Propane C_3H_8

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

Product identifier

Name of product	Propane Art-Nr(n).: 2712-2718, 0057, 0067
Name of substance	Propane
Index No	601-003-00-5
EC No	200-827-9
CAS No	74-98-6

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

Relevant identified uses of the substance or mixture and uses advised against
Recommended intended purpose(s)
Refrigerant (R-290).
Basic substance.
Propellant.
Test gas.

Details of the supplier of the safety data sheet

SECTION 2: Hazards identification

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
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.

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
Propane

Other hazards

Information pertaining to special dangers for human and environment
In use, may form flammable/explosive vapour-air mixture.
In high concentrations may cause asphyxiation.
Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.
Contact with liquid may cause cold burns/frostbite.

SECTION 3: Composition/ information on ingredients

Substances

CAS No 74-98-6 **Propane**
EC No 200-827-9
Index No 601-003-00-5

SECTION 4: First aid measures

Description of first aid measures
General information
Remove contaminated soaked clothing immediately.
Adhere to personal protective measures when giving first aid.
Seek medical advice immediately.

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
Eye rinsing with water carefully while protecting unhurt eye.
Call for a doctor immediately.

In case of ingestion
Ingestion is not considered a potential route of exposure.

Most important symptoms and effects, both acute and delayed
Physician's information / possible symptoms
Shortness of breath
Anaesthetic state

Indication of any immediate medical attention and special treatment needed
Treatment (Advice to doctor) Treat symptoms.
Monitor circulation.

SECTION 5: Firefighting measures

Extinguishing media
Suitable extinguishing media
Dry powder
Carbon dioxide

Extinguishing media which must not be used for safety reasons
no

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)

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

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

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

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

SECTION 7: Handling and storage

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.
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.
Containers and installations thoroughly earthing (grounding).

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.

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.
Keep container tightly closed and store at cool and aired place.
Prevent cylinders from falling over. Keep
container in a well-ventilated place
Protect of heat.
Storage temperature may not exceed 50°C (=122°F).

Information on storage stability
At appropriate storage unlimited stability.

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

SECTION 8: Exposure controls/personal protection

Control parameters
Ingredients with occupational exposure limits to be monitored

CAS No	Name	Code	[mg/m3]	[ppm]	Remark
74-98-6	Propane	REL, 8 hours	1800	1000	NIOSH, USA
74-98-6	Propane	PEL, 8 hours	1800	1000	OSHA, USA

Exposure controls
Respiratory protection
Keep self contained breathing apparatus readily available for emergency use.
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.

General protective measures
Do not inhale gases/vapours/aerosols.

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

Limitation and surveillance of the environment
See chapter 7.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Form	Colour	Odour
Gaseous / liquefied under pressure.	colourless	sweetish

Important health, safety and environmental information

	Value	Temperature	at	Method	Remark
pH value in delivery state	not applicable				
Acid number	not applicable				
boiling point	-42,1 °C		1013 hPa		
melting point	-187,7 °C				
Flash point	-104 °C				
Flammable solid	not applicable				
Ignition temperature	470 °C				
Lower explosion limit	1,7 Vol-%				
Upper explosion limit	10,8 Vol-%				
Vapour pressure	8270 hPa	20 °C			
Density	0,499 g/cm3	20 °C			liquid phase
Rel. vapour density	1,55				air = 1
Solubility in water	62,4 mg/l	20 °C			
Solubility/other					soluble in organic solvent
Partition coefficient (log pOW)	2,36				
Viscosity dynamic	0,102 mPa*s	20 °C			liquid phase

Other information
Vapours are heavier than air.

SECTION 10: Stability and reactivity

Reactivity
See section "Possibility of hazardous reactions".

Chemical stability Stable
under normal conditions.

Possibility of hazardous reactions
May react violently with oxidants.

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

Incompatible materials
Materials to avoid
Oxidants.

Hazardous decomposition products
Hydrocarbons
Hydrogen

Thermal decomposition

Remark	No decomposition below 600 °C.

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity/Irritability/Sensitization

	Value/Validation	Species	Method	Remark
LC50 acute inhalation	> 800000 ppm (15 min)	rat		
Irritability skin	non-irritant			
Irritability eye	non-irritant			
Skin sensitization	non-sensitizing			
Sensitization respiratory system	non-sensitizing			

Subacute Toxicity - Carcinogenicity

	Value	Species	Method	Validation
Mutagenicity				No experimental information on genotoxicity in vitro available.
Reproduction-Toxicity				No indication of teratogenic effects.
Carcinogenicity				The existing data do not justify a classification as a carcinogen.

! Experiences made from practice
May cause frostbite.
The inhalation of gas / vapour in high concentratio — may cause cardiac arrhyt

Gases have a suffocating effect.

Inhalation causes narcotic effect/intoxication.

SECTION 12: Ecological information

Toxicity

Ecotoxicological effects

	Value	Species	Method	Validation
Fish	not determined			
Daphnia	not determined			
Algae	not determined			
Bacteria	not determined			

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 Biodegradable

Bioaccumulative potential

No high bioaccumulation potential.

Mobility in soil

Adsorption in the soil is not likely.

Results of PBT and vPvB assessment

not determined **Other adverse effects**

Not known.

SECTION 13: Disposal considerations

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 1978 PROPANE, 2.1, (B/D), Classification code: 2F

Marine transport IMDG

UN 1978 PROPANE, 2.1

Ems: F-D, S-U

Air transport ICAO/IATA-DGR

UN 1978 Propane, 2.1
Cargo aircraft only.
Cargo aircraft only: Package max. 150 kg.

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
No transport as bulk according IBC - Code.

SECTION 15: Regulatory information

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	>99,9 %	20 °C	8270 hPa

Chemical Safety Assessment
For this substance a chemical safety assessment is not required because it is not classified regarding health and environmental hazards.

SECTION 16: Other information

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

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.