

Material Safety Data Sheet

Date: 3rd January 2022

SECTION I – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name in English: Refrigerants Gas R290

Synonyms: R290, Liquefied Petroleum Gas; LP Gas; Dimethyl methane.

: Formula: C₃H₈/ CH₃CH₂CH₃

Supplier: Global Refrigerants (S) Pte Ltd

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SECTION II- COMPOSITION/ INFORMATION ON INGREDIENTS

INGREDIENT NAME	CAS NUMBER	Concentration %
Propane	74-98-6	>=99.95%

SECTION III – HAZARDS IDENTIFICATION

Hazardous Classification: Class 2.1 Compressed Gas and Liquefied Gas: Combustible Gas.

Primary Routes of Entry: Inhalation

Emergency Overview: DANGER! Flammable liquid and gas under pressure. Can form explosive mixtures with air. May cause frostbite. May cause dizziness and downiness.

Potential Health Effects

Skin: Skin contact may cause frostbite from exposure to the liquid.

Eyes: Irritant. Liquid contact will irritate and may cause conjunctivitis.

Inhalation: Inhalation of vapour may produce anesthetic effects and feeling of euphoria. Prolonged overexposure can cause rapid breathing, headache, dizziness, narcosis, unconsciousness, and death from asphyxiation depending on concentration and time of exposure.

Ingestion: This product is a gas at normal temperature and pressure, but frostbite of the lips and mouth may result from contact with the liquid.

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SECTION IV – FIRST AID MEASURES

Eyes: Immediately flush eyes with large amounts of water for at least 15 minutes (in case of frostbite, water should not hot) lifting eyelids occasionally to facilitate irrigation. Get medical attention if symptoms persist.

Skin: Promptly flush skin with water until all chemical is removed. If there is evidence of frostbite, bathe (do not rub) with lukewarm (not hot) water. If water is not available, cover with a clean, soft cloth or similar covering. Get medical attention if symptoms persist.

Inhalation: Prompt medical attention is mandatory in all cases of overexposure to product. Rescue personnel should be equipped with self-contained breathing apparatus. Conscious person should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Unconscious person should be moved to an uncontaminated area. Given assisted (artificial) respiration and supplemental oxygen.

Ingestion: DO NOT induce vomiting unless instructed to do so by a physician.

Advice to Physician or First-Aiders: If unconscious place in recovery position and seek medical advice. Never give anything by mouth to an unconscious person. If breathing is irregular or stopped, administer artificial respiration. If symptoms persist, call a physician.

SECTION V – FIRE FIGHTING MEASURES

Fire and Explosion Hazards: Propane is heavier than air and may travel along the ground or may be moved by ventilation systems and ignited by pilot lights, other flames, sparks, heaters, smoking, electric motors, static discharge, or other ignition sources at locations distant from material handling point.

Fire Fighting Instructions: Move container from the fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area. Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck: Stop leak if possible without personal risk. Let burn unless leak can be stopped immediately.

SECTION VI – ACCIDENTAL RELEASE MEASURES

Personal Precautions: Immediately contact emergency personnel. Use suitable protective equipment. Shut off gas supply if this can be done safely. Isolate area until gas has dispersed.

Environmental Precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Methods for Cleaning-up: Avoid heat, flames, sparks and other sources of ignition. Do not touch spilled material. Stop leak if possible without personal risk. Reduce vapours with water spray. Keep unnecessary people away. Isolate hazard area and deny entry. Remove sources of ignition. Ventilate closed spaces before entering.

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In Case of Spill or Other Release: (Always wear recommended personal protective equipment.) Evacuate unprotected personnel. Protected personnel should remove ignition sources and shut off leak, if without risk, and provide ventilation. Unprotected personnel should not return until air has been tested and determined safe, including low lying areas.

SECTION VII – HANDLING AND STORAGE

Handling: Always wear recommended personal protective equipment. Avoid breathing vapours and liquid contact with eyes, skin or clothing. Do not puncture or drop cylinders, expose them to open flame or excessive heat. Use authorized cylinders. Follow standard safety precautions for handling and use of compressed gas cylinders

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 51.7°C.

SECTION VIII – EXPOSURE CONTROLS / PERSONAL PROTECTION

Authorized Limit Values: Propane

USA TVL-TWA = 800 ppm TWA = 1900mg/m³ ACGIH: 2500 ppm

Engineering Controls: Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits.

Respiratory Protection: Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use. Any supplied-air respirator with a full face piece that is operated in pressure-demand or other positive pressure mode.

Hand protection: Chemical-resistant, impervious gloves or gauntlets complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eye Protection: For the gas: Eye protection is not required, but recommended. For the liquid: Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin Protection: For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.

Additional Recommendations: Handle in accordance with good industrial hygiene and safety practice. No smoking in the working area. Avoid long-time contact.

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SECTION IX – PHYSICAL & CHEMICAL PROPERTIES

Appearance: Gas

Odour: Odorless

Boiling Point (1,013 hPa): -42.1°C

Vapour Pressure: 840 kPa (20°C)

Freezing Point: -187.6°C

Density (Water=1): 0.58 g/cm³ (25°C)

Application: Temperature sensing agent and Refrigerant.

Colour: Colourless

Molecular Weight: 44.11

pH: Neutral

Vapour Density (air=1): 1.56

Solubility: Water 75mg/l (25°C)

Autoginition Temperature: 449.85°C

SECTION X – Stability AND REACTIVITY

Stability: Stable under normal conditions of handling and use. Avoid heat, flames, sparks and other sources of ignition. Minimize contact with material. Containers may rupture or explode if exposed to heat.

Incompatibility With other Materials: Strong acids, alkalies and oxidizers such as chlorine (gas or liquid) and oxygen.

Hazardous Decomposition Products: Carbon monoxide (CO), Carbon dioxide (CO₂)

Hazardous Polymerization: Will not occur.

SECTION XI – TOXICOLOGICAL INFORMATION

Toxicity Data: IDLH: 2100 PPM

Chronic effects on humans: Causes damage to the following organs: the nervous system.

Other toxic effects on human: No specific information is available in our database regarding the other toxic effects of this material for humans.

SECTION XII – ECOLOGICAL INFORMATION

General: No adverse ecological effects are expected. Propane does not contain any Class I or Class II Ozone depleting chemicals (40 CFR Part 82). Propane is not listed as a marine pollutant by DOT (49 CFR Part 171)

Toxicity of the products of biodegradation: The product itself and its products of degradation (carbon oxides (CO, CO₂) and water) are not toxic.

Environmental hazards: No known significant effects or critical hazards.

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SECTION XIII – DISPOSAL CONSIDERATIONS

Nature of the Waste: Not a RCRA hazardous waste.

Waste Treatment: Waste from residues / unused products: Can be used after re-conditioning. Product removed from the cylinder must be disposed of in accordance with appropriate National and local regulation. Return cylinders with residual product to the supplier.

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

SECTION XIV – TRANSPORT INFORMATION

Classification Code: 21011

UN-No.: 1978.

Marking: 4

Primary label: Combustible Gas.

Packing group: II.

Packing Method: Steel cylinders

SECTION XV – REGULATORY INFORMATION

*Common dangerous chemical classification and labelling (GB13690-92).

*Regulations on the Control over Safety of Dangerous Chemicals (State Council Decree 344 [2002]).

*Regulations on Labour Protection in workplaces with Toxic Substances (State Council Decree 352 [2002]).

*Regulations on the Safety Use of Chemicals in workplaces (Department of Labor, Reg 423 [1996], are enacted to control the safe use, production, storage, transport, operation, trade and disposal of dangerous chemicals.

SECTION XVI – OTHER INFORMATION

NFPA Classification: Health =2 Flammability =4 Instability=0

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