

crop dryer safety

Liquefied Petroleum Gas, or propane, is a versatile, environmentally friendly energy source used in many residential, commercial, and industrial applications. A typical installation at a home or business may involve a 500- or 1,000-gallon tank or a small cylinder. But for many agricultural crop drying applications, it is necessary to store much more propane than your typical residential application.

Depending on the crop you intend to dry, such as rice, corn, nuts, or many others, the drying design will likely involve a very high BTU connected load. This will require a tractor trailer to deliver one or more large propane containers for installation.

Because crop drying systems may have sporadic or temporary use, but be used continually once the harvest begins, in some cases, temporary storage is installed. These systems may be strictly vapor service or may provide liquid service to vaporizers due to the high BTU demand. In either case, the dryer pushes heated forced air through the crop through different methods.

The purpose of this safety guide is to advise you of the things you should know if you use or plan to install and utilize propane for your crop drying operation. It is important to:

1 Make sure the propane system is designed and installed properly.

2 Ensure the propane system operates properly day to day.

training requirements

Both the NFPA code and the OSHA regulations require those operating a propane system must be formally trained in the applicable portions of their job.

In addition, OSHA requires that where a hazardous chemical is involved, the employer must have a formal hazard communication program. That program will instruct employees how to identify hazardous chemicals and how to handle them.

code requirements

There are several codes, laws, and regulations that apply to propane systems. The National Fire Protection Association (NFPA) develops NFPA 58 Liquefied Petroleum Gas Code that applies to system installations including:

- » Distance requirements from buildings, property lines, air intakes, sources of ignition, and other fuels.
- » Requirements for piping, valves, and appliance installations taking place in and out of buildings.
- » Requirements specifically addressing electrical equipment that are part of these systems.
- » For installations storing 60,000 pounds (approximately 14,000 gallons) or more of propane, the Department of Homeland Security (DHS) requires the installation to be registered in accordance with the Chemical Facility Anti-Terrorism Standard (CFATS).
- » Systems storing 10,000 pounds (approximately 2,358 gallons) or more must file a Tier II form with the Environmental Protection Agency, the Local Emergency Planning Committee, and their local fire department.
- » For container installations over 4,000 gallons, NFPA requires that a Fire Safety Analysis is completed by the time the system is put into operation.
- » An operation and maintenance program must be developed in accordance with NFPA 58.
- » The local Authority Having Jurisdiction (AHJ) will approve and/or enforce the requirements of the applicable codes.

special safety considerations

- » **The container and piping system must remain in compliance with the code** whether it is a temporary or permanent installation.
- » Ensure the installation is **protected from tampering or unauthorized access**.
- » Piping used to supply the dryer **must be of appropriate materials** in accordance with the code.
- » **Piping must not be laid on the ground.** Aboveground piping must be properly supported with appropriate flexibility and protected from damage due to vehicular traffic, including farm implements and ATVs.
- » Use of flexible connectors or flexible hoses are acceptable to provide for flexibility in steel piping systems. **Hoses are limited to 18" in length and should be inspected regularly.**
- » **Buried piping must be installed in accordance with the code.** Steel piping and appropriate fittings must be cathodically protected and tested in accordance with the code. ASTM D2513 polyethylene piping must be installed in accordance with the code. Polyethylene piping is not suitable for aboveground use. Hose is generally not acceptable for permanent installation at dryers.
- » **The liquid connection to the container(s) must be made using appropriate fitting at the appropriate location.** Use of a first-generation Actuated Liquid Withdrawal Excess Flow Valve, sometimes referred to as a Chek-Lok is not permitted. Use of a second generation Chek-Lok or an internal valve is permitted.
- » **All system equipment must be protected from damage due to vehicular traffic,** including vehicles, farm implements, and ATVs.

Propane is a flammable product and has a distinct odor so you can identify if there is a leak. The odor is added to propane as a safety measure. Ask your supplier to help you get a whiff of propane so you know what it smells like.

contact your propane supplier

Consult with your propane supplier or your Authority Having Jurisdiction (AHJ) to help with design, compliance, and training, or if you have any questions.



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