PetroChina International Jabung Ltd

Material Safety Data Sheet

PROPANE

1. COMPANY IDENTIFICATION

PetroChina International Jabung Ltd.
Desa Pandan Jaya
Kec. Geragai - Kab. Tanjung Jabung Timur
Jambi - Indonesia

EMERGENCY TELEPHONE NUMBER (24 HRS):
1. PetroChina International Jabung Ltd (+62 741) 570488
2. COMPANY CONTACT/ HSE BGP (business hours): (0741) 570488 Ext. 6454/6420

2. CHEMICAL PRODUCT AND COMPOSITION

INGREDIENT NAME	EXPOSURE LIMITS	CONCENTRATION PERCENT BY VOLUME
Propane CAS NUMBER: 74-98-6	OSHA PEL_TWA: 1000 ppm ACGIH TLV-TWA: NOIC: 2500ppm	96 min.
Ethane CAS NUMBER: 74-84-0	None established by OSHA or ACGIH Simple asphyxia	< 2
Mixed hydrocarbons [Butane (C4) higher]	N/A – Limits above will predominate	< 2.5

Light gases from fractionation of natural gal liquid having carbon numbers in the range of C3 through C4, predominantly propane an. This MSDS describes Propane, C3H8; other constituent's exhibit similar hazards-significant differences are noted as appropriate.

SYNONYMS: Dimethylmethane; Liquefied Petroleum Gas (LPG); Sales Propane

3. HAZARDS IDENTIFICATION

NFPA/HMIS:

Hazard Rating	NFPA		HMIS	
4 – Extreme				
3 – High	Fire	4	Fire	4
2 – Moderate	Health	1	Health	1
1 – Slight	Reactivity	0	Physical Hazard	0
0 – Insignificant				

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Consult local fire authorities.

19. HANDLING & STORAGE

Comply with state and local regulations covering liquefied petroleum gases.

Store small containers in well-ventilated areas, away from heat or sources of ignition.

Prohibit smoking in areas of storage or use.

20. EXPOSURE CONTROLS / PERSONAL PROTECTION

VENTILATION

Mechanical	: Provide as needed to keep concentration in air below TLV and LEL
Local Exhaust	: Continuous ventilation recommended.
Special	: Explosion proof fans and motors.

RESPIRATORY PROTECTION:
NIOSH approved self-contained breathing apparatus

PROTECTIVE GLOVES:
Impervious, insulated gloves recommended

EYE PROTECTION:
Face shield or goggles recommended

OTHER:
Impervious clothing for prolonged or repeated contact.

21. PHYSICAL AND CHEMICAL PROPERTIES

ODOR & APPEARANCE	Clear, Colorless liquefied gas with sweet petroleum odor.
SOLUBILITY IN WATER @ 70 Deg. F	0.008%
SPECIFIC GRAVITY (H20 = 1.00):	0.584
BOILING RANGE:	31.1 Deg. F
PRESENT VOLATILE BY VOLUME:	100%
VAPOR PRESSURE @ 70 Deg. F:	17 psig
VAPOR DENSITY (air = 1.00):	2.006
EVAPORATION RATE:	> 1 (Ethyl Ether = 1.0)

22. STABILITY AND RACTIVITY

STABILITY:

This product is table

INCOMPATIBILITY (Material to Avoid):

None

HAZARDOUS DECOMPOSITION PRODUCTS:

Carbon Monoxide, Volatile Hydrocarbon Vapors

HAZARDOUS POLYMERIZATION:

Can not occur.

CONDITION TO AVOID:

High Heat, Sparks & Open Flames

23. ECOLOGICAL INFORMATION

No data given

24. DISPOSAL CONSIDERATIONS

(1) Mechanical recovery
(2) Flare-Off at safe location (Vapors)
(3) Exhaust to atmosphere in safe location (No open flames)

OTHER DISPOSAL CONSIDERATIONS:

Disposal must comply with federal, state, and local disposal laws.

EMERGENY OVERVIEW

DANGER
EXTREMELY FLAMMABLE GAS
MAY CAUSE FLASH FIRE OR EXPLOSION
COMPRESSED GAS

High concentrations may exclude oxygen and cause dizziness and suffocation.
Contact with liquid or cold vapor may cause frostbite or freeze burn.

EYES

Vapors are not irritating. However, contact with liquid or cold vapor may cause frostbite, freeze burns, and permanent eye damage.

SKIN

Vapors are not irritating.

Direct contact to skin or mucous membranes with liquefied product or cold vapor may cause freeze burns and frostbite.

Contact to mucous membranes with liquefied product may cause frostbite and freeze burns.

Signs of frostbite include a change in the color of the skin to gray or white, possibly followed by blistering.

Skin may become inflamed and painful.

INGESTION

Ingestion is unlikely. Contact with mucous membranes with liquefied product may cause frostbite and freeze burns.

INHALATION

This product is considered to be non-toxic by inhalation. Inhalation of high concentrations may cause central nervous system depression such as dizziness, drowsiness, headache, and similar narcotic symptoms, but no long-term effects. Numbness, a "chilly" feeling, and vomiting have been reported from accidental exposures to high concentrations.

This product is a simple asphyxia. In high concentrations it will displace oxygen from the breathing atmosphere, particularly in confined spaces.

Signs of asphyxiation will be noticed when oxygen is reduced to below 16%, may occur in several stages.

Symptoms may include rapid breathing and pulse rate, headache, dizziness, visual disturbances, mental confusion, in coordination, mood changes, muscular weakness, tremors, cyanosis, narcosis and numbness of the extremities.

Unconsciousness leading to central nervous system injury and possibly death will occur when the atmospheric oxygen concentration is reduced to about 6% to 8% or less.

WARNING: The burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

CHRONIC & CARCINOGENICITY

None expected – see Section 11

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Individuals with pre-existing conditions of the heart, lungs, and blood may have increased susceptibility to symptoms of asphyxia.

4. FIRST AID MEASURES

EYES

In case of liquid contact with the eyes, open eyelids, wide to allow liquid to evaporate. Cover eyes to protect from light. Seek immediate medical attention.

SKIN

In case of blistering, frostbite or freeze burns seek immediate medical attention.

INGESTION

Risk of ingestion is extremely low. However, in cases of ingestion or oral exposure, seek immediate medical attention.

INHALATION

Remove person to fresh air.

If person is not breathing, ensure an open airway and administer CPR.

If necessary, provide additional oxygen once breathing is restored if trained to do so.

Seek medical attention immediately.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASH POINT:	-156°F (-104°C)
AUTHOIGNITION POINT:	842°F (450°C)
OSHA/NFPA FLAMMABILITY CLASS:	FLAMMABLE GAS
LOWER EXPLOSIVE LIMIT (%):	2.1
UPPER EXPLOSIVE LIMIT (%):	9.5

FIRE & EXPLOSION HAZARDS

Liquid releases flammable vapors at well below ambient temperatures and readily forms a flammable mixture with air.

Dangerous fire and explosion hazard when exposed to heat, sparks or flame.

Vapors are heavier than air and may travel long distances to a point of ignition and flash back.

Container may explode in heat or fire. Run-off to sewer may cause fire or explosion hazard.

EXTINGUISHING MEDIA

Dry chemical, carbon dioxide, Halon or water. However, fire should not be extinguished unless flow of gas can be immediately stopped.

FIRE FIGHTING INSTRUCTIONS

Gas fires should not be extinguished unless flow of gas can be immediately stopped. Shut off gas source and allow gas to burn out.

If spill or leak has not ignited, determine if water spray may assist in dispersing gas or vapor to protect personnel attempting to stop leak.

Use water to cool equipment, surfaces and containers exposed to fire and excessive heat.

For large fire the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure.

Isolate area, particularly around ends of storage vessels. Let vessel, tank car or container burn unless leak can be stopped.

Withdraw immediately in the event of a rising sound from a venting safety device.

Large fires typically require specially trained personnel and equipment to isolate and extinguish the fire.

Fire-fighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should required NIOSH/MSHA-approved pressure-demand self-contained breathing apparatus with full face-piece and full protective clothing.

See **Section 3** for the NFPA Hazard Rating.

6. ACCIDENTAL RELEASE MEASURES

ACTIVATE FACILITY'S SPILL CONTINGENCY or EMERGENCY RESPONSE PLAN

Evacuate non-essential personnel and secure all ignition sources.

No road flares, smoking or flames in hazard area.

Consider wind direction, stay up-wind and up-hill, if possible.

Evaluate the direction of product travel.

Vapor cloud may be white, but color will dissipate as cloud disperses – fire and explosion hazard is still present!

Stop the source of the release, if safe to do so.

Do not flush sewer or drainage systems.

Do not touch spilled liquid (frostbite/freeze burn hazard!).

Consider the use of water spray to disperse vapors.

Isolate the area until gas has dispersed.

Ventilate and gas test area before entering.

7. HANDLING & STORAGE

HANDLING & STORAGE PRECAUTIONS

Keep away from flame, sparks and excessive temperatures.

Store only in approved containers.

Bond and ground containers.

Use only in well ventilated areas.

See also applicable OSHA regulations for the handling and storage of this product, including, but not limited to, 29 CFR 1910.110 Storage and Handling of Liquefied Petroleum Gases.

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

ENGINEERING CONTROLS

Use adequate ventilation to keep gas and vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

Use explosion-proof equipment and lighting in classified/controlled areas

EYE & FACE PROTECTION

Where there is a possibility of liquid contact, wear splash-proof safety goggles and face shield.

SKIN PROTECTION

Where contact with liquid may occur, wear apron, face shield, and cold-impervious, insulating gloves.

RESPIRATORY PROTECTION

Use a NIOSH/MSHA approved positive-pressure, supplied air respirator with escape bottle or self-contained breathing apparatus (SCBA) for gas concentrations above occupational exposure limits, for potential for uncontrolled release, if exposure levels are not known, or in an oxygen-deficient atmosphere.

CAUTION: Flammability limits (i.e. explosion hazard) should be considered when assessing the need to expose personnel to concentrations requiring respiratory protection.

Refer to OSHA 29 CFR 1910.134, ANSI Z88.2-1992, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection.

9. PHYSICAL & CHEMICAL PROPERTIES

APPEARANCE

Colorless gas. Cold vapor cloud may be white but lack of visible gas cloud does not indicate absence of gas. A colorless liquid under pressure.

BASIC PHYSICAL PROPERTIES

BOILING POINT:	-43.8°F(-42.1°C)
VAPOR PRESSURE:	109.73 psig @ 70°F (21.1°C)
VAPOR DENSITY (air = 1):	1.56 @ 32°F(0°C)
SPECIFIC GRAVITY (H_2O = 1):	0.531 @ 32°F (0°C)
SOLUBILITY (H_2O):	Slight (62.4ppm) @ 77°F (25°C)

10. STABILITY and REACTIVITY

STABILITY: Stable. Hazardous polymerization will not occur.

CONDITIONS TO AVOID & INCOMPATIBLE MATERIALS

Keep away from strong oxidizers, ignition sources and heat.

Explosion hazard when exposed to chlorine dioxide.

Heating barium peroxide with propane causes violent exothermic reaction.

Heated chlorine-propane mixtures are explosive under some conditions.

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

11. ECOLOGICAL INFORMATION

Liquid release is only expected to cause localized, non-persistent environmental damage, such as freezing.

Biodegradation of this product may occur in soil and water.

Volatilization is expected to be the most important removal process in soil and water.

This product is expected to exist entirely in the vapor phase in ambient air.

12. DISPOSAL CONSIDERATIONS

Consult federal, state and local waste regulations to determine appropriate waste characterization of material and allowable disposal methods.

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BUTANE

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INGREDIENT NAME	EXPOSURE LIMITS CONCENTRATION
	PERCENT BY VOLUME
Propane	OSHA PEL_TWA: 1000 ppm
CAS NUMBER: 74-98-6	ACGIH TLV-TWA: < 2 NOIC: 2500ppm
Butane	OSHA PEL_TWA: 800 ppm
CAS NUMBER: 106-97-8	97 min. ACGIH TLV-TWA: 800 ppm
Pentane	None established by OSHA or ACGIH
CAS NUMBER: 74-84-0	< 1 Simple asphyxiant
Mixed hydrocarbons	N/A – Limits above will predominate
[Hexane (C6) higher]	< 0.01

*** Physical Hazard Due to Flammable Nature. Flammable when mixed with Air***

15. HAZARDS IDENTIFICATION

NFPA/HMIS:
Hazard Rating
NFPA
HMIS

4 – Extreme
3 – High
2 – Moderate
1 – Slight
0 – Insignificant

Fire 4 Fire 4
Health 1 Health 1
Reactivity 0
Physical Hazard 0

DANGER !

Physical Hazard due to Flammable Nature.
Flammable when mixed with Air

EYES

Liquid can cause severe irritation, redness, tearing, blurred vision, and possible freeze burns.

SKIN

Contact with evaporating liquid can cause frostbite.

INGESTION

Aspiration Hazard!

INHALATION

Inhalation of vapor may produce anesthetic effects and feeling of euphoria. Prolonged overexposure can cause rapid breathing, headache, dizziness, narcosis, unconsciousness, and death from asphyxiation, depending on concentration and time of exposure.

16. FIRST AID MEASURES

EYES

For liquid contact, irrigate with running water for minimum of 15 minutes. Consult physician immediately if frostbite occurs.

SKIN

For liquid contact, warm areas gradually and get medical attention if there is evidence of tissue damage. Flush area with plenty of water

INGESTION

Do not induce vomiting. Contact a Physician immediately.

INHALATION

Remove to fresh air. If breathing has stopped, restore breathing at once. Administer oxygen and get medical help.

17. FIRE FIGHTING MEASURES

FLASH POINT (METHOD):	-101 F (Open Cup)
UPPER EXPLOSIVE LIMIT (vol.) gas in air):	8.5%
LOWER EXPLOSIVE LIMIT (vol.) gas in air):	1.9%

EXTINGUISHING MEDIA:

Dry Chemical Extinguisher (B-C), Water

SPECIAL FIRE FIGHTING PROCEDURES:

Stop the release of materials if possible.

Cool the vapor space of the storage container with water spray.

Avoid accumulation of unburned materials.

Remove personnel in general area.

Observe maximum isolation when extinguishing fire.

Expansion of liquid AND CHANGE OF STATE FROM LIQUID to vapor will allow combustible mixture to encompass a large area.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Vapors are heavier than air and may travel along the ground or may be moved by ventilation systems and ignited by pilot lights, other flames, spark, heaters, smoking, electric motors, static discharge, or other ignition sources at locations distant from material handling point.

18. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Avoid sources of ignition-ventilate area.

Use water fog to evaporate or ventilate.

Protect body against contact with liquid.

If confined space – Use self-contained breathing apparatus.