Ehsan International Gases

Propene

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

1.1. Product identifier

Name of product	Propene
Art-Nr(n).:	3500-3509, 3580, 0068
Name of substance	propene
Index No	601-011-00-9
EC No	204-062-1
REACH registration number	01-2119447103-50
CAS No	115-07-1

Manufacturer / Distributor:

Ehsan International Gases
40/9, Aurangabad, Nazimabad
#3, Karachi 74600, Pakistan.
+92 21 36612091 – 36612907
info@ehsan.com.pk
www.ehsan.com.pk

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

! Recommended intended purpose(s)

Fuel gas.
Basic substance.
Refrigerant (R-1270)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to 67/548/EEC or 1999/45/EC

F+; R12

R-phrases

12 Extremely flammable.

Classification according to Regulation (EC) No 1272/2008 [CLP/GHS]

Hazard classes and Hazard Hazard Statements

Classification procedure categories

Propene

Flam. Gas 1 **H220**
Liquef. Gas **H280**

Hazard statements for physical hazards

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

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008 [CLP/GHS]

GHS02

GHS04

Signal word

Danger

Hazard statements for physical hazards

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

Precautionary Statements

Prevention

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

Response

P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 Eliminate all ignition sources if safe to do so.

Storage

P403 Store in a well-ventilated place.

Hazardous ingredients for labeling

propene

2.3. Other hazards

! Adverse physicochemical effects

In the case of insufficient ventilation and/or through the formation of a explosive/highly flammable mixture is possible.

! Adverse human health effects and symptoms

Contact with liquid may cause cold burns/frostbite.
Asphyxiant in high concentrations.

! Information pertaining to special dangers for human and environment

Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

SECTION 3: Composition/ information on ingredients

3.1. Substances

CAS No 115-07-1
propene
EC No 204-062-1
Index No 601-011-00-9
REACH registration number 01-2119447103-50

3.2. Mixtures

not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

! General information

Remove contaminated soaked clothing immediately.
Adhere to personal protective measures when giving first aid.

In case of inhalation

Remove the casualty into fresh air and keep him immobile.
Seek medical treatment immediately.
In case of respiratory standstill give artifical respiration by respiratory bag (Ambu bag) or respirator. Send for a doctor.

! In case of skin contact

In case of contact with skin wash off with warm water.
In case of frostbite rinse with plenty of water. Don`t remove clothing.
In case of frostbite spray with lukewarm (not hot) water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance.

In case of eye contact

Rinse cautiously with water for several minuts. Remove contact lenses, if present and easy to do. Continue rinsing. Call for a doctor immediately.

In case of ingestion

Ingestion is not considered a potential route of exposure.

4.2. Most important symptoms and effects, both acute and delayed

! Physician's information / possible symptoms

The following symptoms may occur in case of strong exposition:
Unconsciousness
Shortness of breath
Excitement
Headache
Nausea
Confusion
Dizziness
Contact with liquid may cause cold burns/frostbite.

4.3. Indication of any immediate medical attention and special treatment needed

! Treatment (Advice to doctor)

Treat symptoms.
Monitor circulation.

SECTION 5: Firefighting measures

5.1. Extinguishing media

! Suitable extinguishing media

Dry powder
Carbon dioxide
Water spray jet

! Unsuitable extinguishing media

Full water jet

5.2. Special hazards arising from the substance or mixture
In case of fire formation of dangerous gases possible.
Formation of explosive gas mixtures in air.
In the event of fire the following can be released:
Carbon monoxide (CO)

5.3. Advice for firefighters

Special protective equipment for fire-fighters
Use breathing apparatus with independent air supply (isolated). Wear full protective clothing.

Additional information
Cool endangered containers with water spray jet.
Exposure to fire may cause containers to rupture / explode.
Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur.
Extinguish any other fire.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
See chapter 8.
Evacuate area.
Keep people away and stay on the upwind side.
Keep away sources of ignition.

6.2. Environmental precautions
If possible, stop flow of product.
Eliminate ignition sources.
Do not discharge into the drains/surface waters/groundwater.
Do not discharge into the subsoil/soil.

6.3. Methods and material for containment and cleaning up
Ensure adequate air ventilation. Allow to vaporise.

6.4. Reference to other sections
Informations for safe handling see chapter 7.
Informations for personal protective equipment see chapter 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling
Use only in thoroughly ventilated areas.
Transfer and handle only in enclosed systems.
Take measures against electrostatically charging.
Barrels and installations thoroughly earthing (grounding).
Use antistatic tools.
Treatment only in suitable rooms and systems.
Provide good room ventilation even at ground level (vapours are heavier than air).
Prevent cylinders from falling over.
Ensure valve protection device is correctly fitted.
Ensure valve outlet cap nut or plug (where provided) is correctly fitted.
Open valve slowly to avoid pressure shock.
Do not allow backfeed into the container.
Suck back of water into the container must be prevented.
No water to valves, flanges and other fittings.

Purging of pipes and valves with inert gases - to avoid: water, solvents.

! General protective measures
Do not inhale gases.

! Hygiene measures
At work do not eat, drink and smoke.

! Advice on protection against fire and explosion
The product is combustible.
Because of risk of explosion avoid vapours getting into cellar, sewage system and holes.
Take precautionary measures against static discharges.
Formation of explosive gas mixtures in air.
Pay attention to general rules of internal fire prevention.
Use explosion-proof equipment / fittings and non-sparking tools.

7.2. Conditions for safe storage, including any incompatibilities
Requirements for storage rooms and vessels
Keep in closed original container.
Ventilate store-rooms thoroughly.
Use transportable pressure equipment.
Suitable materials: Normalised steel and carbon steel, tempered steel, aluminium alloys, stainless steel. Valve:
Suitable materials: Brass, copper alloys, carbon steels, aluminium alloys, stainless steel.

! Advice on storage compatibility
Do not store with spontaneously flammable materials.
Do not store together with combustible liquids or combustible solids.
Do not store together with animal feedstuffs.
Do not store together with explosives.
Do not store together with infectious substances.
Do not store together with radioactive material.
Do not store together with toxic liquids or toxic solids.
Do not store together with food.
Do not store together with oxidizing liquids or oxidizing solids.

Further information on storage conditions
Ensure valve protection device is correctly fitted.
Prevent cylinders from falling over. Keep
container in a well-ventilated place
Protect of heat.
Storage temperature may not exceed 50°C (=122°F).

7.3. Specific end use(s)
! Recommendation(s) for intended use
No further recommendations.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
Ingredients with occupational exposure limits to be monitored

! CAS No	Name	Code	[mg/m3]	[ppm]	Remark
115-07-1	Propylene	TLV, 8 hours		500	ACGIH, USA

Additional advice
no

8.2. Exposure controls

! Respiratory protection

Keep self contained breathing apparatus readily available for emergency use.
Do not use any filter apparatus.
In case of rescue and maintenance activities in storage containers use environment-independent breathing apparatus because of risk of suffocation by edging out of air oxygen

! Hand protection

Leather gloves

! Eye protection

Safety goggles, in case of increased risk add protective face shield

! Skin protection

Safety shoes with steel toe.
Body covering work clothing, or chemical resistant suit at increased risk.

! Limitation and surveillance of the environment

See chapter 7.

! Additional advice on system design

Transfer and handle only in enclosed systems.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Form	**Colour**	**Odour**
Gaseous / liquefied under pressure.	colourless	sweetish

! Odour threshold

40 - 116 mg/m³

Important health, safety and environmental information

	Value	Temperature	at	Method	Remark
pH value in delivery state	not applicable				
Acid number	not applicable				
boiling point	-47,7 °C		1013 hPa		
melting point	-185,3 °C				
Flash point	-108 °C				
Flammable solid	not applicable				
Flammability (gas)					Flammable.
Ignition temperature	460 °C			DIN 51794	
Autoignition	455 °C				
Lower explosion limit	1,8 Vol-%				

Propene

Upper explosion limit	11,2 Vol-%		
Vapour pressure	10160 hPa	20 °C	
Relative density	0,521 g/cm3	20 °C	liquid phase
Bulk density	not applicable		

Propene

	Value	Temperature	at	Method	Remark
Vapour density	1,48				air = 1
Solubility in water	200 mg/l	25 °C			
Solubility/other					soluble in organic solvent
Partition coefficient (log pOW)	1,77				
Viscosity dynamic	0,0943 mPa*s	20 °C			liquid phase

! Vapourisation rate
not determined

! Oxidising properties
no

! Explosive properties
no

9.2. Other information
Vapours are heavier than air.

SECTION 10: Stability and reactivity

10.1. Reactivity
See section "Possibility of hazardous reactions".

10.2. Chemical stability
Stable under normal conditions.
Risk of polymerisation.

10.3. Possibility of hazardous reactions
Formation of explosive gas/air mixtures.
Reactions with oxidising agents.
polymerisation
Polymerisation occurs with mineral acids.
Violent reaction with water at high temperatures.

10.4. Conditions to avoid Formation of explosive gas/air mixtures. Heat sources / heat - risk of bursting.

10.5. Incompatible materials
! Materials to avoid
hydrogen bromide (HBr)
Air hydrochloric acid
Oxidising agent

10.6. Hazardous decomposition products

Carbon monoxide

Thermal decomposition

Remark	No decomposition below 600 °C.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity/Irritability/Sensitization

	Value/Validation	Species	Method	Remark
LD50 acute oral	not applicable			
LD50 acute dermal	not applicable			
LC50 acute inhalation	658 mg/l (4 h)	rat		
Irritability skin	not applicable			
Irritability eye	not applicable			
Skin sensitization	not applicable			
Sensitization respiratory system	not determined			

Subacute Toxicity - Carcinogenicity

	Value	Species	Method	Validation
Subchronic Toxicity	NOAEC 10000 ppm (90 d) Inhalation	Mouse	OECD 413	No effects of toxicological significance.
Mutagenicity				Information on genotoxicity in vitro available.
Reproduction-Toxicity				No indications of toxic effects were observed in reproduction studies in animals.
Carcinogenicity				The existing data do not justify a classification as a carcinogen.

! Specific target organ toxicity (single exposure)
no

! Specific target organ toxicity (repeated exposure)
no

! Aspiration hazard
not determined

! Toxicity test (Additional information)
No experimental indication of genotoxicity in vivo (micronucleus test negative).

Experiences made from practice
May cause frostbite.
Gases have a suffocating effect.
Inhalation causes narcotic effect/intoxication.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicological effects

	Value	Species	Method	Validation
Fish	LC50 51,7 mg/l (96 h)		QSAR	
Daphnia	EC50 28,2 mg/l (48 h)	Daphnie	QSAR	
Algae	EC50 12,1 mg/l (96 h)	Alge	QSAR	
Bacteria	not determined			

12.2. Persistence and degradability
Physico-chemical degradability
At normal temperature very highly volatile or gaseous product that can be released to atmosphere.
Elimination test cannot be employed.

Biological degradability		QSAR	readily degradable
Biological eliminability	not determined		

12.3. Bioaccumulative potential
Because of the n-octanol/water distribution coefficient (log K o/w) accumulation in organisms is not expected.
12.4. Mobility in soil
high mobility
Adsorption in the soil is not likely.
12.5. Results of PBT and vPvB assessment
This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.
12.6. Other adverse effects
GWP: 3

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste code No.	Name of waste
16 05 04*	gases in pressure containers (including halons) containing dangerous substances

Wastes marked with an asterisk are considered to be hazardous waste pursuant to Directive 91/689/EEC on hazardous waste.

Recommendations for the product
Dispose of as hazardous waste.
Recommendations for packaging
Transportable pressure equipment (empty, residual pressure): Return to supplier / manufacturer.

SECTION 14: Transport information

Land and inland navigation transport ADR/RID
UN 1077 PROPYLENE, 2.1, (B/D), Classification code: 2F
Marine transport IMDG
UN 1077 PROPYLENE, 2.1
Ems: F-C, S-U
Air transport ICAO/IATA-DGR
UN 1077 Propylene, 2.1

Special precautions for user
The protective measures listed in Sections 6, 7 and 8 of the Safety Data Sheet have to be considered.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
not applicable
No transport as bulk according IBC - Code.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
! Other regulations (EU)
Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), Annex XVII No 40.
Directive 96/82/EC on the control of major-accident hazards involving dangerous substances.

VOC standard

VOC content	>=99 %	20 °C	10140 hPa

15.2. Chemical Safety Assessment
The protective measures listed in Sections 6, 7 and 8 of the Safety Data Sheet have to be considered. For this substance a chemical safety assessment has been carried out.
An exposure scenario is not required.

SECTION 16: Other information

Recommended uses and restrictions
National and local regulations concerning chemicals shall be observed.

Propene

! Further information

All declarations of safety-data-sheet refer to pure substance.
The information contained herein is based on the state of our knowledge. It characterizes the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product. Indication of changes: "!" = Data changed compared with the previous version.

Wording of the R/H-phrases specified in chapter 3 (not the classification of the mixture!)

R 12 Extremely flammable.

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