

January 5, 2021

Refrigerant R290, U.L. Classified Propane

There have been several questions and concerns raised lately from Wholesalers and Distributors regarding R290. R290 is Class A3 refrigerant by ASHRAE's Standard 34 refrigerant safety group. It is a **highly flammable compressed gas** and should only be handled by experienced and properly instructed persons.

R290 is an extremely pure propane which is used in low temperature refrigeration applications. This propane contains no odourization compared to fuel propane. The AHRI Standard 700-2019 contains the complete specification for R290. Two of the most important criteria for R290 are Grade 2.5 (99.5%), which defines the purity, and water content, <10 ppm water in the liquid phase. The use of the product name R290 followed by U.L. Classified indicates U.L. (Underwriter Laboratories) has tested and evaluated samples of a product with respect to certain properties of the product. U.L. classifies products to applicable U.L. requirements, ensuring quality and purity criteria are met.

Always refer to the suppliers' Safety Data Sheet before using a product.

Only experienced and properly instructed persons should handle gases under pressure including R290. Always and handle compressed gas cylinders in accordance with Compressed Gas Association, pamphlet CGA P-1- 2015, Safe Handling of Compressed Gases in Containers.

If there are any concerns regarding the cylinder or valve for R290, the product supplier should be contacted immediately. The Supplier is always identified on the cylinder label.

The cylinders should always be returned to the Supplier marked on the cylinder or point of purchase.

Before any indoor or outdoor storage of R290 Propane (Flammable Compressed Gas) is to be considered, all local building, electrical and fire code requirements must be in place and approved by the municipality.

These laws and regulations will specify the permissible kinds of storage areas and the construction of these storage areas. They will also specify the kinds and amounts of different gases that can be stored in each safe storage area. Storage and handling for R290 would be

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very similar to acetylene, which most wholesalers and distributors have provision and care experience.

Among these requirements, R290 should be stored in cool, dry well-ventilated area of non-combustible construction away from heavily trafficked areas and emergency exits. Keep at temperatures below 52 °C /125 °F. Cylinders should be stored upright with valve protection cap in place and secured to prevent falling. 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. Stored containers should be periodically checked for general condition and leakage. Outside or detached storage is preferred.

Important Considerations

- Have an emergency plan covering steps to be taken in the event of an accidental release.
- Wear leather gloves and safety shoes when handling cylinders.
- Avoid inhalation of vapour or mist.
- Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources.
- No smoking, ground and bond all lines and equipment associated with product system.
- All equipment should be non-sparking and explosion proof
- Separate flammable gas cylinders from oxygen and other oxidizers by a minimum of 20 ft or by a 5ft high barrier with minimum fire-resistant rating of a half hour.
- “NO SMOKING” signs should be posted in storage and use areas.

Protect cylinders from physical damage: do not drag, roll, slide or drop. When moving cylinders, even for a short distance, use a cart designed to transport cylinders. Use only with equipment rated for cylinder pressure. Close valve after each use and when empty. If user experiences any difficulty operating cylinder valve discontinue use and contact Supplier. Ensure the complete gas system has been checked for leaks before use of R290.

Never put cylinders in trunks or cars or unventilated area of passenger vehicles. Never attempt to refill a compressed gas cylinder without the owner’s written consent. Never strike an arc on a compressed gas cylinder or make a cylinder part of an electrical circuit.

Propane is a dangerous good under the Transportation of Dangerous Goods (TDG) Regulations of Canada. The TDG Regulations have additional requirements that must be satisfied when activities under TDG Regulations are performed.

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Reference Sites

Compressed Gas Association

<https://www.cganet.com/>

National Fire Code of Canada

<https://nrc.canada.ca/en/certifications-evaluations-standards/codes-canada/codes-canada-publications/national-fire-code-canada-2015>

CSA Group B149.2-15

<https://www.csagroup.org/standards/>

CSAB52 Safety code for Mechanical Refrigeration

<https://www.csagroup.org/standards/>

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