

**Propylene (Polymer Grade, Unodorized)**

Version 1.1

Revision Date 2018-10-11

SECTION 1: Identification of the substance/mixture and of the company/undertaking**Product information**

Product Name : Propylene (Polymer Grade, Unodorized)

Company: Jubail Chevron Phillips Company
P.O. Box 11221
Jubail Industrial City
Saudi Arabia 31961SDS Requests: (800) 852-5530
Technical Information: (832) 813-4862
Responsible Party: Product Safety Group
Email:sds@cpchem.com**Emergency telephone:****Health:**

866.442.9628 (North America)

1.832.813.4984 (International)

Transport:

CHEMTREC 800.424.9300 or 703.527.3887(int'l)

Asia: CHEMWATCH (+612 9186 1132) China: 0532 8388 9090

EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Mexico CHEMTREC 01-800-681-9531 (24 hours)

South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

Argentina: +(54)-1159839431

Responsible Department : Product Safety and Toxicology Group

E-mail address : SDS@CPChem.com

Website : www.CPChem.com

SECTION 2: Hazards identification**Classification of the substance or mixture****Globally Harmonized System of Classification and Labeling of Chemicals (GHS)****GHS-Classification**: Flammable gases, Category 1
Gases under pressure, Liquefied gas

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GHS-Labeling

Symbol(s)



Signal Word

: Danger

Hazard Statements

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

Precautionary Statements

: **Prevention:**
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Response:
P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 In case of leakage, eliminate all ignition sources.
Storage:
P410 + P403 Protect from sunlight. Store in a well-ventilated place.**SECTION 3: Composition/information on ingredients**

Synonyms

: Propylene

Molecular formula

: C3H6

Chemical name	CAS-No. / EINECS-No.	Concentration [wt%]
Propylene	115-07-1	99
Propane	74-98-6	1

SECTION 4: First aid measures

General advice

: Move out of dangerous area. Show this material safety data sheet to the doctor in attendance.

If inhaled

: If unconscious, place in recovery position and seek medical advice. If symptoms persist, call a physician.

In case of eye contact

: Flush eyes with water as a precaution. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.

If swallowed

: Keep respiratory tract clear. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

SECTION 5: Firefighting measures

Flash point

: -108 °C (-162 °F)

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Autoignition temperature	:	460 °C (860 °F)
Suitable extinguishing media	:	Alcohol-resistant foam. Carbon dioxide (CO ₂). Dry chemical.
Unsuitable extinguishing media	:	High volume water jet.
Special protective equipment for fire-fighters	:	Wear self-contained breathing apparatus for firefighting if necessary.
Further information	:	For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.
Fire and explosion protection	:	Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.
Hazardous decomposition products	:	Carbon oxides.

SECTION 6: Accidental release measures

Personal precautions	:	Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
A quantitative risk assessment is not required for the environment.		
A quantitative risk assessment is not required for human health.		

SECTION 7: Handling and storage**Handling**

Advice on safe handling	:	For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations. NORMS based Radon, a radioactive gas, may be present as a trace component in natural gas, natural gas liquids and petrochemicals derived from natural gas. Special precautions should be taken when entering or dismantling equipment in this type of service. Equipment should be checked externally while in service for gamma radiation above background levels. This equipment may contain internal surface deposits of radioactive radon decay products. Minimize unnecessary exposures to these radioactive deposits. Exposures can be reduced by
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allowing a 4 hour idle (no flow) period before entering or dismantling equipment. During this time the short lived decay products will decay. Longer lived radio nuclides (Pb-210, Bi-210 and Po-210) may be present. Avoid direct skin contact with deposits of radioactivity on surfaces. Avoid generation of dust, smoke or fumes in the work area or if they cannot be avoided, wear a tested and certified respirator for radioactive dusts. Smoking, eating and drinking should be prohibited when working with this equipment. Employees should wash thoroughly with soap and water and discard contaminated clothing after entering or handling equipment having radioactive deposits.

Advice on protection against fire and explosion : Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.

Storage

Requirements for storage areas and containers : Prevent unauthorized access. No smoking. Keep container tightly closed in a dry and well-ventilated place. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

SECTION 8: Exposure controls/personal protection**Ingredients with workplace control parameters****DE**

Components	Basis	Value	Control parameters	Note
Propane	DE TRGS 900	AGW	1,000 ppm, 1,800 mg/m ³	DFG,

DFG Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission).

ID

Komponen	Dasar	Nilai	Parameter pengendalian	Catatan
Propilena	ID OEL	NAB	500 ppm,	★,
Propana	ID OEL	NAB	1,000 ppm,	●,

- Bahan-bahan kimia yang NAB-nya lebih tinggi dari Batas Pemaparan yang Diperkenankan (PEL) dari OSHA dan atau Batas Pemaparan yang Dianjurkan dari NIOSH
- ★ Adopsi tahun 1996

MY

Komponen	Dasar	Nilai	Parameter Kawalan	Nota
Propana	MY PEL	TWA	2,500 ppm,	

PH

Components	Basis	Value	Control parameters	Note
Propane	PH OEL	TWA	1,000 ppm, 1,800 mg/m ³	

US

Components	Basis	Value	Control parameters	Note
Propylene	ACGIH	TWA	500 ppm,	URT irr, asphyxia, A4,
Propane	OSHA Z-1	TWA	1,000 ppm, 1,800 mg/m ³	(b),
	OSHA Z-1-A	TWA	1,000 ppm, 1,800 mg/m ³	

- (b) The value in mg/m³ is approximate.
 A4 Not classifiable as a human carcinogen
 asphyxia Asphyxia
 URT irr Upper Respiratory Tract irritation

Engineering measures

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Adequate ventilation to control airborne concentrations below the exposure guidelines/limits. Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

Personal protective equipment

- Respiratory protection : Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as: Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.
- Hand protection : The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
- Eye protection : Eye wash bottle with pure water. Safety glasses.
- Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate: Flame retardant antistatic protective clothing. Workers should wear antistatic footwear.
- Hygiene measures : Wash hands before breaks and at the end of workday.

A quantitative risk assessment is not required for the environment.
A quantitative risk assessment is not required for human health.

SECTION 9: Physical and chemical properties**Information on basic physical and chemical properties****Appearance**

- Form : compressed liquefied gas
Physical state : Gaseous
Color : Colorless
Odor : Sweet

Safety data

- Flash point : -108 °C (-162 °F)
Lower explosion limit : 2.4 %(V)

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Upper explosion limit	: 10.1 %(V)
Oxidizing properties	: No
Autoignition temperature	: 460 °C (860 °F)
Molecular formula	: C ₃ H ₆
Molecular weight	: 42.09 g/mol
pH	: No data available
Freezing point	: -185 °C (-301 °F)
Boiling point/boiling range	: -47.7 °C (-53.9 °F)
Vapor pressure	: 238.50 PSI at 37.8 °C (100.0 °F) Method: Reid
Relative density	: 0.52 at 15.6 °C (60.1 °F)
Water solubility	: Soluble in hydrocarbon solvents; partially soluble in water.
Partition coefficient: n-octanol/water	: No data available
Viscosity, kinematic	: No data available
Relative vapor density	: 1.5 (Air = 1.0)
Evaporation rate	: No data available

SECTION 10: Stability and reactivity

Reactivity	: Stable under recommended storage conditions.
Chemical stability	: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Possibility of hazardous reactions	
Hazardous reactions	: Hazardous reactions: Hazardous polymerization does not occur. Further information: No decomposition if stored and applied as directed. Hazardous reactions: Vapors may form explosive mixture with

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air.

- Conditions to avoid** : Heat, flames and sparks.
- Materials to avoid** : May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
- Hazardous decomposition products** : Carbon oxides
- Other data** : No decomposition if stored and applied as directed.

SECTION 11: Toxicological information**Propylene (Polymer Grade, Unodorized)****Acute oral toxicity** : Negligible or unlikely exposure pathways**Acute inhalation toxicity**

Propylene : LC50: > 86 mg/l
 Exposure time: 4 h
 Species: Rat
 Test atmosphere: gas
 Test substance: yes

Propane : LC50: > 800000 ppm
 Exposure time: 15 min
 Species: Rat
 Test atmosphere: gas

Propylene (Polymer Grade, Unodorized)**Acute dermal toxicity** : Negligible or unlikely exposure pathways**Propylene (Polymer Grade, Unodorized)****Skin irritation** : No adverse effects expected.**Propylene (Polymer Grade, Unodorized)****Eye irritation** : No adverse effects expected.**Propylene (Polymer Grade, Unodorized)****Sensitization** : This information is not available.**Repeated dose toxicity**

Propylene : Species: Rat, Male and female
 Sex: Male and female
 Application Route: Inhalation
 Dose: 625,1250,2500,5000, 10000 ppm
 Exposure time: 14 wk
 Number of exposures: 6 Hr/d, 5 d/wk
 NOEL: 10000 ppm

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Species: Mouse, Male and female
 Sex: Male and female
 Application Route: Inhalation
 Dose: 625,1250,2500,5000, 10000 ppm
 Exposure time: 14 wk
 Number of exposures: 6 Hr/d, 5 d/wk
 NOEL: 10000 ppm

Species: Rat, Male and female
 Sex: Male and female
 Application Route: Inhalation
 Dose: 0, 5000, 10000 ppm
 Exposure time: 103 wk
 Number of exposures: 6 Hr/d, 5 d/wk
 Lowest observable effect level: 5000 ppm
 Not classified due to data which are conclusive although insufficient for classification.

Species: Mouse, Male and female
 Sex: Male and female
 Application Route: Inhalation
 Dose: 0, 5000, 10000 ppm
 Exposure time: 103 wk
 Number of exposures: 6 Hr/d, 5 d/wk
 Lowest observable effect level: 5000 ppm
 Not classified due to data which are conclusive although insufficient for classification.

Propane

Species: Monkey
 Application Route: Inhalation
 Dose: 0, 750 ppm
 Exposure time: 90 day
 Number of exposures: daily
 NOEL: > 750 ppm

Genotoxicity in vitro**Propylene**

: Test Type: Ames test
 Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 471
 Result: negative

Test Type: Mammalian cell gene mutation assay
 Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 476
 Result: Ambiguous

Propane

Test Type: Ames test
 Result: negative

Genotoxicity in vivo**Propylene**

: Test Type: Micronucleus test
 Species: Rat
 Route of Application: inhalation (gas)
 Method: OECD Test Guideline 474
 Result: negative

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Carcinogenicity

Propylene : Species: Rat
Dose: 0, 5000, 10000 ppm
Exposure time: 103 wks
Number of exposures: 6 h/d, 5 d/wk
Remarks: No evidence of carcinogenicity

Species: Mouse
Dose: 0, 5000, 10000 ppm
Exposure time: 103 wks
Number of exposures: 6 h/d, 5 d/wk
Remarks: No evidence of carcinogenicity

Reproductive toxicity

Propylene : Species: Rat
Sex: male and female
Application Route: Inhalation
Dose: 0, 5000, 10000 ppm
Number of exposures: 6 hrs/d, 5 d/wk
Test period: 103 wks
NOEL Parent: 10000 ppm

Species: Mouse
Sex: male and female
Application Route: Inhalation
Dose: 0, 5000, 10000 ppm
Number of exposures: 6 hrs/d, 5 d/wk
Test period: 103 wks
NOEL Parent: 10000 ppm

Propane : Species: Rat
Sex: male and female
Application Route: Inhalation
Dose: 0, 1200, 4000, 12000 ppm
Exposure time: 6 weeks
Number of exposures: 6 hours/day, 7 days/week
Test period: 6 weeks
Test substance: yes
Method: OECD Guideline 422
NOEL Parent: 12000 ppm
NOEL F1: 12000 ppm

Developmental Toxicity

Propylene : Species: Rat
Application Route: Inhalation
Dose: 0, 200, 1000, 10000 ppm
Number of exposures: 6 hrs/d
Test period: 14 d
Method: OECD Guideline 414
NOEL Teratogenicity: 10000 ppm
NOEL Maternal: 10000 pmm

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Aspiration toxicity : No aspiration toxicity classification.

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CMR effects

Propylene : Carcinogenicity: Animal testing did not show any carcinogenic effects.
 Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
 Teratogenicity: Animal testing did not show any effects on fetal development.
 Reproductive toxicity: Animal testing did not show any effects on fertility.

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Further information : This product contains NORMS based RADON:
 Carcinogenicity: IARC classification / Group 1 carcinogen
 Other: The amount of radon in the gas itself is not hazardous, but since radon rapidly decays ($t_{1/2}=3.82$ days) to form other radioactive elements including lead 210, polonium 210, and bismuth 210, equipments may contain radioactivity. The radon decay products are solids and therefore may attach to dust particles or form films in equipment. Inhalation, ingestions, or skin contact with radon decay products can lead to the deposit of radioactive material in the respiratory tract, bone, or blood forming organs, intestinal tract, and kidney, which may lead to certain cancers. Risks can be minimized by following good industrial and personal hygiene practices noted in section 7.

SECTION 12: Ecological information**Ecotoxicity effects**

Toxicity to fish : No data available

Biodegradability : This material is volatile and is expected to partition to air.

Elimination information (persistence and degradability)

Bioaccumulation : This material is not expected to bioaccumulate.

Mobility : The product evaporates readily.

Results of PBT assessment : This mixture contains no substance considered to be persistent, bioaccumulating and toxic (PBT)., This mixture contains no substance considered to be very persistent and very bioaccumulating (vPvB).
 This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Additional ecological information : No data available

Ecotoxicology Assessment

Short-term (acute) aquatic : No data available

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hazard

SECTION 13: Disposal considerations

The information in this SDS pertains only to the product as shipped.

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

Product : Do not dispose of waste into sewer. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.

A quantitative risk assessment is not required for the environment.

A quantitative risk assessment is not required for human health.

SECTION 14: Transport information

The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the SDS and the bill of lading.

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)

UN1075, PETROLEUM GASES, LIQUEFIED, 2.1
NON- ODORIZED

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)

UN1075, PETROLEUM GASES, LIQUEFIED, 2.1, (-108 °C)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)

UN1075, 2.1: NOT PERMITTED FOR TRANSPORT

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))

UN1075, PETROLEUM GASES, LIQUEFIED, 2.1, (B/D)

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))

UN1075, PETROLEUM GASES, LIQUEFIED, 2.1

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE

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OF DANGEROUS GOODS BY INLAND WATERWAYS)
UN1075, PETROLEUM GASES, LIQUEFIED, 2.1

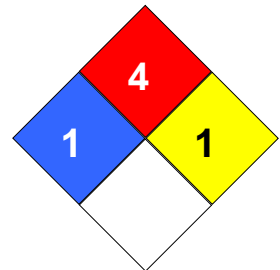
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

SECTION 15: Regulatory information**Notification status**

Europe REACH : Not in compliance with the inventory
 United States of America (USA) : On TSCA Inventory
 TSCA
 Canada DSL : All components of this product are on the Canadian
 DSL
 Australia AICS : On the inventory, or in compliance with the inventory
 New Zealand NZIoC : On the inventory, or in compliance with the inventory
 Japan ENCS : On the inventory, or in compliance with the inventory
 Korea KECI : On the inventory, or in compliance with the inventory
 Philippines PICCS : On the inventory, or in compliance with the inventory
 China IECSC : On the inventory, or in compliance with the inventory

SECTION 16: Other information

NFPA Classification : Health Hazard: 1
 Fire Hazard: 4
 Reactivity Hazard: 1

**Further information**

Legacy SDS Number : JCP0009

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this SDS pertains only to the product as shipped.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Key or legend to abbreviations and acronyms used in the safety data sheet			
ACGIH	American Conference of	LD50	Lethal Dose 50%

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	Government Industrial Hygienists		
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		