

Material Safety Data Sheet

Refrigerant R290 - PROPANE

Revision 9/04

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Advanced Gas Technologies
1401 Stauffer Road
Palm, PA 18070

Telephone Number: (215) 541-4116

MSDS IDENTIFICATION CODE / NUMBER: PR

EMERGENCY TELEPHONE NUMBER

CHEMTREC (800) 424-9300

PRODUCT NAME: Propane

CAS NUMBER: 74-98-6

CHEMICAL FAMILY: Aliphatic hydrocarbon

CHEMICAL FORMULA: C₃H₈

SYNONYMS: (LPG), Liquefied Petroleum Gas, Dimethyl Methane

2. COMPOSITION / INFORMATION ON INGREDIENTS

| INGREDIENT NAME | EXPOSURE LIMITS | CONCENTRATION PERCENT BY WEIGHT |
|---------------------|---|------------------------------------|
| PROPANE | ACGIH-TLV-TWA: D Simple Asphyxiant Maintain oxygen levels above 19.5% | 99.0 to 99.98 |
| CAS NUMBER: 74-98-6 | OSHA PEL-TWA: 1000ppm (Final) IDLH: 20,000ppm | |

3. HAZARDS IDENTIFICATION

NO DATA GIVEN

4. FIRST AID MEASURES

EYES

IMMEDIATELY FLUSH with tepid water in large quantities, or with sterile saline solution. Seek medical attention as soon as possible. DO NOT USE HOT WATER!

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SKIN

For dermal contact or frostbite, flush affected area with lukewarm water. DO NOT USE HOT WATER. A physician should see the patient promptly if the cryogenic "burn" has resulted in blistering of the dermal surface or deep tissue freezing. Seek medical treatment as soon as possible.

INGESTION

Treat in a manner similar to skin contact.

INHALATION

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF CONTAINED BREATHING APPARATUS.

Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Unconscious persons should be moved to an uncontaminated area, given artificial resuscitation and supplement oxygen. Further treatment should be symptomatic and supportive.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASH POINT: -156 °F -104 °C closed cup

AUTOIGNITION: 896 °F 480 °C

LOWER EXPLOSIVE LIMIT (%): 2.2

UPPER EXPLOSIVE LIMIT (%): 9.5

FIRE AND EXPLOSION HAZARDS

Propane is heavier than air and may travel a considerable distance to a source of ignition. Should flame be extinguished and flow of gas continue, increase ventilation to prevent flammable mixture formation in low areas or pockets. May burn with invisible flame in bright light. May rapidly form explosive mixtures in air.

Electrical Classification: Class 1, Group D.

EXTINGUISHING MEDIA

Water, Carbon dioxide, Dry chemical. Use water spray to cool fire exposed containers.

FIRE FIGHTING INSTRUCTIONS

If possible, stop the flow of propane using a remote valve. Never enter a flammable atmosphere. Use water spray to cool surrounding containers.

6. ACCIDENTAL RELEASE MEASURES

Evacuate all personnel from affected area. Use appropriate protective equipment including self contained breathing apparatus and fire turnout gear. If leak is in user's equipment, be certain to purge piping with an inert gas prior to attempting repairs. If leak is in container or container valve, contact CHEMTREC for emergency assistance or call Advanced Gas Technologies.

7. HANDLING AND STORAGE

HANDLING AND STORAGE PRECAUTIONS

Use only in well-ventilated areas. Valve protection caps must remain in place unless container is secured. Do not drag, roll or slide cylinders. Use a suitable hand truck for cylinder movement.

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Use a pressure reducing regulator when connecting cylinder to lower pressure (<250 psig) piping or systems. Do not heat cylinders by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder.

Protect cylinders from physical damage. Store in cool, dry, well-ventilated area away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 130 °F (54 °C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in-first out" inventory system to prevent full cylinders from being stored for excessive periods of time.

Post "NO SMOKING OR OPEN FLAMES" signs in the storage or use area. There should be no source of ignition in storage or use area.

For additional storage recommendations, consult Compressed Gas Association's Pamphlets P-1 , P-14, and safety bulletin SB-2.

Earth-ground and bond all lines and equipment associated with the propane system. All electrical equipment should be non-sparking or explosion proof.

Compressed gas cylinders should not be refilled except by qualified producers of compressed gases. Shipment of a compressed gas cylinder which has not been filled by the owner or with his (written) consent is a violation of Federal Law (49CFR)

Never carry a compressed gas cylinder or a container of a gas in cryogenic liquid form in a enclosed space such as a car trunk, van or station wagon. A leak can result in a fire, explosion, asphyxiation or a toxic exposure.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS

Use local exhaust to prevent gas from accumulating. Use general ventilation to prevent build up of flammable concentrations. Use a hood with ventilation when handling small quantities. If product is handled routinely where the potential for leaks exists, all electrical equipment must be rated for use in potentially flammable atmospheres. Consult the National Electrical Code for details.

EYE / FACE PROTECTION

Safety goggles or glasses

SKIN PROTECTION

Plastic, leather or rubber gloves for potential evaporating contact.

RESPIRATORY PROTECTION

Positive pressure air line with mask or self contained breathing apparatus should be available for emergency use and routine use when exposure levels are above exposure limits.

OTHER / GENERAL PROTECTION

Safety shoes.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

A colorless gas shipped as a liquefied gas under its own vapor pressure.

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ODOR

Odorless.

BASIC PHYSICAL PROPERTIES

BOILING POINT: -43.7 °F -42.1 °C
MELTING POINT: -305.86 °F -187.7 °F
VAPOR PRESSURE: 124 Psia @70 F
VAPOR DENSITY (AIR=1): 1.56
SOLUBILITY (H2O): Negligible

10. STABILITY AND REACTIVITY

STABILITY: Stable

INCOMPATIBLE MATERIALS

Oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon dioxide, Carbon monoxide if sufficient oxygen is present.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS

Contact with liquid may cause tissue freezing and cryogenic "burns" causing pain and irritation..

SKIN EFFECTS

Contact with evaporating liquid can cause cryogenic "burn" or frostbite. Frostbite effects are a change in color of skin to gray or white, possibly followed by blistering.

ACUTE ORAL EFFECTS

Contact of mucous membrane with liquid may cause tissue freezing and cryogenic burns, although ingestion is unlikely.

ACUTE INHALATION EFFECTS

Propane is a simple asphyxiant . Oxygen levels should be maintained at greater than 19.5 percent at normal atmospheric pressure which is equivalent to a partial pressure of 135 mm Hg.

High concentrations of propane so as to exclude an adequate supply of oxygen to the lung causes dizziness, deeper breathing due to air hunger, possible nausea and eventual unconsciousness.

Propane is relatively inactive biologically and essentially nontoxic; therefore, the major hazard is the exclusion of an adequate supply of oxygen to the lungs.

12. ECOLOGICAL INFORMATION

NO DATA GIVEN

13. DISPOSAL CONSIDERATIONS

Do not attempt to dispose of waste or unused quantities. Return in the shipping container PROPERLY LABELED, WITH ANY VALVE OUTLET PLUGS OR CAPS SECURED AND VALVE PROTECTION CAP IN PLACE TO Advanced Gas Technologies for proper disposal.

14. TRANSPORT INFORMATION

PROPER SHIPPING NAME: Propane
HAZARD CLASS: Flammable Gas
DOT IDENTIFICATION NUMBER: UN1978
DOT SHIPPING LABEL: Flammable Gas

OR:

PROPER SHIPPING NAME: Liquefied Petroleum Gas
HAZARD CLASS: Flammable Gas
DOT IDENTIFICATION NUMBER: UN1075
DOT SHIPPING LABEL: Flammable Gas

15. REGULATORY INFORMATION

SARA TITLE III NOTIFICATIONS AND INFORMATION

SARA TITLE III - HAZARD CLASSES: Acute Health Hazard
Fire Hazard
Sudden Release of Pressure Hazard

16. OTHER INFORMATION

NFPA HAZARD RATING - HEALTH 1 Slight
FIRE 4 Extreme
REACTIVITY 0 Negligible

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