Chemical Safety Data Sheet MSDS / SDS

PROPYLENE

Revision Date:2024-12-21 Revision Number:1

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

Product identifier

Product name	: PROPYLENE
CBnumber	: CB3750579
CAS	: 115-07-1
EINECS Number	: 204-062-1
Synonyms	: Propylene,propene

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	: For R&D use only. Not for medicinal, household or other use.
Uses advised against	: none

Company Identification

Company	: Chemicalbook
Address	: Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing
Telephone	: 400-158-6606

SECTION 2: Hazards identification

Classification of the substance or mixture

Gases under pressure: Compressed gas

Flammable gases, Category 1A, Flammable gas

Label elements

Pictogram(s)

Signal word Danger

Hazard statement(s)

H220 Extremely flammable gas

H280 Contains gas under pressure; may explode if heated

Precautionary statement(s)

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

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

P381 Eliminate all ignition sources if safe to do so.

P410+P403 Protect from sunlight. Store in a well-ventilated place.

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.

P403 Store in a well-ventilated place.

Disposal

none

Other hazards

no data available

SECTION 3: Composition/information on ingredients

Substance

Product name	: PROPYLENE
Synonyms	: Propylene,propene
CAS	: 115-07-1
EC number	: 204-062-1
MF	: C3H6
MW	: 42.08

SECTION 4: First aid measures

Description of first aid measures

If inhaled

Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.

Following skin contact

ON FROSTBITE: rinse with plenty of water, do NOT remove clothes. Refer for medical attention .

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

Most important symptoms and effects, both acute and delayed

Moderate concentration in air causes dizziness, drowsiness, and unconsciousness. Contact with liquefied propylene will cause ``freezing burn.'' (USCG, 1999)

Indication of any immediate medical attention and special treatment needed

If splashes of liquid propylene cause freezing of the skin, never rinse the affected area with hot or tepid water. If liquid propylene contacts the eyes flush eyes with water for 15 minutes.

SECTION 5: Firefighting measures

Extinguishing media

Do not extinguish fire unless flow can be stopped. If possible use foam, carbon dioxide, or dry chemical to extinguish fire. If none of these compounds are available use water in flooding quantities as a fog, being sure to cool all affected containers. Apply water from as far a distance as possible, and do not use solid streams of water since they may be ineffective. Keep material out of water sources and sewers and build dikes as necessary to contain flow. Wear self contained breathing apparatus, boots, protective gloves and goggles and be sure to wash away any material which may have contacted the body with copious amounts of water or soap and water. Do not handle damaged packages without protective equipment. If fire becomes uncontrollable or a container is exposed to direct flame, evacuate for a radius of 2500 feet. If material leaking (and is not on fire), downwind evacuation must be considered.

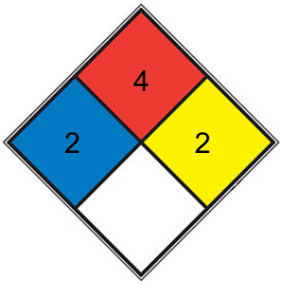
Specific Hazards Arising from the Chemical

Behavior in Fire: Containers may explode. Vapor is heavier than air and may travel considerable distance to a source of ignition and flash back. (USCG, 1999)

Advice for firefighters

Shut off supply; if not possible and no risk to surroundings, let the fire burn itself out. In other cases extinguish with powder, carbon dioxide. In case of fire: keep cylinder cool by spraying with water. NO direct contact with water. Combat fire from a sheltered position.

NFPA 704



HEALTH	2	Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury (e.g. diethyl ether, ammonium phosphate, iodine)
FIRE	4	Will rapidly or completely vaporize at normal atmospheric pressure and temperature, or is readily dispersed in air and will burn readily. Includes pyrophoric substances. Flash point below room temperature at 22.8 °C (73 °F). (e.g. acetylene, propane, hydrogen gas)
REACT	2	Undergoes violent chemical change at elevated temperatures and pressures, reacts violently with water, or may form explosive mixtures with water (e.g. white phosphorus, potassium, sodium)
SPEC. HAZ.		

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Evacuate danger area! Consult an expert! Ventilation. Remove all ignition sources. NEVER direct water jet on liquid. Personal protection: chemical protection suit including self-contained breathing apparatus.

Environmental precautions

Evacuate danger area! Consult an expert! Ventilation. Remove all ignition sources. NEVER direct water jet on liquid. Personal protection: chemical protection suit including self-contained breathing apparatus.

Methods and materials for containment and cleaning up

Spills in Water: Contain contaminated water if possible by using natural barriers or oil spill control booms to limit spreading. A universal gelling agent may be applied to solidify trapped mass and to increase effectiveness of the booms. If solubilized, application of activated carbon at 10% spill amount over region occupied by 10 mg/L or greater concentrations is recommended. Spills on Land: Contain if possible by forming mechanical and/or chemical barriers to prevent spreading. Apply universal gelling agent to immobilize spill or use fly ash or cement powder to absorb the liquid. Leaking containers should be removed to an isolated well-ventilated area and if possible, the contents transferred to other suitable containers. Safety goggles, impervious clothing and positive pressure self-contained breathing apparatus should be worn. Plastic or neoprene-coated canvas gloves should be worn when liquid propylene is handled.

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames, NO sparks and NO smoking. Closed system, ventilation, explosion-proof electrical equipment and lighting. Prevent build-up of electrostatic charges (e.g., by grounding) if in liquid state. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

Conditions for safe storage, including any incompatibilities

Fireproof. Cool.Protect cylinder against physical damage and from excessive temperature rise by storing away from sources of heat. No part of a cylinder should be subjected to a temperature above 52 deg C. Store cylinders in an upright position and firmly secured. Segregate full and empty cylinders. Isolate from oxygen and other oxidizers. Avoid exposure to areas where salt or other corrosive chemicals are present. Ground and bond all lines and equipment used with propylene. Do not use near sparking motors or other non explosion proof equipment.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 500 ppm as TWA; A4 (not classifiable as a human carcinogen)

Biological limit values

no data available

Exposure controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

Individual protection measures

Eye/face protection

Wear safety goggles or face shield.

Skin protection

Cold-insulating gloves.

Respiratory protection

Use ventilation.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties

Information on basic physicochemical properties

Physical state	Colorless gas
Colour	Colorless gas
Odour	Aromatic
Melting point/freezing point	-185°C(lit.)
Boiling point or initial boiling point and boiling range	-47.7°C(lit.)
Flammability	Extremely flammable.
Lower and upper explosion limit/flammability limit	11.1%
Flash point	-108°C
Auto-ignition temperature	851° F (USCG, 1999)
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	83.4 micropoises at 16.7 deg C
Solubility	44.6 mL/100 mL (NTP, 1992)
Partition coefficient n-octanol/water	log Kow = 1.77
Vapour pressure	15.4 atm (37.7 °C)
Density and/or relative density	1.49
Relative vapour density	1.48 (vs air)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

Reactivity

Reacts violently with oxidants. This generates fire and explosion hazard.

Chemical stability

no data available

Possibility of hazardous reactions

DANGEROUS FIRE RISK.The gas is heavier than air and may travel along the ground; distant ignition possible. The gas is heavier than air and may accumulate in lowered spaces causing a deficiency of oxygen. As a result of flow, agitation, etc., electrostatic charges can be generated.During an experiment to produce lactic acid by oxidizing PROPYLENE with nitrogen peroxide, a violent explosion occurred. These mixtures (olefins and nitrogen peroxide) form extremely unstable nitrosates or nitrosites (Comp. Rend. 116:756 1893). Contact of very cold liquid propylene with water may result in vigorous or violent boiling of the product and extremely rapid vaporization due to the large temperature differences involved. If the water is hot, there is the possibility that a liquid "superheat" explosion may occur. Pressures may build to dangerous levels if liquid propylene contacts water in a closed container.

Conditions to avoid

no data available

Incompatible materials

Propylene reacts vigorously with oxidizing materials and with nitrogen dioxide (NO_2), dinitrogen tetraoxide (N_2O_4), and dinitrogen oxide (N_2O). Furthermore, liquid propylene will explode on contact with water at 42-75 deg C.

Hazardous decomposition products

Combustion products of propylene ... include carbon dioxide and carbon monoxide.

SECTION 11: Toxicological information

Acute toxicity

- Oral: no data available
- Inhalation: LC50 Rat inhalation 570,000 ppm/15 min Conditions of bioassay not specified in source examined
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

Evaluation: There is inadequate evidence in humans for the carcinogenicity of propylene. There is inadequate evidence in experimental animals for the carcinogenicity of propylene. Overall evaluation: Propylene is not classifiable as to its carcinogenicity to humans (Group 3).

Reproductive toxicity

no data available

STOT-single 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. See Notes.

STOT-repeated exposure

no data available

Aspiration hazard

On loss of containment this substance can cause suffocation by lowering the oxygen content of the air in confined areas.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

In water bodies, propylene is readily degraded by microorganisms and is therefore not expected to bioaccumulate or bioconcentrate in organisms and food chains.

Bioaccumulative potential

An estimated BCF of 5 was calculated for propylene(SRC), using a log Kow of 1.77(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

Mobility in soil

The Koc of propylene is estimated as 220(SRC), using a log Kow of 1.77(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that propylene is expected to have moderate mobility in soil.

Other adverse effects

no data available

SECTION 13: Disposal considerations

Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible

for combustible packaging materials.

SECTION 14: Transport information

UN Number

ADR/RID: UN1077 (For reference only, please check.)

IMDG: UN1077 (For reference only, please check.)

IATA: UN1077 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: PROPYLENE (For reference only, please check.)

IMDG: PROPYLENE (For reference only, please check.)

IATA: PROPYLENE (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 2.1 (For reference only, please check.)

IMDG: 2.1 (For reference only, please check.)

IATA: 2.1 (For reference only, please check.)

Packing group, if applicable

ADR/RID: (For reference only, please check.)

IMDG: (For reference only, please check.)

IATA: (For reference only, please check.)

Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

European Inventory of Existing Commercial Chemical Substances (EINECS)

Listed.

EC Inventory

Listed.

United States Toxic Substances Control Act (TSCA) Inventory

Listed.

China Catalog of Hazardous chemicals 2015

Listed.

New Zealand Inventory of Chemicals (NZIoC)

Listed.

PICCS

Listed.

Vietnam National Chemical Inventory

Listed.

IECSC

Listed.

Korea Existing Chemicals List (KECL)

Listed.

SECTION 16: Other information

Abbreviations and acronyms

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

References

IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home

HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm

IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple

ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg

Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp

ECHA - European Chemicals Agency, website: https://echa.europa.eu/

Other Information

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.

Disclaimer:
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