do not heat cylinder to increase discharge rate of product from the cylinder . Use a check valve or trap in the discharge line to prevent hazardous back flow in the cylinder.

Cylinder should be separated from oxygen cylinders or other oxidizers by distance of 6 meters or by barrier of noncombustible materials at least 1.5 meters high having a fire resistance rating of at least half an hour. Full and empty cylinder should be segregated. Empty cylinder retains some residue and should be treated as if they were full. Use at first - in , first - out inventory system to prevent from full containers being stored for long periods of time Use only in well ventilated area.

**Other information:**

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Exposure limit values:**

Propane :OSHA-TWA/PEL 1000 ppm

Butane : 800 ppm

Butane : ACGIH – TWA/PEL 800 ppm

**Exposure controls:**

Ensure adequate ventilation. Do not smoke while handling procedure.

**Personal protective equipment:**

Personal should never enter an area of high concentration without proper respiratory protection. Use a NIOSH approved self-contained breathing apparatus (SCBA) or equivalent operated in a pressure demand or other positive pressure mode in oxygen deficient environments or exposure concentration is unknown or if immediately dangerous life or health (IDLH) exist.

A respiratory protection program that meets OSHA, s 29CFR1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respiratory, s use.

**Eye protection:**

Use face shield or chemical type goggles where contact with material may occur such as when changing valves hose ,etc.

**Respiratory protection:**

Positive pressure air line with mask or self



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**Propane**



Reactivity  
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Health

**Hand protection:**

**Skin and body protection:**

**Health measures:**

**Environmental exposure controls:**

contained breathing apparatus should be available for emergency use.

Use gloves when contact with liquid propane is possible.

Use protective clothing, face shield, and gloves when contact with liquid propane is possible.

Local exhaust ventilation is necessary to prevent accumulation above the TWA.

Use safety shoes, safety shower.

Exposure to containing more than 10% may cause dizziness. Exposure to atmospheres containing 8%-10% or less oxygen will bring about unconsciousness without warning, and so quickly that individuals cannot help or protect themselves. Lack of sufficient oxygen may cause serious injury or death.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**General information:**

**Appearance (at 20°C):**

Extremely flammable gas.

A colourless and tasteless gas at normal temperature. An odorant (ethyl mercaptan) has been added to provide a strong unpleasant odour. Should propane – air mixture reach the ethyl mercaptan concentration will be approximately 0.5 ppm in air.

**Colour:**

Colorless

**Odour:**

Unodorised propane has a slightly sweet odor. If an odorant has been added it will have a strong unpleasant odor.

**PH (at 20°C):**

Not applicable.

**Boiling point/range (°C):**

-42.04°C @ 1 atm

**Flash point (°C):**

-104° C

**Flammability:**

1.2% -9.5%

**Auto-ignition temperature:**

467° C

**Explosive properties:**

Can form explosive mixtures with air.

**Oxidising properties:**

1.5 at (21° C ,1 atm)

**Vapour pressure (at 20°C):**

200 psi max(at:73 °C)

**Density (at 20°C):**

1.87 kg/m3

**Solubility (at 20°C) :**

water solubility: Negligible

**Viscosity (40°C):**



.0074 c.p.

**Evaporation rate:**

N/A

**Other information:**

Gas/vapor heavier than air. May accumulate in confined spaces, particularly at or below ground level.

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## 10. STABILITY AND REACTIVITY



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|--|--|
| <b>Stability:</b>                        | Stable   |
| <b>Conditions to avoid:</b>              | Heat, flames, sparks and other sources of ignition.  |
| <b>Material to avoid:</b>                | Avoid contact with incompatible materials, strong acids, Oxidizing agent such as chlorine (gas or liquid) and oxygen.    |
| <b>Hazardous decomposition products:</b> | Under fir condition, can yield carbon monoxide, carbon dioxide, fume, smoke, aldehydes and other decomposition products. |

## 11. TOXICOLOGICAL INFORMATION

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|--|--|
| <b>Acute toxicity:</b>                 | Acute toxicity data is not applicable to this product.   |
| <b>Sub chronic – chronic toxicity:</b> | Asphyxiant at high concentration. High concentrations in confined spaces may limit oxygen available for breathing.   |
| <b>Sensibilization:</b>                | None   |
| <b>Carcinogenicity:</b>                | This material has not been identified as a Carcinogen by NTP, IARC, or OSHA.   |
| <b>Reproductive effects:</b>           | None   |
| <b>Human experience:</b>               | None   |
| <b>Other information:</b>              | Propane is non-toxic and is a simple asphyxiant, however it dose have slight anesthetic properties and higher concentration may cause a narcotic effect and dizziness. |

## 12. ECOLOGICAL INFORMATION

|                                       |  |
|---------------------------------------|--|
| <b>Ecotoxicity:</b>                   | No known ecological damage caused by product.  |
| <b>Bio accumulative potential:</b>    | This product dose not contains any class 1 or 2 ozone depleting substances.  |
| <b>Mobility:</b>                      | None   |
| <b>Persistence and degradability:</b> | None   |
| <b>Other adverse effects:</b>         | No adverse ecological effects expected. The components of this mixture are not listed as marine pollutants by TDG regulations. |

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### 13. DISPOSAL CONSIDERATIONS

**Disposal of product:**

Do not attempt to dispose of residual or unused quantities. Return the cylinder to supplier. 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

**Disposal of packaging:**

Propane containers are special cylinder, and can be reused. Propane is non corrosive and may be used with any common structural material.

### 14. TRANSPORT INFORMATION

**Land transport:**

Container should be transported in a secure, upright position in a well ventilated vehicle.

**Hazard class:** 2.1

**UN NO:** 1978

**DOT shipping name :** propane

**DOT shipping label:** Flammable Gas

**Classification above.**

**Classification above.**

**Classification above.**

**N/A**

**ADR/RID:**

**Packaging group:**

**Maritime transport:**

**Air transport:**

### 15. REGULATORY INFORMATION

**Hazardous label(s):**



**Class:**2.1

**Safety phrases:**

**S 9 , S 16 , S 33.**

**Risk phrases:**

**R 12**

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## 16. OTHER INFORMATION



**The contents and format of this MSDS are in accordance with EEC Commission Directive 2001/58/EC**

### *Disclaimer of liability:*

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