

## FLAMAL™ 29

### Section 1. Chemical product and company identification

<b>Commercial name(s)</b>	: FLAMAL™ 29
<b>Synonym</b>	: Propylene
<b>Material uses</b>	: Fuel gas for welding, cutting and heating.
<b>Supplier/Manufacturer</b>	: Air Liquide Canada Inc. 1250, René-Lévesque West, Suite 1700, Montreal, QC H3B 5E6
<b>In case of emergency</b>	: (514) 878-1667

### Section 2. Hazards identification

<b>Physical state</b>	: Liquefied gas.
<b>Emergency overview</b>	: DANGER!  FLAMMABLE GAS. HIGH PRESSURE GAS. MAY CAUSE FLASH FIRE. GAS REDUCES OXYGEN AVAILABLE FOR BREATHING.  Keep away from sources of ignition. Keep away from heat (<52°C/125°F). Use only with adequate ventilation. Extremely hazardous gas under pressure. Keep cylinder valve closed when the product is not used.
<b>Routes of entry</b>	: Inhalation. Dermal contact. Eye contact.
<b>Potential acute health effects</b>	
<b>Inhalation</b>	: Inhalation of this product may cause dizziness, an irregular heartbeat, narcosis, nausea or asphyxiation.
<b>Skin</b>	: No known significant effects or critical hazards.
<b>Eyes</b>	: No known significant effects or critical hazards.
<b>Ingestion</b>	: Since the product is a gas, it will probably be inhaled rather than ingested. Consider first the preventive measures in case of inhalation.
<b>Potential chronic health effects</b>	: CARCINOGENIC EFFECTS: Classified None. by NIOSH. A4 (Not classifiable for humans or animals.) by ACGIH, 3 (Not classifiable for humans.) by IARC. MUTAGENIC EFFECTS: Mutagenic in mammalian somatic cells, based on <i>in vivo</i> studies. TERATOGENIC EFFECTS: Not available.
<b>Medical conditions aggravated by over-exposure</b>	: None known.
See toxicological information (Section 11)	

### Section 3. Composition, Information on Ingredients

	CAS number	mole %
Canada propene	115-07-1	>98

This material is classified hazardous under the WHMIS Controlled Product Regulation in Canada.  
See Chapters 8, 11, 14 and 15 for details.

### Section 4. First aid measures

**Prompt medical attention is mandatory in all cases of overexposure to this gas. Rescue personnel should wear a self-contained breathing apparatus and be aware of extreme fire and explosion hazard.**

<b>Inhalation</b>	: In case of inhalation, conscious persons should be assisted to an uncontaminated area and inhale fresh air. The person should be kept warmed and calm. Quick removal from the contaminated area is most important. Unconscious persons should be moved to an uncontaminated area, given assisted resuscitation and supplemental oxygen. Further treatment should be symptomatic and supportive.
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- Skin contact** : In case of contact, immediately flush skin with plenty of water. Get medical attention.
- Eye contact** : Individual in contact with a gas should not wear contact lenses. Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 20 minutes. Get medical attention if symptoms occur.
- Ingestion** : Since the product is a gas, it will probably be inhaled rather than ingested. Consider first the preventive measures in case of inhalation.
- Notes to physician** : The medical doctor must be warned that the person may suffer from anoxia.

## Section 5. Fire-fighting measures

- Flammability of the product** : Flammable.
- Auto-ignition temperature** : 454.85 to 459.85°C (850.7 to 859.7°F)
- Flash point** : Closed cup: -108.15°C (-162.7°F) [Pensky-Martens.]
- Flammable limits** : Lower: 2%  
Upper: 10.5%
- Products of combustion** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide
- Fire hazards in the presence of various substances** : Extremely flammable in the presence of open flames, sparks and static discharge.  
Highly flammable in the presence of heat.
- Explosion hazards in the presence of various substances** : Explosive in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.
- Fire-fighting media and instructions** : Use an extinguishing agent suitable for the surrounding fire.
- Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance.
- Extremely flammable. Gas may accumulate in confined areas. Gas may travel considerable distance to source of ignition and flash back.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

- Personal precautions** : EVACUATE ALL PERSONNEL FROM AFFECTED AREA.  
Use appropriate protective equipment. If leak is in user's equipment, be certain to purge piping with an inert gas prior to attempting repairs. If leak is on container or container valve, contact the closest Air Liquide Canada location.
- Environmental precautions** : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Methods for cleaning up** : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see section 1 for emergency contact information and section 13 for waste disposal.

## Section 7. Handling and storage

- Handling** :
- Keep away from heat, sparks and flame. To avoid fire, eliminate ignition sources. Use explosion-proof electrical equipment (ventilating, lighting and material handling). Valve protection caps must remain in place unless cylinder is secured with valve outlet piped to usage point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure regulator when connecting cylinder to lower pressure piping or systems. Do not heat cylinder 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 the cylinder. Do not tamper with (valve) safety device. Close valve after each use and when empty.
- Storage** :
- Protect cylinders from physical damage. Store in cool, dry, well-ventilated area of non combustible construction away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 52°C/125°F. Cylinders must 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 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 the storage or use area. Segregate from oxidizing materials.

## Section 8. Exposure controls/personal protection

- Engineering controls** :
- Use only in well-ventilated areas. Gas may accumulate in confined areas.
- Personal protection**
- Respiratory** :
- Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hands** :
- Wear suitable gloves for the application.
- Eyes** :
- Safety glasses with side shields.
- Skin/Body** :
- Wear appropriate personal protective suit. Fire retardant clothing may be required when handling or using flammable products.
  - Metal cap, safety shoes are recommended when handling cylinders.



Some applications of this product may require additional or other specific protective clothings. Please consult your supervisor.

- Personal protection in case of a major leak** :
- Safety glasses, goggles or face shield. Impervious gloves. Full suit. Metal cap, safety boots. Wear MSHA/NIOSH-approved self-contained breathing apparatus or equivalent and full protective gear.

<b>Occupational exposure limits</b>		<b>TWA (8 hours)</b>			<b>STEL (15 mins)</b>			<b>Ceiling</b>		
<b>Ingredient</b>	<b>List name</b>	<b>ppm</b>	<b>mg/m<sup>3</sup></b>	<b>Other</b>	<b>ppm</b>	<b>mg/m<sup>3</sup></b>	<b>Other</b>	<b>ppm</b>	<b>mg/m<sup>3</sup></b>	<b>Other</b>
propene	US ACGIH 2/2010	500	-	-	-	-	-	-	-	-
	AB 4/2009	500	860	-	-	-	-	-	-	-
	BC 9/2010	500	-	-	-	-	-	-	-	-
	ON 7/2010	500	-	-	-	-	-	-	-	-

In Canadian provinces where no value is specifically suggested, the lowest value above should be used. Consult local authorities for acceptable exposure limits.

## Section 9. Physical and chemical properties

<b>Physical state</b>	: Liquefied gas.
<b>Color</b>	: Colorless.
<b>Odor</b>	: Stench.
<b>Molecular weight</b>	: 42.09 g/mole
<b>Molecular formula</b>	: C <sub>3</sub> H <sub>6</sub>
<b>Boiling/condensation point</b>	: -47.7°C (-53.9°F)
<b>Melting/freezing point</b>	: -185°C (-301°F)
<b>Critical temperature</b>	: 91.9°C (197.4°F)
<b>Specific gravity</b>	: 0.609
<b>Vapor density</b>	: 1.4 [Air = 1]

## Section 10. Stability and reactivity

<b>Stability and reactivity</b>	: The product is stable.
<b>Incompatibility with various substances</b>	: Reactive or incompatible with the following materials: oxidizing materials.
<b>Hazardous decomposition products</b>	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
<b>Hazardous polymerization</b>	: Under normal conditions of storage and use, hazardous polymerization will not occur.

## Section 11. Toxicological information

### Acute toxicity

#### Acute Effects

<b>Inhalation</b>	: Inhalation of this product may cause dizziness, an irregular heartbeat, narcosis, nausea or asphyxiation.
<b>Skin</b>	: No known significant effects or critical hazards.
<b>Eyes</b>	: No known significant effects or critical hazards.
<b>Ingestion</b>	: Since the product is a gas, it will probably be inhaled rather than ingested. Consider first the preventive measures in case of inhalation.
<b>Potential chronic health effects</b>	: CARCINOGENIC EFFECTS: Classified None. by NIOSH. A4 (Not classifiable for humans or animals.) by ACGIH, 3 (Not classifiable for humans.) by IARC. MUTAGENIC EFFECTS: Mutagenic in mammalian somatic cells, based on <i>in vivo</i> studies. TERATOGENIC EFFECTS: Not available.

## Section 12. Ecological information

### Aquatic ecotoxicity

<b>Products of degradation</b>	: These gases are released as is in the atmosphere.
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## Section 13. Disposal considerations

<b>Disposal</b>	: Do not attempt to dispose of the container or of its content. Return in the shipping container properly labeled, with any valve outlet plugs or caps secured and valve protection cap in place to Air Liquide Canada for proper disposal. For emergency disposal, contact the closest Air Liquide Canada location.
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## Section 14. Transport information

NAERG : 115

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label
<b>TDG Classification</b>	UN1077	PROPYLENE	2.1	-	
<b>IMDG Class</b>	UN1077	PROPYLENE	2.1	-	
<b>IATA-DGR Class</b>	UN1077	PROPYLENE	2.1	-	

PG\* : Packing group

### Additional information

Cylinders should be transported in a secure position, in a well ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles can present serious safety hazards and should be discouraged.

**UN**

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**TDG**

**Explosive Limit and Limited Quantity Index**  
0.125

**ERAP Index**  
3000

**Passenger Carrying Ship Index**  
Forbidden

**Passenger Carrying Road or Rail Index**  
Forbidden

**IMDG**

**Emergency schedules (EmS)**  
F-D, S-U

**IATA**

**Passenger and Cargo Aircraft** Quantity limitation: Forbidden  
Packaging instructions: Forbidden  
**Cargo Aircraft Only** Quantity limitation: 150 kg  
Packaging instructions: 200  
**Limited Quantities - Passenger Aircraft** Quantity limitation: Forbidden  
Packaging instructions: Forbidden

## Section 15. Regulatory information

**Canada****WHMIS (Canada)**

- : Class A: Compressed gas.
- Class B-1: Flammable gas.
- Class D-2B: Material causing other toxic effects (Toxic).

**Canadian lists**

- : **CEPA Toxic substances:** This material is not listed.
- Canadian ARET:** This material is not listed.
- Canadian NPRI:** This material is listed.
- Alberta Designated Substances:** This material is not listed.
- Ontario Designated Substances:** This material is not listed.
- Quebec Designated Substances:** This material is not listed.

**Canada inventory (DSL/NDL)**

- : This material is listed or exempted.

## Section 16. Other information

Hazardous Material Information System (U.S.A.) :	Health	1
	Fire hazard	4
	Physical Hazard	0
	Personal protection	G

National Fire Protection Association (U.S.A.) :	4	Flammability
	1	Health
	0	Instability
		Special

**References** : ANSI Z400.1, MSDS Standard, 2004. - Manufacturer's Material Safety Data Sheet. - Canada Gazette Part II, Vol. 122, No. 2. Registration SOR/88-64, 31 December 1987. Hazardous Products Act "Ingredient Disclosure List" - Canadian Transport of Dangerous Goods, Regulations and Schedules, Clear Language version 2005. CGA C-7 Guide to the Preparation of Precautionary Labels and Marking of Compressed Gas Containers. CGA P-20 Standard for Classification of Toxic Gas Mixtures. CGA P-23 Standard for Categorizing Gas Mixtures Containing Flammable and Nonflammable Components.

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### Notice to reader

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