

Safety Data Sheet

R-290

According to Regulation (CE) n ° 1907/2006

1. Identification of the substance/mixture and of the company/undertaking

Product identifier

Trade name: R-290.

Substance name: Propane.

Formula: C₃H₈

No.: 01-2119486944-21-XXXX

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

Identified uses: Used as refrigerant.

Manufacturer & Importer:

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2. Hazards identification

- **Classification of the substance or mixture**

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

Flammable gases, category 1; H220

Gases under pressure (Liquefied gases); H280

Classification according to Council Directive 67/548/EEC [DSD]

F+; R12

- **Label Elements**

Substance name: Propane.

N° CAS: 000074-98-6

N° EC: 200-827-9

No ID (UE): 601-003-00-5

Hazard pictogram(s):



Signal word: Danger

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

Precautionary statements:

Prevention: Keep away from heat/sparks/open flames/hot surfaces. -No smoking.

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

Storage: Protect from sunlight. Store in a well-ventilated place.

Other hazards:

Low acute toxicity. Very high atmospheric concentrations may cause anesthetic effects and asphyxiation. Liquid splashes or spray may cause freeze burns to skin and eyes. Fluorinated greenhouse gases, which has climatic warming potential.

3. Composition/information on ingredients

Substance information:

Substance name	Content %	Cas No.	No EINECS	ID No	Classification
Propane	> 99%	74-98-6	200-827-9	601-003-00-5	F+; R12 ----- Flam. Gas 1 (H220) Press. Gas (H280)

4. First aid Measures

Warning: Flammable gas. Contents under pressure. Causes damage to the following organs: Nervous System. Vapor may cause flash fire. Keep away from heat, sparks and flame. Do not puncture or incinerate container. Keep container closed. Use only with adequate ventilation. Contact with rapidly expanding gases can cause frostbite.

General notes: In all cases of doubt, or when symptoms persist, seek medical attention.

Following inhalation:

Remove patient from exposure, keep warm and at rest. Administer oxygen if necessary. Apply artificial respiration if breathing has ceased or shows signs of failing. In the event of cardiac arrest apply external cardiac massage. Obtain immediate medical attention.

Following skin contact:

Thaw affected areas with water. Remove contaminated clothing. Caution: clothing may adhere to the skin in the case of freeze burns. After contact with skin, wash immediately with plenty of warm water. If irritation or blistering occur obtain medical attention.

Following eye contact:

Immediately irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 10 minutes. Obtain immediate medical attention.

Following ingestion:

Ingestion is not considered a potential route of exposure. Do not induce vomiting. Provided the patient is conscious, wash out mouth with water and give 200-300 ml (half a pint) of water to drink. Obtain immediate medical attention.

Notes for the doctor:

Treat symptomatically and supportively.

Treatment may vary with condition of victim and specifics of incident.

Most important symptoms and effects, both acute and delayed

Inhalation: Very high atmospheric concentrations may cause anaesthetic effects and asphyxiation.

Skin: Contact Liquid splashes or spray may cause freeze burns. Unlikely to be hazardous by skin absorption.

Eye: Contact Liquid splashes or spray may cause freeze burns.

Ingestion: Highly unlikely - but should this occur freeze burns will result.

Indication of the immediate medical attention and special treatment needed

Persons with pre-existing skin, eye, or respiratory disease may be at increased risk from the irritant or allergic properties of this material. Attending physician should treat exposed patients symptomatically.

5. Fire-fighting measures.

Extinguishing media

Suitable extinguishing media:

In case of fire in the surroundings: use appropriate extinguishing media.

Unsuitable extinguishing media:

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Substance is combustible. Containers may burst if overheated.

The vapor/gas is heavier than air and will spread along the ground. Gas may accumulate in low or confined areas or travel a considerable distance to a source or ignition and flash back, causing fire or explosion.

Decomposition products may include the following materials: carbon dioxide, carbon monoxide, halogenated compounds (hydrogen fluoride).

Advice for fire-fighters

Shut off gas supply if this can be done safely. If possible, take container out of dangerous zone.

Cool cylinders with water spray. Self-contained breathing apparatus (SCBA) may be required if cylinders rupture or release under fire conditions.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Immediately contact emergency personnel. Keep unnecessary personnel away.

Use suitable protective equipment (section 8). Shut off gas supply if this can be done safely.

Isolate area until gas has dispersed.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and material for containment and cleaning up

Allow small spillages to evaporate provided there is adequate ventilation. Large spillages: Ventilate area. Contain spillages with sand, earth or any suitable adsorbent material.

Prevent liquid from entering drains, sewers, basements and work pits since the vapor may create an explosive or suffocating atmosphere.

Reference to other sections

See Section 7 for information on safe handling.

See section 8 for information on personal protection equipment.

See Section 13 for information on disposal.

7. Handling and Storage

Precautions for safe handling

Keep away from sources of ignition - No Smoking.

Take precautionary measures against static discharges.

Avoid inhalation of high concentrations of vapors.

Atmospheric levels should be controlled in compliance with the occupational exposure limit.

Atmospheric concentrations well below the occupational exposure limit can be achieved by good occupational hygiene practice.

The vapor is heavier than air, high concentrations may be produced at low levels where general ventilation is poor, in such cases provide adequate ventilation or wear suitable respiratory protective equipment with positive air supply. Avoid contact between the liquid and skin and eyes.

Conditions for safe storage, including any incompatibilities

Keep in a well-ventilated place. Keep in a cool place away from fire risk, direct sunlight and all sources of heat such as electric and steam radiators. Avoid storing near to the intake of air conditioning units, boiler units and open drains. Cylinders and Drums: Keep container dry. Storage temperature: < 52°C.

Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

8. Exposure controls/personal protection

Control parameters Occupational exposure limit values:

Long Term Exposure Limit (LTEL): 8-hr Time-weighted Average (TWA) 1000 ppm.

Occupational exposure limits:

Substance Name	Occupational exposure limits
Propane	USA (OSHA): PEL - TWA (8h; mg/m ³): 1800 USA (OSHA): PEL - TWA (8h; ppm): 1000 Germany: MAK - TWA (8h; mg/m ³): 1800 Germany: MAK - TWA (8h; ppm): 1000 Germany: MAK - STEL (15min; mg/m ³): 7200 Germany: MAK - STEL (15min; ppm): 4000 Belgium: GWBB - TWA (8h; ppm): 1000

Exposure controls:

Appropriate engineering controls:

Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal protective equipment:

- Eye and face protection:
Sufficient eye protection should be worn. When handling compressed gas, at least glasses with side protection should be worn. When handling liquid gas, chemical safety goggles must be used as well as a protective shield.
- Skin protection:
Body protection:
Use protective boots while handling gas cylinders.

Hand protection: Wear leather gloves to prevent frostbite injuries from rapidly expanding gas when handling pressurized gas bottles.

- Respiratory protection: In an emergency (e.g.: unintentional release of the substance, exceeding the occupational exposure limit value) respiratory protection must be worn. Consider the maximum period for wear. Wear self-contained breathing apparatus. Do not use filter respirator.

Environmental exposure controls:

Do not allow material to be released to the environment without the proper governmental permits.

Industrial hygiene:

Handle in accordance with good industrial hygiene and safety practice.

Wash hands before breaks and at the end of workday. Avoid contact with skin and eyes.

Avoid inhalation of vapor or mist.

9. Physical and chemical properties

Appearance:	Compressed liquefied gas.
Color:	Clear, colorless.
Odor:	Slight ethereal.
Melting point:	-188 °C
Boiling point:	-42.1 °C
Flash point:	-80 °C
Vapor pressure:	approx. 7,3 bar (20°C)
Gas density:	1,81 kg/m ³
Relative density	0.51 (air = 1)
Critical temperature:	96.5 °C
Explosive properties:	Vapors may be explosive
Flammability:	In: 2,3% Sup: 9,5%
Partition coefficient (n-octanol/water):	2.35
Hydro-solubility:	< 0,1g/l 20°C
Autoignition temperature:	460 °C

10. Stability and reactivity

- **Reactivity:**
No specific test data related to reactivity available.
- **Chemical stability:**
Stable under normal temperature conditions and recommended use.

- **Possibility of hazardous reactions:**
Under normal conditions of storage and use, hazardous reactions will not occur.
- **Conditions to avoid:**
Avoid all possible sources of ignition (sparks and flames). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow gas to accumulate in low or confined areas.
- **Incompatible materials:**
Oxidizers
- **Hazardous decomposition products:**
Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological Information

Toxicological information	
Toxicokinetics, metabolism and distribution	
To the best of our knowledge, the toxicological properties have not been thoroughly investigated.	
Information on toxicological effects	
Acute toxicity due Inhalation:	
R290	No data available.
Skin corrosion/irritation:	
R290	No data available.
Serious eye damage/irritation:	
R290	No data available.
STOT-single exposure and repeated exposure:	
No data available.	

12. Ecological information

Toxicity	Quantitative data on the acute fish/daphnia/bacteria toxicity of this product are not available.
Persistence and degradability	
R290	Air, fotolisis, ODP = 0. Reference value from CFC 11: ODP = 1. GWP = 3 Reference value from CO2:GWP=1
Bio accumulative potential	

R29	Log pow = 2.36. The low octanol-water partition coefficient.
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Mobility in soil	
R32	To the best of our knowledge, the toxicological properties have not been thoroughly investigated.
Other adverse effects	
R32	Global warming potential (GWP) = 3

13. Disposal considerations

Best to recover and recycle. If this is not possible, destruction is to be in an approved facility which is equipped to absorb and neutralize acid gases and other toxic processing products.

Product removed from the cylinder must be disposed of in accordance with appropriate Federal, State, local regulation. Return cylinders with residual product to the suppliers. Do not dispose of locally.

14. Transport Information

Land transport (ADR/RID/GGVSE)	
UN-No.:	1978
Official transport designation:	Propane
Class:	2.1
Classification Code:	21
Packing group:	-
Hazard label:	2.1

Sea transport (IMDG-Code/GGVSee)	
Proper Shipping Name:	Propane
Class:	2.1
UN-No.:	1978
Packing group:	-
ADR- ID number of danger	23

Air transport (ICAO-TI/IATA-DGR)	
Proper Shipping Name:	Propane
Class:	2.1
UN-No.:	1978

Packing group: -

15. Regulatory information.

Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulation:

- **Authorizations:** No information available.
- **Restrictions on use:** No information available.
- **EINECS:** The substance is listed in the inventory.
- **DSD (67/548/EEC):** The substance is not listed in the Annex I.
- **Regulation (EC) No 842/2006:** The substance is listed in the Annex I of Regulation (EC) No 842/2006 on certain fluorinated greenhouse gases.

Other chemical regulation:

- USA - TSCA: The substance is listed in the inventory.
- Canada - DSL: The substance is listed in the inventory.
- Australia - AICS: The substance is listed in the inventory.
- Korea - ECL: The substance is listed in the inventory.
- Japan - ENCS: The substance is listed in the inventory.
- China - IECSC: The substance is listed in the inventory.

Chemical Safety Assessment:

No Chemical Safety Assessment has been carried out for this substance

16. Other information.

Abbreviations and acronyms

CLP	EU regulation (EC) No 1272/2008 on classification, labelling and packaging of chemical substances and mixtures.
CAS	Chemical Abstracts Service (division of the American Chemical Society).
EINECS	European Inventory of Existing Commercial Chemical Substances.
IARC	International agency for research on cancer.
RID	European Rail Transport.
IMDG	International Maritime Code for Dangerous Goods.
IATA	International Air Transport Association.

DSD	Dangerous Substance Directive (67/548/EEC).
TSCA	Toxic Substances Control Act, The American chemical inventory.
DSL	Domestic Substances List, The Canadian chemical inventory.
AICS	The Australian Inventory of Chemical Substances.
ECL	Existing Chemicals List, the Korean chemical inventory.
ENCS	Japanese Existing and New Chemical Substances.
IECSC	Inventory of existing chemical substances in China.

Key literature references and sources for data

ESIS IUCLID Dataset:	European chemical Substances Information System.
NLM Dataset:	United States National library of medicine.

Relevant R-phrases and H-statements

R12	Extremely flammable
H220	Extremely flammable gas.
H280	Contains gas under pressure; may explode if heated.

Training advice

Provide adequate information, instruction and training for operators.

Declare to reader

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