



FACE FATAL FACTS

SILOS AND SILO GAS HAZARDS

Important Things to Remember:

- Silos often have un-breathable air
- Assume there is no oxygen in silos
- Never enter a silo without following proper safety procedures
- Safety guards are available to prevent accidental falls through the top hatch
- Even limited exposure to silo gas while loading and unloading can be harmful
- Small exposures to nitrogen dioxide can lead to the development of Silo Filler's Disease
- Ventilation of feed/unloading areas can reduce exposure to this gas

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An additional alert on silo hazards is available from WISHA Services:
www.lni.wa.gov/safety/prevention



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Harvestore® Top Hatch Safety Device

Silos can be a serious hazard for farmers and workers on farms. Falls, hazardous atmosphere, and machine-related injuries can all occur.

Oxygen-limiting silos like the well recognized blue Harvestore silos, can create a serious confined space hazard. Silo gas, a natural by-product of feed fermentation, collects in upright silos within a few hours after new material (feed) is added. As fermentation occurs, a variety of gases, including nitric oxides and carbon dioxide are released. Silo gas can be a swift, silent and deadly killer! The gas is toxic and it can significantly deplete the amount of breathable air in a silo. Entering a silo with depleted breathable air can cause an individual to collapse within seconds and die within a matter of minutes.

Never attempt to enter the top or bottom of a silo without using a very specific confined space entry action plan. You should also very carefully read and follow the silo manufacturer's

guidelines for entry or maintenance in the silo. Always contact the manufacturer if you have questions or need clarification on appropriate steps to take.

The manufacturer of Harvestore silos has a safety device that they install on their silos to help prevent direct entry through the silo hatch openings. The Harvestore safety device is a galvanized or red bar that is installed directly across the hatch opening, to both prevent direct entry and to act as a reminder to have proper entry procedures in place prior to making any entry into the silo. If your silos do not have the bar safety device, the manufacturer recommends that you contact the silo dealer or the manufacturer to arrange to have them installed on your silos.

Never enter a silo unless it is absolutely necessary. Get professional help from persons who are knowledgeable, trained, and qualified to make confined space entries. The silo should not be entered without proper monitoring of gases and oxygen levels



in the silo, ventilating, and ensuring that the levels are safe for entry. Respiratory equipment may also be needed while conducting monitoring. Never enter a silo if you are alone, without a rescue plan and equipment, including a lifeline. Confined space procedures should be followed for every entry. Always have a designated person watch from the outside with instructions on what to do in an emergency. They should be instructed to call for help and never enter the confined space themselves.

Silo Filler's Disease

Silo filler's disease is a very serious condition that can result from exposure to silo gas. Within hours of filling a silo, oxides of nitrogen form gases that begin to build up in silos. Nitrogen dioxide (NO₂) gas builds up in the top of a silo. Because it is heavier than air, the gas can flow down and settle near the ground by filling and unloading areas. The gas combines with the moisture in your lungs to form highly corrosive

nitric acid. Inhaling even a small amount of these gases can cause severe injury to the lungs.

Symptoms can include: coughing, burning in the lungs, shortness of breath, fever, chills, headaches, nausea and vomiting. People should get immediate medical attention if they experience these symptoms after exposure to silo gases. Farmers who have recovered from early symptoms of silo gas exposure can relapse one to two weeks, or

more, after the incident. Exposure can even be fatal!

To prevent silo fillers disease it is important that farmers be aware of the hazards and prevention methods. Farmers should ensure that good ventilation is provided to the silo room and feed unloading areas. If the silo is connected to a barn or other building, use portable fans to blow air into and through the feed/unloading area to help dilute and remove the gases.