



NGFA Safety Tips: Preventing Dryer Fires

...Committed to promoting safety and health in the workplace...

Dryers play a critical role in grain storability and marketability

Grain dryers serve an important role in preserving grain quality during storage, thereby protecting the commodity's commercial value and reducing potential bin engulfment/entrapment hazards.

Although there are different types and designs of grain dryers, every dryer needs to be maintained and serviced according to the manufacturer's recommendation and more frequently if necessary.

Given the potential for fires, the Occupational Safety and Health Administration's (OSHA) Grain Handling Standard [29 CFR1910.272\(p\) \(continuous flow-bulk raw grain dryers\)](#) requires direct-heat grain dryers to be equipped with automatic controls that:

- Will shut off the fuel supply in the event of power or flame failure or interruption of air movement through the exhaust fan; and
- Will stop the grain from being fed into the dryer if excessive temperature occurs in the exhaust of the drying section.

Grain Dryer Operations

Grain dryers operate at temperatures above 140°F to reduce the moisture content of grain to enhance its storability. They commonly are fueled by natural gas, propane, steam or fuel oil and powered by electric motors. Grain dryers normally are equipped for automatic operation and will shut down in the event of overheating. Dryers move large volumes of heated air through perforated screens and the columns of gravity-fed grain.

Common causes of dryer fires

A common dryer malfunction is plugging of the grain flow, which can result in smoldering grain or foreign material in the grain within the dryer. This can result in a dryer fire and/or the conveying of smoldering or hot grain to a storage bin.

Mechanical failures and the lack of an effective maintenance plan also create the potential for dryer fires. A proper maintenance plan and established fire-prevention measures can limit dryer downtime during harvest and reduce potential injury and/or property loss.

Inadequate operator training, combined with a lack of operational oversight, create other opportunities for dryer fires to occur. For example, operating dryers at excessive temperatures can increase the risk of fire; therefore, many dryers have automatic shut offs if temperatures reach a critical level. Other significant contributors to increased dryer fire risks include the lack of timely cleaning and inspection of the manufacturer's recommended susceptible areas.



- The NGFA is committed to promoting safety and health in the workplace and shares the Occupational Safety and Health Administration's (OSHA's) commitment to protecting employees.
- The NGFA's extensive efforts to enhance safety include unprecedented research and education efforts launched in the early 1980s that helped lead to a dramatic reduction in the number of fire and explosion incidents in commercial grain-handling facilities.
- Each year, NGFA jointly sponsors regional safety seminars with affiliated state and regional grain and feed associations. The one-day conferences focus on keeping grain handling employees safe.
- ngfa.org/safety

Dryer fire prevention tips

An effective preventive maintenance program is important for reducing potential grain dryer fires. Following are some preventive maintenance tips for grain dryer start-up, cleaning and shutdown.

Dryer maintenance – Start-up

- Annual inspection by manufacturer or reputable dryer service provider.
- Fuel line pressure test and inspection.
- Inspect all grain handling equipment; fill and discharge conveyors and distributor.
- Check operating controls for function.
- Check and test any installed hazard-monitoring systems.
- Ensure that all emergency discharge gates are closed and there is no residual grain-related material from previous use in the distributor or columns.
- Remember to **REMOVE THE TARP FROM BURNER.**

Dryer maintenance – Proper cleaning prevents dryer fires

- Follow the manufacturer's cleaning priority schedule. Some areas of the dryer are a higher priority and require more frequent cleaning than others. Typically, manufacturers recommend cleaning at least every 24 hours of operation, but every 12 hours is a best practice.
- Allow the dryer to cool before entering and follow company/facility procedures prior to entry.
- Cover the burner with a tarp, especially if cleaning with water.



Dryer maintenance – For extended shut-downs

- Empty the dryer completely.
- Thoroughly inspect all portions of the dryer for material build up. Clean these areas, if necessary.
- If applicable, open the drain valves on the fuel supply.
- Leave the tarp over the burner. Place it so it does not create a funnel and collect water.
- Provide a fire watch after the dryer has been shut down.



More safety information at www.ngfa.org

Contact VP of Safety and Regulatory Affairs Jess McCluer or Director of Safety Education and Training Jim Seibert at (202) 289-0873

NGFA, 1400 Crystal Drive, Suite 260, Arlington, VA 22202

Disclaimer: The National Grain and Feed Association make no warranties, expressed or implied, concerning the accuracy, application or use of the information contained in this publication. Further, nothing contained herein is intended as legal notice. Competent legal counsel should be consulted on legal issues. Grain handling facilities should contact experienced safety and health legal counsel or a third-party expert if they have questions about the proper way to implement the items addressed in the document.