

**Safety Data Sheet**

Product:

Propane

Page: 1/3

Date: 05/11/2020

1. IDENTIFICATION OF SUBSTANCE/PREPURATION AND OF THE COMPANY

Product Name Propane
Other/Generic Names R290
Chemical Formula C3H8
Product Use Refrigerant
Company Identification BNF Industries Pte Ltd
17 Changi South Street 1,
Singapore 486781
Emergency phone number (65) 6742 6118
Fax (65) 6742 6119

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Preparation Substance
Components/Impurities Contains no other components or impurities which will influence the classification of the product
CAS No.: 74-98-6
Index No.: 601-004-00-0
EC No. (from EINECS): 200-827-2
REACH Registration No.: 01-211986944-21

2. HAZARDS IDENTIFICATION**Classification of the substance or mixture****Classification acc. to Regulation (EC) No. 1272/2008/EC**

H220 Flammable gases – Category 1 - Danger
H280 Gases under pressure - Liquified gas - Warning

Classification acc. to Directive 67/548/EEC & 1999/45/EC

F+; R12
Extremely flammable

Risk advice to man and the environment

Liquefied gas. Contact with product may cause cold burns or frostbite

Label elements**Hazard pictograms:**

GHS02

GHS04

Signal word: Danger

Hazard statement(s):

H220 Extremely flammable gas
H280 Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

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.

4. FIRST AID MEASURES**First Aid Skin**

Promptly flush skin with water until all chemical is removed. If there is evidence of frostbite, bathe (do not rub) with lukewarm (not hot) water. If water is not available, cover with a clean, soft cloth or similar covering. Get medical attention if symptoms persist.

First Aid Eyes

Immediately flush eyes with large amounts of water for at least 15 minutes (in case of frostbite, water should be lukewarm, not hot) lifting eyelids occasionally to facilitate irrigation. Get medical attention if symptoms persist.

First Aid Inhalation

Immediately remove to fresh air. If breathing has stopped, give artificial respiration. Use oxygen as required, provided a qualified operator is available. Get medical attention immediately. DO NOT give epinephrine (adrenaline).

First Aid Ingestion

Ingestion is unlikely because of the physical properties and is not expected to be hazardous. DO NOT induce vomiting unless instructed to do so by a physician.

Advice to Physician: Because of the possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, should be used with special caution and only in situations of emergency life support. Treatment of overexposure should be directed at the control of symptoms and the clinical conditions.

5. FIRE FIGHTING MEASURES**Specific hazards**

Exposure to fire may cause containers to rupture/explode.

Hazardous combustion products

Incomplete combustion may form carbon monoxide.

Suitable extinguishing media

Carbon dioxide, dry powder, water fog. Use water spray or fog to control fire fumes.



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**Safety Data Sheet**

Product:

Propane

Page: 2/3

Date: 05/11/2020

Unsuitable extinguishing media

Do not use a solid water stream.

Specific methods

If possible, stop flow of product. Move container away from or cool with water from a protected position. Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive reignition may occur. Extinguish any other fire. Prevent water used in emergency cases from entering sewers and drainage systems.

Special protective equipment for firefighters

Normal firefighters' equipment consists of an appropriate SCBA (open-circuit positive pressure compressed air type) in combination with fire kit. Equipment and clothing to the following standards will provide a suitable level of protection for firefighters.

6. ACCIDENTAL RELEASE MEASURES**Personal precautions**

Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Ensure adequate air ventilation. Evacuate area. Eliminate ignition sources. Consider the risk of potentially explosive atmospheres. Prevent from entering sewers, basements and work pits, or any place where its accumulation can be dangerous. EN 137 Respiratory protective devices — Self-contained open-circuit compressed air breathing apparatus with full face mask — Requirements, testing, marking.

Environmental precautions

Try to stop release. Prevent from entering sewers, basements and work-pits or any place where its accumulation can be dangerous.

Clean up measures

Ventilate area.

7. HANDLING AND STORAGE**Handling**

Take precautionary measures against static discharge. Suck back of water into container must be prevented. Purge air from systems before introducing gas. Do not allow back-feed into the container. Use properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact gas supplier if in doubt. Keep away from ignition sources (including static discharges). Refer to suppliers container handling instructions.

Storage

Secure cylinders to prevent them from falling. Segregate from oxidant gases and other oxidants in store. Keep container below 50°C in a well ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Personal protection**

Do not smoke while handling product.

Eye/Face Protection

For normal conditions, wear safety glasses. Where there is reasonable probability of liquid contact, wear chemical safety goggles.

Skin Protection

Skin contact with refrigerant may cause frostbite. General work clothing and gloves (leather) should provide adequate protection. If prolonged contact with liquid or gas is anticipated, insulated gloves constructed of PVA, neoprene or butyl rubber should be used. Any contaminated clothing should be promptly removed and washed before reuse.

Respiratory Protection

None generally required for adequately ventilated work situations. For accidental release or non-ventilated situations, or release into confined space, where the concentration may be above the PEL of 1,000 ppm, use a self-contained, NIOSH approved breathing apparatus or supplied air respirator. For escape: use the former or a NIOSH approved gas mask with organic vapor canister.

Additional Recommendations

Where contact with liquid is likely, such as in a spill or leak, impervious boots and clothing should be worn. High dose-level warning signs are recommended for areas of principle exposure. Provide eyewash stations and quickdrench shower facilities at convenient locations. For tank cleaning operations, see OSHA regulations, 29 CFR 1910.132 and 29 CFR 1910.133.

Occupational exposure limits

TLV – TWA (ppm): 2500

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance/Colour:	Clear, colourless liquid and vapour
Physical State:	Gas at ambient temperatures
Molecular Weight:	44
Chemical Formula:	C ₃ H ₈
Odour:	Sweetish (poor warning properties at low concentrations)
pH:	Neutral
Boiling Point:	-42.1°C
Melting Point:	-199°C
Critical Temperature:	No data available
Flash Point:	N/A
Evaporation Rate:	>1 (CCL4 = 1.0)
Flammability:	Extremely flammable in the presence of ignition sources
Auto-ignition Temperature:	420°C
Upper/Lower explosive limit/ flammability limit:	9.5%/2.1% (V)
Vapor Pressure:	8.3 bar (20°C)
Vapor Density:	18.11kg/m ³ (20°C)



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Safety Data Sheet

Product:

Propane

Page: 3/3

Date: 05/11/2020

Liquid Density: 499.85 kg/m³ (20°C)

Water Solubility: 0.075 g/l

Relative Vapor Density: 1.5 (Air = 1)

Relative Liquid Density: 0.58 (Water = 1)

Other data

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

EmS Code: F-D, S-U

Marine pollutant: No

IATA

UN number: UN 1978

Proper shipping name: PROPANE

Class: 2.1

Packing group: P200

Label(s): 2.1

Packing instruction: 200

10. STABILITY AND REACTIVITY

Hazardous decomposition products

None

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Incompatible materials

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.

Other transport information

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 that they are firmly secured. Ensure that the valve outlet cap nut or plug (where provided) is correctly fitted. Ensure that the valve protection device (where provided) is correctly fitted. Ensure adequate ventilation. Ensure compliance with applicable regulations. Ensure that the container valve is closed and not leaking.

11. TOXICOLOGICAL INFORMATION

No known toxicological effect from this product.

12. ECOLOGICAL INFORMATION

No known ecological damage caused by this product.

13. DISPOSAL CONSIDERATIONS

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 flashback arrestor. Do not discharge into a place where its accumulation could be dangerous. Contact supplier if guidance is needed.

15. REGULATORY INFORMATION

Number in Annex I of Dir 67/548: 601-004-00-0

EC Classification: F+; R12

Labelling of cylinders

- Symbols Label 2.1: Flammable gas

- Risk phrases R12 Extremely flammable

- Safety phrases S9 Keep container in well ventilated place

S16 Keep away from ignition sources – No smoking

14. TRANSPORT INFORMATION

ADD/RID

UN number: UN 1978

Proper shipping name: PROPANE

Class: 2

Classification code: 2F

Hazard number: 23

Tunnel restriction code: (B/D)

Emergency action code: 2YE

Packing group: P200

Label(s): 2.1- Flammable gas

Environmental hazards: N/A

16. OTHER INFORMATION

Ensure all national/local regulations are observed. Ensure operators understand the flammability hazard. The hazard of asphyxiation is often overlooked and must be stressed during operator training. Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.

Advice

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

This MSDS is for information purposes only and is subject to change without notice.

IMDG

UN number: UN 1978

Proper shipping name: PROPANE

Class: 2.1

Packing group: P200

Labels: 2.1

