

## GPS Safety Summary

This Product Safety Summary is intended to provide a brief overview of the information on the risk assessment results of the chemical product that we manufacture based on the chemical industry's Global Product Strategy (GPS) to the general public as a social responsibility of a company that manufacture chemical substances.

This summary is not intended to provide technical information including effects on human health and the environment and details of risk assessment. In addition, it is not intended to be prepared as a document to replace a Safety Data Sheet (SDS) or a risk assessment report like a Chemical Safety Report under the REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) (REACH CSR). Although the summary is prepared based on the laws, materials, information and data that are available at the present moment, it does not provide any assurances.

### SUBSTANCE NAME

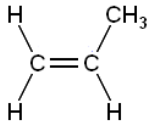
## Propylene (propylene, CAS No. 115-07-1)

### GENERAL STATEMENT

Propylene is a colorless gas with a specific odor. Propylene is used as raw material for a lot of manufacture of chemicals (ex. monomer for manufacture of polypropylene). Generally Propylene is manufactured as by-product when manufacturing ethylene by cracking naphtha

Propylene is a extremely flammable gas, therefore it is important to keep away from heat, sparks, open flames or hot sources. Because Propylene may cause drowsiness or dizziness if inhaled, it is recommended to wear appropriate protective masks, gloves when sampling for manufacturing.

### CHEMICAL IDENTITY

Item	Contents
Generic name	Propylene, Propene, Methylethylene, Methylethene
Trade name	Propylene
Chemical name	Prop-1-ene (IUPAC name: Prop-1-ene)
CAS No.	115-07-1
Other numbers	Reference No. listed in the official gazettes (Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc., Industrial Safety and Health Act) (2)-13 EC No. 204-062-1
Molecular formula	C <sub>3</sub> H <sub>6</sub>
Structural formula	
Other information	None in particular

## USES AND APPLICATIONS

Intended uses of our product As a raw material for compound (mainly polypropylene, propylene oxide)

## PHYSICAL/CHEMICAL PROPERTIES

Appearance (physical state)	Gas
Color	Colorless
Odor	faint sweet fragrance
Specific gravity (relative density)	None
Melting point/boiling point	-185.25 °C/ -47.7 °C
Combustibility/flammability	Flammable gas
Flash point	-107.7°C
Limit of combustion or explosion	2 - 11 vol %(air)
Auto ignition temperature	455 °C (1013hPa)
Vapor pressure	1009210 Pa(20°C)
Molecular weight	42.08
Water solubility	200mg/L (20°C)
Octanol-water partition coefficient	LogKow: 1.77(20°C)

## HEALTH EFFECTS

Effect assessment	Results (GHS <sup>*1</sup> hazard classification)
Acute toxicity (oral ingestion)	Not applicable <sup>*2</sup>
Acute toxicity (inhalation)	Not classified <sup>*3</sup> (gas) Not applicable (vapor) Not applicable (dust/mist)
Acute toxicity (dermal)	Not applicable
Skin corrosion/irritation	Not classified
Serious eye damage/eye irritation	Not classified
Respiratory sensitization	Classification not possible (no toxicity report)
Skin sensitization	Classification not possible (no toxicity report)
Germ cell mutagenicity	Not classified
Carcinogenicity	Not classified
Reproductive toxicity	Not classified
Specific target organ toxicity (Single exposure)	May cause drowsiness or dizziness
Specific target organ toxicity (Repeated exposure)	Not classified
Aspiration hazard	Not applicable
Source/remarks	

<sup>\*1</sup> GHS: Globally Harmonized System of Classification and Labelling of Chemicals. This system enables us to classify chemicals by hazard type and degree according to globally harmonized rules.

<sup>\*2</sup> Not applicable: Because the physical properties defined by GHS are not met, the chemical is not included in the target chemicals of the classification.

<sup>\*3</sup> Not classified: Hazardousness much lower than the lowest hazard class specified by GHS

## ENVIRONMENTAL EFFECTS

Effect assessment	Results (GHS hazard classification)
Hazardous to the aquatic environment (acute)	Classification not possible
Hazardous to the aquatic environment (chronic)	Classification not possible
Environmental fate/dynamics	Results
Transfer in the environment	None
Biodegradability	Though there is no report of biodegradability, Propylene is considered to be decomposed quickly in the atmosphere.
Bioaccumulation	Bioaccumulation is low.
Conclusion of PBT/vPvB	Not judged to be PBT* and vPvB**.
	*PBT: Persistent, bioaccumulative and toxic (Remaining in the environment and having high bioaccumulative and strong toxic properties)
	**vPvB: very Persistent and very Bioaccumulative (Readily remaining in the environment and having very high bioaccumulative property)

## EXPOSURE

Details	No.	Potential exposure in the process of use of our products (exposure route)
Occupational Exposure	1-1	Thorough sampling (inhalation, skin/eye contact). However Propylene is produced in a closed process, potential for worker exposure is extremely low.
Consumer exposure	2-1	This material is not used by consumers and therefore the potential for consumer exposure is extremely low.
Environmental exposure	3-1	Through sampling (mainly in the atmosphere) However propylene is manufactured in a closed system process, the possibility of environment release is very low. It is liquid at normal temperature and normal pressure. In the case of environmental release, though it disperses into the atmosphere, it is expected to be degraded in the atmosphere rapidly.
Note		If there is a potential for exposure in other uses, take appropriate measures in reference to the risk management recommends.

## RISK MANAGEMENT RECOMMENDATIONS

Details	No.	Management recommendations based on our risk assessment results
Occupational Exposure	1-1	Wear appropriate protective masks, clothing and gloves made of materials that propylene does not penetrate during sampling operation. As the recommend threshold limit value, 500 ppm (TWA: time-weighted average) has been published by the ACGIH (American Conference of Governmental Industrial Hygienists). At the production site and other sites where propylene is used, manage and control its environmental concentration so that lower than this recommended value. The operation manager instructs workers how to select and use the appropriate protective equipment and how to manage the work place.

Consumer exposure	2-1	None
Environmental exposure	3-1	Propylene may affect environment if leaked. Take measures to prevent leakage, and take due care in daily management and handling.
Other warnings		Extremely flammable. Keep away from ignition source such as heat/sparks/open flames/hot surfaces. Wear anti-static conductive shoes while handling this material. When facility of propylene production are opened (e.g. periodical repair), its high concentration in the air may cause lack of oxygen. In some cases, measure oxygen concentration before entering the area, and wear appropriate personal protective equipment if required.
Note		For the measures and actions to be taken for regular handling, emergency situations, disposal and transportation, see Section 4, 5, 6, 7, 8, 13 and 14, SDS issued by Mitsubishi Chemical Corporation.

### STATE AGENCY REVIEW

Assessment document	Review condition
International Safety Card	<a href="http://www.inchem.org/documents/icsc/icsc/eics0559.htm">http://www.inchem.org/documents/icsc/icsc/eics0559.htm</a>
OECD HPV	<a href="http://webnet.oecd.org/hpv/UI/SIDS_Details.aspx?Key=e8fb4c86-e31c-432e-9393-8827962bc8aa&amp;idx=0">http://webnet.oecd.org/hpv/UI/SIDS_Details.aspx?Key=e8fb4c86-e31c-432e-9393-8827962bc8aa&amp;idx=0</a>
REACH	<a href="http://apps.echa.europa.eu/registered/registered-sub.aspx">http://apps.echa.europa.eu/registered/registered-sub.aspx</a>

### REGULATORY INFORMATION / LABELLING INFORMATION

#### Main regulatory information

Law	Regulatory condition
UN class	2.1
UN No.	1075 "PETROLEUM GASES, LIQUEFIED" 1077 "PROPYLENE"
High Pressure Gas Safety Act	Article 2 of the Security Regulation for General High Pressure Gas
Industrial Safety and Health Act	Flammable gas in Appended Table 1-5 of the Enforcement Order
Ship Safety Act	High pressure gases - Flammable high pressure gases in Appended Table 1 of the Notification for Establishing Standards for the Carriage of Dangerous Goods in Ships
Civil Aeronautics Act	Dangerous goods that may be carried 2. High pressure gases - 2.1 Flammable gases

#### Labelling information

#### Pictograms or symbols



#### Signal Word

Danger

#### Hazard statement

- Extremely flammable gas.

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

#### CONTACT INFORMATION WITHIN COMPANY

Company	Mitsubishi Chemical Corporation
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#### DATE OF ISSUE / REVISION, ADDITIONAL INFORMATION

Ver. 1 : Issued on march 10, 2014 (JP revised version 1: issued on July 1, 2012)  
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Special remarks: None