Chemical Safety Data Sheet MSDS / SDS

Propyne SDS

Revision Date:2024-04-25 Revision Number:1

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

Product identifier

Product name: Propyne

CAS: 74-99-7

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.in

Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090

Telephone: +91 9550333722

SECTION 2: Hazards identification

Classification of the substance or mixture

Flammable gases, Category 1A, Flammable gas
Gases under pressure: Liquefied gas

Specific target organ toxicity – single exposure, Category 3

GHS label elements, including precautionary statements

Pictogram(s)

Signal word Danger

Hazard statement(s)

H220 Extremely flammable gas
H280 Contains gas under pressure; may explode if heated
H335 May cause respiratory irritation

Precautionary statement(s)

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.

Response

P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 In case of leakage, eliminate all ignition sources.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P319 Get medical help if you feel unwell.

Storage

P403 Store in a well-ventilated place.
P410+P403 Protect from sunlight. Store in a well-ventilated place.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.

Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name:	Propyne
Common names and synonyms:	Propyne
CAS number:	74-99-7
EC number:	200-828-4
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

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

Following skin contact

ON FROSTBITE: rinse with plenty of water, do NOT remove clothes.

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/effects, acute and delayed

Exposure Routes: inhalation, skin and/or eye contact (liquid) Symptoms: Irritation respiratory system; tremor, hyperexcitability, anesthesia; liquid: frostbite Target Organs: respiratory system, central nervous system (NIOSH, 2016)

Indication of immediate medical attention and special treatment needed, if necessary

FIRST AID: Inhalation--Fresh air, rest. Artificial respiration if indicated. Refer for medical attention ... Skin--ON FROSTBITE: rinse with plenty of water, do NOT remove clothes. Eyes--First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.

SECTION 5: Firefighting measures

Suitable extinguishing media

Shut off supply; if not possible and no risk to surroundings, let the fire burn itself out; in other cases extinguish with water spray ... Keep cylinder cool by spraying with water. Combat fire from a sheltered position.

Specific hazards arising from the chemical

Excerpt from ERG Guide 115 [Gases - Flammable (Including Refrigerated Liquids)]: EXTREMELY FLAMMABLE. Will be easily ignited by heat, sparks or flames. Will form explosive mixtures with air. Vapors from liquefied gas are initially heavier than air and spread along ground. CAUTION: Hydrogen (UN1049), Deuterium (UN1957), Hydrogen, refrigerated liquid (UN1966) and Methane (UN1971) are lighter than air and will rise. Hydrogen and Deuterium fires are difficult to detect since they burn with an invisible flame. Use an alternate method of detection (thermal camera, broom handle, etc.) Vapors 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. (ERG, 2016)

Special protective actions for fire-fighters

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

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

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

Environmental precautions

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

Methods and materials for containment and cleaning up

Evacuate danger area! Ventilation. Remove all ignition sources. NEVER direct water jet on liquid. (Extra personal protection: chemical protection suit including self-contained breathing apparatus).

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. Use non-sparking handtools. Prevent build-up of electrostatic charges (e.g., by grounding). 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.Fireproof. Cool.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 1000 ppm as TWA

Biological limit values

no data available

Appropriate engineering 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, such as personal protective equipment (PPE)

Eye/face protection

Wear face shield.

Skin protection

Cold-insulating gloves.

Respiratory protection

Use local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	1-propyne is a colorless liquefied gas with a sweet odor. mp: -104°C, bp: -23.1°C. Insoluble in water, soluble in ethanol, chloroform and benzene. Moderately toxic by inhalation. Used as a specialty fuel. Denser than air. Vapors may ignite at distant sources of ignition and flash back.
Colour:	Colorless gas [Note: Shipped as a liquefied compressed gas].
Odour:	Sweet odor
Melting point/freezing point:	360°C(lit.)
Boiling point or initial boiling point and boiling range:	113°C(lit.)
Flammability:	Flammable Gas
Lower and upper explosion limit/flammability limit:	Lower flammable limit: 1.7% by volume
Flash point:	35°C(lit.)
Auto-ignition temperature:	no data available

Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	gas at 298 deg K: 8.4X10-3 mPa-s; liquid at 233 deg K: 0.26 mPa-s
Solubility:	Insoluble (NIOSH, 2016)
Partition coefficient n-octanol/water:	log Kow = 0.94
Vapour pressure:	204.6 mm Hg (?49.5 °C)
Density and/or relative density:	0.648 g/cm3
Relative vapour density:	1.4 (AIR= 1)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

1700 ppm [Based on 10% of the lower explosion limit for safety considerations even though the relevant toxicological data indicated that irreversible health efects or impairment of escape existed only at higher concentrations.]
Decomposes on heating and increasing pressure. This generates fire and explosion hazard.

Chemical stability

no data available

Possibility of hazardous reactions

Dangerous, when exposed to heat or flameThe gas is heavier than air and may travel along the ground; distant ignition possible. As a result of flow, agitation, etc., electrostatic charges can be generated.1-PROPYNE is highly flammable. The liquid material in cylinders contains about 30% propadiene. Detonation may occur at 95° C [MCA Case History No. 632]. Reacts exothermically with many oxidizing agents and with some reducing agents as well. May react with silver, copper, and mercury salts in aqueous solution to give explosive acetylides. Incompatible with brass that contains more than 65% copper, with other copper-containing alloys,

with Monel metal, with neoprene, polyethylene, and, to a lesser extent, with Teflon. May enflame in air in the presence of Co, Hg, Hg salts, K, Ag, Ag salts, RbH, CsH, halogens, HNO_3, NaH. Can decompose explosively when compressed to 4.5 to 5.6 atmospheres. Moderate explosion hazard when exposed to heat or flame or by spontaneous chemical reaction. Has been known to decompose explosively at high pressures and moderate temperatures in the absence of air.

Conditions to avoid

no data available

Incompatible materials

Can react vigorously with oxidizing materials.

Hazardous decomposition products

When heated to decomposition it emits acrid smoke and irritating fumes.

SECTION 11: Toxicological information

Acute toxicity

Oral: no data available

Inhalation: no data available

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

no data available

Reproductive toxicity

no data available

STOT-single exposure

The substance is irritating to the respiratory tract. Rapid evaporation of the liquid may cause frostbite. Exposure could cause lowering of consciousness.

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

A Rhodococcus species isolated from soil was able to use 1-propyne(1).

Bioaccumulative potential

An estimated BCF of 3 was calculated in fish for 1-propyne(SRC), using a log Kow of 0.94(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.

Mobility in soil

The Koc of 1-propyne is estimated as 77(SRC), using a log Kow of 0.94(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that 1-propyne is expected to have high 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: UN1206 (For reference only, please check.)
IMDG: UN1206 (For reference only, please check.)
IATA: UN1206 (For reference only, please check.)

UN Proper Shipping Name

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

Transport hazard class(es)

ADR/RID: 3 (For reference only, please check.)
IMDG: 3 (For reference only, please check.)
IATA: 3 (For reference only, please check.)

Packing group, if applicable

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

Not Listed.

New Zealand Inventory of Chemicals (NZIoC)

Listed.

(PICCS)

Listed.

Vietnam National Chemical Inventory

Listed.

IECSC)

Not 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. After use for welding, turn valve off; regularly check tubing, etc., and test for leaks with soap and water. The measures mentioned in section PREVENTION are applicable to production, filling of cylinders, and storage of the gas.