

Propane – Safe Handling and Storage

Overview

At ambient temperature and pressure propane is a gas. However, when propane is cooled and moderately pressurized it becomes a liquid and is known as liquefied petroleum gas (LPG).

By liquefying propane, safe transportation and storage is possible.

However, propane stored at 20 degrees Celsius is approximately 8 times the atmospheric pressure. With the higher pressure, a powerful explosion will result in the event of a tank failure.

To prevent tank failure, propane companies use extremely strong and durable storage tanks equipped with a pressure relief valve as a safety feature. If the tank heats up, the inside pressure increases, causing the pressure relief valve to open and release some propane as a gas.

As propane is colourless and odourless, an odourant is added as a safety feature to detect possible leaks. The odourant (Ethyl Mercaptan) smells like rotten eggs or boiling cabbage.

A propane gas detector is also a safety consideration.

However, the first safety consideration for handling and storage should be

regular inspection and maintenance of propane equipment and appliances.

Propane Safety Requirements

All aspects of the propane industry are governed by Canadian codes and regulations.

The primary code is the Canadian Standards Association (CSA) series of codes.

Various other standards and codes are in place for fittings, valves connectors, hoses, appliances and other equipment used in propane applications i.e. CGA, ANSI, CSA, ASTM, MSS, UL, ULC and ISO standards and codes.

These standards and codes are adopted by jurisdictional authorities in the provinces and territories, as responsible agents for their enforcement, however, they may modify some to meet local conditions or adopt different editions of the standards.

In addition, the propane industry is required to comply with building, fire and electrical codes and acts, labour and workplace safety codes and municipal codes and regulations applicable to the communities where the propane industry conducts business.

Safe Handling and Storage Practices

- Employees handling propane must be trained and certified.
- Do not smoke while at or around propane facilities.
- Store tanks/cylinders:
 - in the position they were designed for
 - away from heat or sources of ignition
 - in a secure, well ventilated area, off the ground on a non-combustible base and away from heavy traffic
- Industrial type cylinders can be stored horizontally, but must be stored with the safety relief valve beneath the liquid propane level of the tank.
- Never store tanks/cylinders:
 - indoors
 - where there could be an exposure to temperatures greater than 52 degrees Celsius
 - that are damaged, corroded, have been exposed to fire or appear to be leaking
- Before storing or transporting disconnected cylinders, plug or cap all cylinder outlets.
- Cylinders that are damaged, obsolete or unable to be retrofitted should not be abandoned. Recycle them with a scrap metal dealer after learning from the dealer how to handle them properly before recycling.

Sources:

Propane Gas Association of Canada

www.propanegas.ca

Technical Standards & Safety Authority

www.tssa.ca

Ontario Propane Safety Review

www.propanesafetyreview.ca

Propane Facts

www.propanefacts.ca

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