

### 1. Identification of the Substance/ Preparation and of the Company

Product Name: **Propane**  
Chemical Formula:  $C_3H_8$   
Company Identification: Energas Limited  
Westmorland Street  
Hull HU2 0HX

**Emergency Telephone No: 01482 329333**

### 2. Composition/ Information on Ingredients

Substance/ Preparation: Preparation

Components/ Impurities: Liquefied Propane Gas consisting of predominantly  $C_3$  Hydrocarbons (propane and propene) with typically <50ppm of ethyl mercaptan or other similar odouring agent added to assist leak detection. Contains <0.1% 1,3 butadiene

**Hazardous Components:** Hydrocarbon C3-4 rich, petroleum distillate. EINICS No 601-003-00-5

CAS No 74-98-6, F+, R12 Extremely Flammable >90%

### 3. Hazard Identification

- Extremely flammable (F+).
- Readily forms an explosive air-vapour mixture at ambient temperatures.
- Vapour is heavier than air and may travel to remote sources of ignition (e.g. along drainage systems, into basements etc)
- Liquid leaks generate large volumes of flammable vapour (approx 250:1)
- Cold burns (frostbite) will result from skin / eye contact with liquid.
- Liquid release or vapour pressure jets present a risk of serious damage to the eyes.
- Abuse involving wilful inhalation of high concentrations of vapour, even for short periods, can produce unconsciousness, or might prove fatal. Inhalation may cause irritation to the nose and throat, headache, nausea, vomiting, dizziness and drowsiness. In poorly ventilated areas unconsciousness or asphyxiation may result.

### 4. First Aid Measures

#### **Inhalation:**

Remove the affected person to fresh air. If breathing has stopped, administer artificial respiration.

Give external cardiac massage if necessary. If the person is breathing but unconscious, place them in the recovery position. Obtain medical assistance immediately.

#### **Skin:**

In case of cold burns: flush with water to normalise temperature. Cover the burns with sterile dressings. Do not use ointments or powders. Obtain medical assistance immediately.

**Eyes:** Cold burns should be flushed with water to normalise temperature, cover the eye with a sterile dressing and obtain medical assistance immediately.

**Ingestion:** Not applicable.

### 5. Fire Fighting Measures

These materials are delivered, stored, and used at temperatures above their flash point. Avoid all naked flames, sparks, cigarettes etc.

- **IN CASE OF FIRE IMMEDIATELY ALERT THE FIRE BRIGADE.**
- Ensure an escape path is always available from any fire.
- If gas has ignited do not attempt to extinguish but stop gas flow and allow to burn out.

Use water spray to cool heat-exposed containers, and to protect surrounding areas and personnel effecting the shut off.

Every precaution must be taken to keep containers cool to avoid the possibility of a boiling liquid expanding vapour explosion (BLEVE)

#### **Extinguishing Media:**

- **Large fire:** none. Product flow must be stopped and container cooled by water spray. Water fog should be used to assist approach to the source of the fire. Large fires should only be fought by the Fire Brigade.

#### **DO NOT USE WATER JET.**

#### **Small fire:**

- Dry Powder
- DO NOT USE WATER OR FOAM

#### **Special Protective Equipment for Fire Fighters:**

In confined spaces use self-contained breathing apparatus

#### **Hazardous Combustion Products:**

Incomplete combustion may form carbon monoxide.

## 6. Accidental Release Measures

### **IMMEDIATE EMERGENCY ACTION:**

- Clear people away from the area to a safe place.
- Do not operate electrical equipment unless flameproof;
- Summon the emergency services;
- Treat or refer casualties if necessary.

### **FURTHER ACTION-FIRE.**

- Stop Product flow;
- Use dry powder or carbon dioxide extinguishers;
- Cool containers exposed to fire by using water / fog spray.

### **FURTHER ACTION – SPILLAGE**

If Safe:

- Extinguish all naked lights –AVOID MAKING SPARKS
- Position fire fighting equipment;
- Try to stop flow of liquid product;
- Cover drains and disperse vapour with water spray. Note: vapour may collect in confined spaces.

## 7. Handling and Storage

### **Handling:**

Refer to Energas Storage and Handling instructions. Cylinders containing Energas Liquefied Propane gas may be designed to give liquid or vapour offtake.

- Vapour offtake cylinders must be stored and used in the vertical position.
- Liquid offtake cylinders must be stored and used in the position indicated on the cylinder.

### **Storage:**

Store out of doors in a well ventilated storeroom. Segregate from oxidant gases or other flammable materials in store. Keep away from ignition sources. Keep container below 50°C in a well-ventilated place. Store cylinder upright.

## 8. Exposure Controls/ Personal Protection

### **EXPOSURE LIMIT VALUES.**

Occupational Exposure Limits:

Energas liquefied Propane gas is not subject to a specific OEL. However as a Liquefied petroleum gas the following OEL should be applied:

Liquefied Petroleum Gas\*: 1750mg/cm (1000ppm)  
8-hour reference period.

2180 mg/cm (1250 ppm) 15 min reference period.

- Pure Propane is identified as a simple asphyxiant and EH40 Para 60 applies.

### Recommended Protective Clothing

- Wear suitable gloves and overalls to prevent cold burns and frostbite.
- In filling operations wear protective clothing including impervious gloves safety goggles or face shield to BS EN 166, 167 and 168.
- When handling cylinders wear protective footwear to BS EN 345.

If operations are such that significant exposure to vapour may be anticipated, then suitable approved respiratory equipment should be worn.

## 9. Physical and Chemical Properties

Appearance/ Colour: Colourless liquid/ gas.

Odour: Odourless /odorant added to provide a distinctive smell.

Boiling Point: -42.1°C

Flash Point -104°C (PMCC)

Flammability Limited: 2% – 11 % in air

Auto Flammability: 460 - 580°C

Vapour Pressure: 7.5 bar at 15°C

Specific gravity (Liquid): 0.512 at 15°C

Specific gravity (Gas): 1.5 at 15°C (air = 1)

## 10. Stability and Reactivity

Energas Liquid Propane gas is stable at ambient temperatures. Hazardous polymerisation will not occur.

Conditions to Avoid:

- Sources of ignition
- Storage above 50 deg c

Materials to avoid:

- Strong oxidizing agents (e.g. chlorates, which may be used in agriculture, peroxides).

## 11. Toxicological Information

### **Eye Contact:**

Contact with liquid Propane gas will present a risk of serious damage to the eyes.

### **Skin Contact;**

Contact with liquid propane gas will cause cold burns and frostbite to the skin.

### **Inhalation:**

Low vapour concentrations may cause nausea, dizziness headaches and drowsiness.

May have a narcotic effect if high concentrations of vapour are inhaled, they may produce symptoms of Oxygen deficiency, which, coupled with central nervous system depression, may lead to rapid loss of consciousness.

### **Abuse:**

Under normal conditions of use the product is not hazardous; however, abuse involving deliberate inhalation of very high concentrations of vapour, even for short periods can produce unconsciousness and/or result in a sudden fatality.

## 12. Ecological Information

No known ecological effects from this product.

## 13. Disposal Considerations

Energas cylinders are the sole property of Energas Ltd. and should be returned to the local dealer/stockist.

Users are recommended to contact their local Energas representative when they wish to dispose of surplus quantities of Energas liquefied Propane Gas.

Do not discharge product into areas where there is a risk of forming an explosive mixture with air.

Empty packages may contain some remaining product. Hazard warning labels are a guide to the safe handling of empty packaging and should not be removed.

Empty containers represent a fire hazard as they may contain flammable residues and vapour. Never incinerate, crush, weld solder or braze empty containers.

## 14. Transport Information

Proper shipping name : Propane  
UN No. : 1978  
Class/ Division : 2.1  
ADR/RID item : 2F  
Emergency Action Code : 2YE  
Hazard Identification No. : 23  
CEFIC Tremcard No. : 27A/20g42  
Labelling ADR : Model No 2.1  
Flammable gas.

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 emergency.

Ensure all cylinder valves are closed and not leaking and the load is firmly secured and complies with the applicable regulations.

## 15. Regulatory Information

EC Classification: F+; R12

- Symbols - road transport symbols are used and selected to the most stringent product classification.

EC or ADR - Model No 2.1: Flammable gas.

### **Risk Phrases**

R12 Extremely flammable

### **Safety Phrases**

S2 Keep out of the reach of children

S9 Keep in a well ventilated place

S16 Keep away from sources of ignition

**NO SMOKING**

S33 Take precautionary measures against static discharge

## 16. Other Information

Valve Connection: BS 341 No. 4

Ensure all national/ local regulations are observed. Ensure all users of this product understand the flammability hazard and hazards of asphyxiation. Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.

Details given in this document are believed correct at the time of going to press.

Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted. Refer to Energas Limited General Safety and Handling Data Sheet for further details.

CYLINDER IDENTIFICATION TO BS EN 1089-3  
GROUND COLOUR: RED (RAL 3000)(Green or White Cylinder Shroud)

**ENERGAS GENERAL SAFETY AND HANDLING DATA**

**1. GENERAL**

Only trained persons should handle compressed gases.  
Observe all regulations and local requirements regarding the storage of containers.  
Do not remove or deface labels provided by the supplier for the identification of the container contents.  
Ascertain the identity of the gas before using it.  
Know and understand the properties and hazards associated with each gas before using it.  
When doubt exists as to the correct handling procedure for a particular gas contact the supplier.

**2 HANDLING AND USE**

Wear stout gloves.  
Never lift a container by the cap or guard unless the supplier states it is designed for that purpose.  
Use a trolley or other suitable device or technique for transporting heavy containers, even for a short distance.  
Where necessary wear suitable eye and face protection. The choice between safety glasses, chemical goggles, or full-face shield will depend on the pressure and nature of the gas being used.

Where necessary for toxic gases see that self-contained positive pressure breathing apparatus or full face air line respirator is available in the vicinity of the working area.  
Employ suitable pressure regulating devices on all containers when the gas is being emitted to systems with a lower pressure rating than that of the container.  
Assertion that all electrical systems in the area are suitable for service with each gas.

Never use direct flame or electrical heating devices to raise the pressure of a container. Containers should not be subjected to temperatures above 45°C.  
Never re-compress a gas mixture without consulting the supplier. Never attempt to transfer gases from one container to another.  
Do not use containers as rollers or supports, or for any other purpose than to contain the gas as supplied.  
Never permit oil, grease or other readily combustible substances to come into contact with valves of containers containing oxygen or other oxidants.

Keep container valve outlets clean and free from contaminants, particularly oil and water.  
Do not subject containers to abnormal mechanical shocks, which may cause damage to their valves or safety devices.

Never attempt to repair or modify container valves or safety relief devices. Damaged valves should be reported immediately to the supplier.  
Close the container valve whenever gas is not required even if the container is still connected to the equipment.

**3 STORAGE**

Containers should be stored in a well-ventilated area. Some gases will require a purpose built area.  
Store containers in a location free from fire risk and away from sources of heat and ignition. Designation as a no smoking area may be desirable.

Gas containers should be segregated in the storage area according to the various categories.

The storage area should be kept clear and access should be restricted to authorised persons only, the area should be clearly marked as a storage area and appropriate hazard warning signs displayed (Flammable Toxic etc.).  
The amount of flammable or toxic gases should be kept to a minimum.  
Flammable gases should be stored away from other combustible materials.

Containers held in storage should be periodically checked for general condition and leakage.  
Containers in storage should be properly secured to prevent toppling or rolling.  
Vertical storage is recommended where the container is designed for this.  
Container valves should be tightly closed and where appropriate, valve outlets should be capped or plugged. Protect containers stored in the open against rusting and extremes of weather.  
Containers should not be stored in conditions likely to encourage corrosion.  
Store full and empty containers separately and arrange full containers so that the oldest stock is used first.

**PRODUCTION SITE ADDRESSES**

**Engineering and Welding Limited**  
Westmorland Street  
Hull  
HU2 0HX

**Energas Limited**  
Haslams Lane  
Alfreton Road  
Derby, DE22 1EB

**Energas Limited**  
Brownroyd Street  
Off Thornton Road, Bradford  
West Yorkshire, BD8 9AF

Tel: 01482 329333  
Fax: 01482 212335

Tel: 01332 364121  
Fax: 01332 291590

Tel: 01274 549090  
Fax: 01274 548181

**FOR FURTHER INFORMATION CONTACT YOUR NEAREST DISTRIBUTION CENTRE**