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GPS Safety Summary - PROPYLENE

SUBSTANCE NAME

PROPYLENE

CHEMICAL IDENTITY

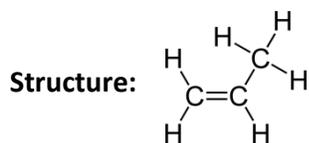
Name: Propylene, Propene

Chemical name (IUPAC): Propene

CAS number: 115-07-1

EC number: 204-062-1

Molecular formula: C₃H₆



USES AND APPLICATIONS

Propylene is mainly used by the chemical industry as a monomer for the manufacture of polymers. It is also used as a synthesis intermediate product in the manufacture of other chemicals or as fuel component.

PHYSICAL/CHEMICAL PROPERTIES

Phys/Chem Safety Assessment

Property	Value
Physical state (at 20°C)	Gas (compressed gas)
Colour	Colourless
Odour	Odourless - typical
Melting / boiling point	-185°C/-48°C
Flammability	H220 - Extremely flammable gas
Explosive properties	Explosion limits (% vol) : upper = 11.1 ; lower = 2
Self-ignition temperature	455°C
Vapor pressure	>1000hPa
Mol weight	42 g/mol
Water solubility	Insoluble (200 mg/l at 25°C)
Octanol-water partition coefficient (LogKow) (at 20°C)	1.77

HEALTH EFFECTS

Human Health Safety Assessment

Consumer:

Effect Assessment	Result
Acute Toxicity	Inhalation : high levels of exposure may cause headache, drowsiness, loss of consciousness , asphyxia
Local effect	Inhalation : high levels of exposure may cause irritation to respiratory system
	Skin contact : liquefied gas splashes may cause freeze burns
	Eye contact : high levels of exposure may cause irritation of ocular mucous membrane ; liquefied gas splashes may cause freeze burns
Sensitisation	Not regarded as a sensitiser
Toxicity after repeated exposure	Inhalation : No significant toxic effects in animals after repeated exposure to high concentrations; no significant toxic potential expected in human
Genotoxicity / Mutagenicity	Non-genotoxic
Carcinogenicity	Absence of carcinogenic effects on animals
Reproductive toxicity	No toxic effect on fertility or on foetal development in animals



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ENVIRONMENTAL EFFECTS

Environment Safety Assessment

Propylene is not acutely toxic to aquatic organisms. Because of its high volatility, Propylene evaporates into the atmosphere where it is expected to undergo degradation in the presence of sunlight. For that reason, Propylene is unlikely to cause ground or water pollution. The product is not considered to be either persistent and bioaccumulative, nor very persistent and very bioaccumulative.

EXPOSURE

Human health

Consumer: Consumer may be exposed to trace amounts of Propylene through anthropogenic sources (the combustion of organic matter, motor vehicle exhaust, and/or cigarette smoke). Consumers may also be exposed to Propylene as a trace component of certain products (e.g. polymers).

Workers: Propylene is mainly used either in closed process with no likelihood of exposure or in closed continuous process with occasional situations where controlled exposure can occur. Workers may be exposed to Propylene during, for example, product transfer operations, product sampling, or maintenance/repair activities. Exposure is minimized as operation conditions and management measures recommended into the SDS must be applied.

Environment

Exposure to the environment cannot be excluded during production of Propylene, formulation, synthesis of polymers and others chemicals, and when consumer used fuel containing Propylene. Procedural and control technologies are used to minimize emissions and resulting exposures. Propylene is not classified hazardous for the environment. Nevertheless, if an accidental release occurs, all the emergency procedures are described into the Safety Data Sheet (SDS).

RISK MANAGEMENT RECOMMENDATIONS

Always handle the product in accordance with good industrial hygiene and safety procedures and apply risk management measures recommended into SDS. Workers must use appropriate Personal protective equipment (PPE) such as gloves, goggles, safety shoes, respiratory protective equipment,



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etc..., especially, during operations where emission may occur, like product transfer operations, product sampling, or maintenance/repair activities. When using the product, never subject a cylinder to severe mechanical shock. Avoid producing or diffusing fumes, vapour or spray into the air, avoid splashes, avoid contact with skin and eyes. As the product may form flammable / explosive vapor-air mixture, all possible sources of ignition must be removed. Handle under adequate ventilation. When using, do not eat, drink or smoke.

STATE AGENCY REVIEW

- This substance has been registered under REACH (EC) 1907/2006.
- This substance has been evaluated under OECD HPV program.

REGULATORY INFORMATION / CLASSIFICATION AND LABELLING

Under GHS substances are classified according to their physical, health, and environmental hazards. The hazards are communicated via specific labels and the SDS. GHS attempts to standardize hazard communication so that the intended audience (workers, consumers, transport workers, and emergency responders) can better understand the hazards of the chemicals in use. Substances registered for REACH are classified according CLP (EC) 1272/2008.

Classification of the substance

EC-GHS (CLP) Classification according to the regulation EC 1272/2008 (EC-GHS) and ATP

Flam. Gas 1

Press. Gas

Pictogram(s) GHS02, GHS04





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H Phrase(s)

H220 - Extremely flammable gas.

H280 - Contains gas under pressure; may explode if heated.

P Phrase(s)

P201 - Obtain special instructions before use.

P210 - Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

P243 - Take precautionary measures against static discharge.

P273 - Avoid release to the environment.

P309/311 - IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.

P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

P381 - Eliminate all ignition sources if safe to do so.

P410/403 - Protect from sunlight. Store in a well-ventilated place.

CONCLUSION

- Propylene is mainly used by the chemical industry as a monomer for the manufacture of plastics. It is also used as a synthesis intermediate product in the manufacture of other chemicals.
- Propylene is not classified as hazardous for human health or for the environment. Its main hazard is its extreme flammability.
- Exposure to humans and the environment is considered low if properly handled.

CONTACT INFORMATION WITHIN COMPANY

For further information on this substance or product safety summaries in general, please contact: pch.reach@total.com

Or visit the ICCA portal on: <http://www.icca-chem.org/en/Home/ICCA-initiatives/global-product-strategy/>

GLOSSARY

Acute Toxicity	Harmful effect resulting from a single or short term exposure to a substance
Anthropogenic	designates an effect or object resulting from human activity
Biodegradation	Decomposition or breakdown of a substance under natural conditions (actions of micro organisms etc)
Bioaccumulation	Progressive accumulation in living organisms of a chemical substance present in the environment
Carcinogenicity	Substance effects causing cancer
Genotoxicity	Substance effect that causes damage to genes, including Mutagenicity and clastogenicity
GHS	Global Harmonized System of chemicals classification
Hazard	Inherent substance property bearing a threat to health or environment
Mutagenicity	Substance effect that cause mutation on genes
Persistence	Refers to the length of time a compound stays in the environment, once introduced
Reprotoxicity	Including teratogenicity, embryotoxicity and harmful effects on fertility
Sensitising	Allergenic

DISCLAIMER

The information contained in this paper is intended as basic advice and general information to this designated specific product (substance) only and whilst this information is provided in utmost good faith and has been based on the best information to our belief and to our knowledge currently available, it is to be relied upon at the user's own risk. The information in this paper is not intended to provide medical or medical emergency response information, nor treatment information; all detailed safety and health information is to be found in the Safety Data Sheets (SDS) for the product (substance) concerned and to be consulted before use of this product (substance). The information in this Safety Summary is not replacing the SDS and is not automatically applicable if this product (substance) is used with other



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