
1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name PROPANE BULK
Synonyms PROPANE

1.2 Uses and uses advised against

Uses INDUSTRIAL USE

1.3 Details of the supplier of the product

Supplier name INPEX OPERATIONS AUSTRALIA PTY LTD
Address Level 22, 100 St. Georges Terr, Perth, WA, 6000, AUSTRALIA
Telephone (08) 6213 6000

1.4 Emergency telephone numbers

Emergency 13 11 26 (PIC)
Emergency (08) 8983 8888

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

Physical Hazards

Flammable Gases: Category 1A
Gases Under Pressure: Liquefied gas

Health Hazards

Not classified as a Health Hazard

Environmental Hazards

Not classified as an Environmental Hazard

2.2 GHS Label elements

Signal word DANGER

Pictograms

**Hazard statements**

H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.

Prevention statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Response statements

P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 In case of leakage, eliminate all ignition sources.

Storage statements

P410 + P403 Protect from sunlight. Store in a well-ventilated place.

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Disposal statements

None allocated.

2.3 Other hazards

In high concentrations may cause asphyxiation. Contact with liquid may cause cold burns/frostbite.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

| Ingredient | CAS Number | EC Number | Content (v/v) |
|------------|------------|-----------|---------------|
| PROPANE | 74-98-6 | 200-827-9 | >95% |
| BUTANE | 106-97-8 | 203-448-7 | <1% |
| ETHANE | 74-84-0 | 200-814-8 | <1% |
| METHANE | 74-82-8 | 200-812-7 | <1% |
| PENTANES | - | - | <1% |

4. FIRST AID MEASURES

4.1 Description of first aid measures

| | |
|----------------------|--|
| Eye | Cold burns: Immediately flush with tepid water or with sterile saline solution. Hold eyelids apart and irrigate for 15 minutes. Seek medical attention. |
| Inhalation | If inhaled, remove from contaminated area. To protect rescuer, use an Air-line respirator or Self Contained Breathing Apparatus (SCBA). Be aware of possible explosive atmospheres. Apply artificial respiration if not breathing. Give oxygen if available. |
| Skin | Cold burns: Remove contaminated clothing and gently flush affected areas with warm water (30°C) for 15 minutes. It is recommended that warm water is applied to clothing before removing it so as to prevent further skin damage. Apply sterile dressing and treat as for a thermal burn. For large burns, immerse in warm water for 15 minutes. DO NOT apply any form of direct heat. Seek immediate medical attention. |
| Ingestion | Ingestion is not considered a potential route of exposure. |
| First aid facilities | Eye wash facilities and safety shower should be available. |

4.2 Most important symptoms and effects, both acute and delayed

In high concentrations may cause asphyxiation. Direct contact with the liquefied material or escaping compressed gas may cause frostbite injury.

4.3 Immediate medical attention and special treatment needed

Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Stop flow of gas if safe to do so, such as by slowly closing the cylinder valve.

5.2 Special hazards arising from the substance or mixture

Extremely flammable. Eliminate all ignition sources including cigarettes, open flames, spark producing switches/tools, heaters, naked lights, pilot lights, mobile phones etc. when handling.

5.3 Advice for firefighters

Temperatures in a fire may cause cylinders to rupture and internal pressure relief devices to be activated. Cool cylinders or containers exposed to fire by applying water from a protected location. Do not approach cylinders or containers suspected of being hot. This material is capable of forming explosive mixtures in air.

5.4 Hazchem code

| | |
|-----|---|
| 2YE | |
| 2 | Fine Water Spray. |
| Y | Risk of violent reaction or explosion. Wear full fire kit and breathing apparatus. Contain spill and run-off. |
| E | Evacuation of people in and around the immediate vicinity of the incident should be considered. |

6. ACCIDENTAL RELEASE MEASURES

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6.1 Personal precautions, protective equipment and emergency procedures

If the cylinder is leaking, evacuate area of personnel. Inform manufacturer/supplier of leak. Use Personal Protective Equipment (PPE) as detailed in Section 8 of the SDS. Ventilate area where possible and eliminate ignition sources.

6.2 Environmental precautions

Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

6.3 Methods of cleaning up

Stop the flow of material, if this is without risk. If the leak is irreparable, move the cylinder to a safe and well ventilated area, and allow to discharge. Keep area evacuated and free from ignition sources until any leaked or spilled liquid has evaporated.

6.4 Reference to other sections

See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities

Do not store near incompatible substances and sources of ignition. Cylinders should be stored: upright, prevented from falling, in a secure area; below 65°C, in a dry, well ventilated area constructed of non-combustible material with firm level floor (preferably concrete), away from areas of heavy traffic and emergency exits.

7.3 Specific end uses

No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Exposure standards

| Ingredient | Reference | TWA | | STEL | |
|------------|----------------|------------|-------|------|-------|
| | | ppm | mg/m³ | ppm | mg/m³ |
| Butane | SWA [AUS] | 800 | 1900 | -- | -- |
| Butane | SWA [Proposed] | -- | -- | 1000 | 2370 |
| Ethane | SWA [AUS] | Asphyxiant | | | |
| Methane | SWA [AUS] | Asphyxiant | | | |
| Propane | SWA [AUS] | Asphyxiant | | | |

Biological limits

No biological limit values have been entered for this product.

8.2 Exposure controls

Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical explosion proof extraction ventilation is recommended.

PPE

- Eye / Face Wear safety glasses.
- Hands Wear leather or insulated gloves.
- Body Wear coveralls.
- Respiratory Where an inhalation risk exists, wear Self Contained Breathing Apparatus (SCBA) or an Air-line / Full Facepiece Supplied-Air Respirator (SAR).



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

| | |
|---------------------------|---------------------|
| Appearance | COLOURLESS GAS |
| Odour | SLIGHT ODOUR |
| Flammability | EXTREMELY FLAMMABLE |
| Flash point | > -156°C |
| Boiling point | > -45°C |
| Melting point | NOT AVAILABLE |
| Evaporation rate | NOT AVAILABLE |
| pH | NOT AVAILABLE |
| Vapour density | 1.9 (Air = 1) |
| Relative density | NOT AVAILABLE |
| Solubility (water) | INSOLUBLE |
| Vapour pressure | NOT AVAILABLE |
| Upper explosion limit | 9.5 % (Propane) |
| Lower explosion limit | 2.0 % (Propane) |
| Partition coefficient | NOT AVAILABLE |
| Autoignition temperature | NOT AVAILABLE |
| Decomposition temperature | 450°C |
| Viscosity | NOT AVAILABLE |
| Explosive properties | NOT AVAILABLE |
| Oxidising properties | NOT AVAILABLE |
| Odour threshold | NOT AVAILABLE |

9.2 Other information

| | |
|----------------|-----------------|
| Freezing point | < -180°C |
| Density | 0.5 kg/L @ 15°C |

10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Polymerization will not occur.

10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials

Incompatible with oxidising agents (e.g. hypochlorites), acids (e.g. nitric acid), heat and ignition sources. Do not use natural rubber flexible hoses. Also incompatible (potentially violently) with oxygen, halogens and metal halides.

10.6 Hazardous decomposition products

May evolve toxic gases if heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity No known toxicological effects from this product. Based on available data, the classification criteria are not met.

Information available for the ingredients:

| Ingredient | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|------------|--------------------|--------------------|------------------------|
| PROPANE | Study not feasible | Study not feasible | > 800000 ppm/15M (rat) |
| BUTANE | Study not feasible | Study not feasible | 658000 mg/m3/4H (rat) |
| ETHANE | -- | -- | 658 mg/L/4hrs (rat) |
| METHANE | -- | -- | 326 gm/m3/2h (mouse) |

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| | |
|---------------------------------|--|
| Skin | Not classified as a skin irritant. Contact with the liquefied material or escaping compressed gas may cause frostbite injury. |
| Eye | Not classified as an eye irritant. Contact with the liquefied material or escaping compressed gas may cause frostbite injury. |
| Sensitisation | Not classified as causing skin or respiratory sensitisation. |
| Mutagenicity | Not classified as a mutagen. |
| Carcinogenicity | Not classified as a carcinogen. |
| Reproductive | Not classified as a reproductive toxin. |
| STOT - single exposure | Asphyxiant. Effects are proportional to oxygen displacement. Over exposure may result in dizziness, drowsiness, weakness, fatigue, breathing difficulties and unconsciousness. |
| STOT - repeated exposure | Not classified as causing organ damage from repeated exposure. |
| Aspiration | Not classified as causing aspiration. |

12. ECOLOGICAL INFORMATION

12.1 Toxicity

No information provided.

12.2 Persistence and degradability

No information provided.

12.3 Bioaccumulative potential

No information provided.

12.4 Mobility in soil

No information provided.

12.5 Other adverse effects

Gas at standard temperature and pressure and is expected to partition primarily to air.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

| | |
|-----------------------|--|
| Waste disposal | This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. |
| Legislation | Dispose of in accordance with relevant local legislation. |

14. TRANSPORT INFORMATION

CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE



| | LAND TRANSPORT (ADG) | SEA TRANSPORT (IMDG / IMO) | AIR TRANSPORT (IATA / ICAO) |
|------------------------------------|----------------------|----------------------------|-----------------------------|
| 14.1 UN Number | 1978 | 1978 | 1978 |
| 14.2 Proper Shipping Name | PROPANE | PROPANE | PROPANE |
| 14.3 Transport hazard class | 2.1 | 2.1 | 2.1 |
| 14.4 Packing Group | None allocated. | None allocated. | None allocated. |

14.5 Environmental hazards

No information provided.

14.6 Special precautions for user

| | |
|--------------------------|--|
| Hazchem code | 2YE |
| EmS | F-D, S-U |
| Other information | Ensure cylinder is separated from driver and that outlet of relief device is not obstructed. |

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

| | |
|---------------------------|---|
| Poison schedule | A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP). |
| Classifications | Safe Work Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals (GHS Revision 7). |
| Inventory listings | AUSTRALIA: AIIC (Australian Inventory of Industrial Chemicals) All components are listed on AIIC, or are exempt. |

16. OTHER INFORMATION

Additional information ASPHYXIANTS (1): When present in the atmospheres in high concentrations, asphyxiants reduce the oxygen concentration by displacement. Atmospheres deficient in oxygen do not provide adequate sensory warning of danger and most simple asphyxiants are odourless. Therefore it is not appropriate to recommend an exposure standard for each asphyxiant, but to maintain oxygen concentrations. However, some asphyxiants may be given an exposure standard due to the potential for narcotic effects at high concentrations or an explosion hazard.

ASPHYXIANTS (2): There is a significant hazard associated with workers entering poorly ventilated areas (e.g. tanks) where oxygen may be deficient. An air supplied breathing apparatus may be required if adequate ventilation is not ensured.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:

The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:

It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

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Abbreviations

| | |
|-------------------|---|
| ACGIH | American Conference of Governmental Industrial Hygienists |
| CAS # | Chemical Abstract Service number - used to uniquely identify chemical compounds |
| CNS | Central Nervous System |
| EC No. | EC No - European Community Number |
| EMS | Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods) |
| GHS | Globally Harmonized System |
| GTEPG | Group Text Emergency Procedure Guide |
| IARC | International Agency for Research on Cancer |
| LC50 | Lethal Concentration, 50% / Median Lethal Concentration |
| LD50 | Lethal Dose, 50% / Median Lethal Dose |
| mg/m ³ | Milligrams per Cubic Metre |
| OEL | Occupational Exposure Limit |
| pH | relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline). |
| ppm | Parts Per Million |
| STEL | Short-Term Exposure Limit |
| STOT-RE | Specific target organ toxicity (repeated exposure) |
| STOT-SE | Specific target organ toxicity (single exposure) |
| SUSMP | Standard for the Uniform Scheduling of Medicines and Poisons |
| SWA | Safe Work Australia |
| TLV | Threshold Limit Value |
| TWA | Time Weighted Average |

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

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