



SAFETY DATA SHEET (SDS) PROPYLENE

1. Identification

SDS record number	:	PCS95002
Date of SDS	:	01 September 2023
Identity of the substance	:	Propylene
Product Description	:	Olefinic hydrocarbon
Other names/synonyms	:	Propene, Methylene, Methylethylene, 1-Propylene, 1-Propene (9CI)
Name of the supplier	:	PCS Pte. Ltd.
Recommended uses	:	Chemical feedstock.
Contact detail of the supplier	:	100 Ayer Merbau Road, Singapore 628277
	:	+65 68672102
24-Hour Emergency contact	:	Asia Pacific +65 3158 1074 (Singapore)
	:	China 400 120 6011
	:	Europe, Israel & Americas +44 (0) 1235 239 670 (UK)
	:	Middle East & Africa +44 (0) 1235 239 671 (UK)

2. Hazards Identification

GHS Classification

Hazard Class

- Flammable Gas
- Gases under pressure
- STOT (Single Exposure)

Hazard Category

- 1A
- Liquefied gas
- 3 (narcotic effects)

Pictograms



Signal Word: Danger

Hazard Statements

- Extremely flammable gas
- Contains gas under pressure; may explode if heated
- May cause drowsiness or dizziness

Precautionary Statements

Prevention

- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- Avoid breathing dust/fume/gas/mist/vapours/spray.
- Use only outdoors or in a well-ventilated area.



Response

- Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
- In case of leakage, eliminate all ignition sources.
- If INHALED: Remove person to fresh air and keep comfortable for breathing.
- Call a POISON CENTER/doctor/physician if you feel unwell.

Storage

- Store in a well-ventilated place. Keep container tightly closed.
- Protect from sunlight. Store in well-ventilated place.
- Store locked up.

Disposal

- Dispose of the contents in accordance to the local mandatory rules and regulations

Other Hazards which do not result in classification:

- High gas concentrations will displace available oxygen from the air, unconsciousness and death may occur suddenly from lack of oxygen

3. Composition/Information On Ingredients

Chemical identification : Propylene
Common name(s) / synonym(s) : Methylethene, Methylethylene, 1-Propylene, 1-Propene (9CI)
CAS number / EC number : 115-07-1

Chemical Identification	CAS number	Concentration
Propylene	115-07-1	≥ 99 wt%

4. First-Aid Measures

Inhalation: In emergency situations use proper respiratory protection to immediately remove the affected victim from exposure. Administer artificial respiration if breathing has stopped. Keep at rest. Call for prompt medical attention.

Eye Contact: First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.

Skin Contact: In case of cold burns caused by rapidly expanding gas or vaporizing liquid, get prompt medical attention.

On Frostbite: Rinse with plenty of water, do NOT remove clothes. Refer for medical attention.

Ingestion: First aid is not applicable.

5. Fire-Fighting Measures

Extinguishing Media

Fire Fighting: Use water spray to cool fire exposed surfaces and to protect personnel. Shut off fuel to fire if possible to do so without hazard. If a leak or spill has not ignited use water spray to disperse the vapours.

Either allow fire to burn out under controlled conditions or extinguish with foam or dry chemical. Try to cover liquid spills with foam.

**Small Fires**

- Dry chemical or CO₂.

Large Fires

- Water spray or fog.
- Move containers from fire area if you can do it without risk.

Fire Involving Tanks

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Do not direct water at source of leak or safety devices; icing may occur.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Always stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if impossible, withdraw from area and let fire burn.

Specific Hazards Arising From The Chemical:

- General Hazards: Extremely flammable; material will readily ignite at normal temperatures.
- Flammable Gas; may readily form flammable mixtures at or above the flash point.
- Auto-refrigeration; drains may become plugged and valves may become inoperable because of the formation of ice due to expanding vapours or vaporizing liquids.

Special Protective Equipment And Precautions For Fire Fighters

- A self-contained breathing apparatus (SCBA) is recommended for indoor fires and any significant outdoor fires.
- For small outdoor fires, which may easily be extinguished with a portable fire extinguisher, use of an SCBA is optional.

Extremely Flammable.

- Will be easily ignited by heat, sparks or flames.
- Will form explosive mixtures with air.
- Vapours from liquefied gas are initially heavier than air and spread along ground.
- Vapours may travel to source of ignition and flash back.
- Cylinders exposed to fire may vent and release flammable gas through pressure relief devices.
- Containers may explode when heated.
- Ruptured cylinders may rocket.
- High concentrations in the air cause a deficiency of oxygen with the risk of unconsciousness or death.
- Check oxygen content before entering area.
- Turn leaking cylinder with the leak up to prevent escape of gas in liquid state

6. Accidental Release Measures

Call Emergency Response

- Consult an expert on the disposal of recovered material.
- Ensure disposal in compliance with government requirements and ensure conformity to local disposal regulations.
- Notify the appropriate authorities immediately.
- Take all additional action necessary to prevent and remedy the adverse effects of the spill.

Spill Or Leak

- Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be earthed (grounded).
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- If possible, turn leaking containers so that gas escapes rather than liquid.



- Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.
- Do not direct water at spill or source of leak.
- Prevent spreading of vapors through sewers, ventilation systems and confined areas.
- Isolate area until gas has dispersed.

Caution: When in contact with refrigerated/cryogenic liquids, many materials become brittle and are likely to break without warning.

Evacuation

Large Spill

- Consider initial downwind evacuation for at least 800 meters (1/2 mile).

Fire

- If tank, rail car or tank truck is involved in a fire, Isolate for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions.
- As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind.
- Gas is heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Keep out of low areas.

7. Handling And Storage

- Keep container closed. Handle and open containers with care.
- Store in a cool, well ventilated place away from incompatible materials.
- Do not handle or store near an open flame, heat, or other sources of ignition.
- Protect material from direct sunlight.
- Material will accumulate static charges, which may cause an electrical spark (ignition source). Use proper earthing (grounding) procedures.
- Do not pressurize, cut, heat, or weld containers. Empty product containers may contain product residue.
- Do not reuse empty containers without commercial cleaning or reconditioning.
- Storage transport temperature: For refrigerated storage, -60°C (-75°F)
- Closed system, ventilation, explosion-proof electrical equipment and lighting.
- Prevent build-up of electrostatic charges (e.g. by grounding) if in liquid state.
- No open flames, No sparks, and No smoking

The gas is heavier than air and may travel along the ground; distant ignition possible and may accumulate in low ceiling spaces causing deficiency of oxygen. As a result of flow, agitation, etc., electrostatic charges can be generated.

8. Exposure Controls/Personal Protection

Control Parameters/ Exposure Limits

- Propylene (CAS: 115-07-1)
TLV: 500 ppm as TWA; (ACGIH)

Appropriate Engineering Controls

- The use of local exhaust ventilation is recommended to control emissions near the source.



- Laboratory samples should be handled in a fume hood.
- Provide mechanical ventilation of confined spaces.
- Use explosion-proof ventilation equipment.

Personal Protective Equipment (PPE)

- Cold insulating gloves and safety glasses should be worn.
- Where it is likely that frostbite hazards may occur from vaporizing liquid and expanding vapour, prevent contact with eyes and skin.
- Wear safety glasses with side shields, long sleeves and insulating gloves.
- Where concentrations in air may exceed the recommended levels and where engineering, work practices or other means of exposure reduction are not adequate, approved respirators may be necessary to prevent overexposure by inhalation.

9. Physical And Chemical Properties

Property	Value, Description
Appearance (physical state, colour etc);	Colourless liquid or gas
Odour	Faint
Odour threshold	Not available
pH	Not available
Melting/freezing point	-185°C
Initial boiling point and boiling range	-48°C
Flash point	-108°C (ASTM D56; Estimated; gas)
Evaporation rate	Not available
Flammability	Extremely flammable, can form explosive mixtures with air
Upper/lower explosive limits/ flammability limit	2 to 11.1 % by volume
Vapour pressure	63 kPa at -57°C
Relative vapour density	1.46 @ 1.013 bar, 0°C (Air = 1)
Density and/or Relative density	Relative Density: 0.52 at 15.5°C
Solubility	Solubility in Water: 0.02% at 38°C
Partition coefficient: n-octanol/water (log value)	log Pow: 1.77
Auto-ignition temperature	458°C
Decomposition temperature	Not available
Kinematic Viscosity @ 50 °C (cSt)	0.24 cSt at 24°C (Approximate)
Particle characteristics	Not applicable

10. Stability And Reactivity

Reactivity/Chemical stability: Reacts violently with oxidants causing fire and explosion hazard

Possibility of hazardous reactions: Hazardous polymerization will not occur

Conditions to avoid: Air contamination - causes peroxide formation



Incompatible materials: Concentrated mineral acids, halogens, nitrogen dioxide, oxidizing agents, molten sulphur, halogenated compounds

Hazardous decomposition products: None

11. Toxicological Information

Routes Of Exposure:

The substance can be absorbed into the body by inhalation.

Inhalation Risk:

On loss of containment this gas can cause suffocation by lowering the oxygen content of the air in confined areas. Vapour concentrations above recommended exposure levels are irritating to the eyes and the respiratory tract, may cause headaches and dizziness, are anaesthetic and may have other central nervous system effects. Causes suffocation (asphyxiant) if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels.

Effects Of Short-Term Exposure:

Rapid evaporation of the liquid may cause frostbite. The substance may cause effects on the central nervous system. Exposure could cause lowering of consciousness.

Eye Contact: Exposure to rapidly expanding gas or vaporizing liquids may cause frostbite (cold burns) or tissue damage.

Skin Contact: Exposure to rapidly expanding gas or vaporizing liquid may cause frostbite (cold burn). In case of frostbite, place affected area in warm water until circulation returns.

Ingestion: Not considered to be a hazard.

12. Ecological Information

No data on possible ecological toxicity.

13. Disposal Considerations

Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations.

Disposal should be in accordance with applicable regional, national, and local laws and regulations.

14. Transport Information

Land (ADR)

UN Number: 1077

UN proper shipping name: PROPYLENE

Class: 2

Packing Group: Not assigned

Labels: 2.1

Hazard Identification Number: 23

Air (IATA)

UN Number: 1077

UN proper shipping name: PROPYLENE

Class: 2

Packing Group: Not assigned



Labels: 2.1

Sea (IMDG)

UN Number: 1077

UN proper shipping name: PROPYLENE

Class: 2

Packing Group: Not assigned

Labels: 2.1

Marine pollutant: No

Transport in Bulk (Annex II of MARPOL 73/78 and the IBC code)

Not applicable

15. Regulatory Information

Workplace Safety and Health Act & Workplace Safety and Health (General Provisions) Regulations:
This product is subject to the SDS, labelling and PEL and other requirements in the Act/Regulations.

Fire Safety Act and Fire Safety (Petroleum and Flammable Materials) Regulations:
This product is subject to the requirements of this Regulations.

Maritime and Port Authority of Singapore (Dangerous Goods, Petroleum and Explosives) Regulations:
This product is subject to the requirements of this Regulations.

Chemical inventory status:

Australia, AIIIC: Yes

China, IECSC: Yes

Japan, ENCS: Yes

USA, TSCA: Yes

16. Other Information

Prepared By: Material Safety Committee

SDS Prepared on: 1/10/2010

Reviewed 1 on: 1/10/2013




Revised 2 on: 1/9/2018

Revised 3 on: 1/9/2023

Revision (2) Notes	
1	Sect. 2: Inserted pictogram corresponding to STOT (SE) Hazard Cat. 3
Revision (3) Notes	
1	Revised according to SS 586-3:2022
2	Sect. 2: Revised Flammable Gas hazard to Cat 1A, according to SS 586-2:2022
3	Sect. 14: Added relevant transport information
4	Sect. 15: Included applicable national regulations (Singapore)

CAUTION: The information given above ("the Information") relates only to the substance or mixture listed herein. The Information may not be valid when used in combination with any other substance or mixture or in any process. If the substance or mixture is to be used for a purpose other than that stated herein or under conditions other than specified herein, the Information cannot be relied upon as being complete or accurate, and the user is advised to consult the supplier before using the substance or mixture for such other purpose or under such other conditions. The Information is given based on information available at the indicated date of preparation and no representation or warranty is given that it will be correct as of any time after the indicated date of preparation.

GHS Label

Propylene			
			DANGER
<p><u>Hazard Statements</u></p> <ul style="list-style-type: none">• Extremely flammable gas• Contains gas under pressure; may explode if heated• May cause drowsiness or dizziness	<p><u>Precautionary Statements</u></p> <ul style="list-style-type: none">• Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.• Avoid breathing dust/fume/gas/mist/vapours/spray.• Use only outdoors or in well-ventilated area.		
For further information on this product, refer to Manufacturer's Safety Data Sheet			
Contact detail of the supplier :	100 Ayer Merbau Road, Singapore 628277		
Emergency contact :	+65 68672102		