



# NOT JUST ANOTHER FIRE

## 10-Minute Training

### OXYGEN-LIMITING SILOS

Many have seen the tall, dark blue silos that grace farms across the country. These steel silos, known commonly by the brand name of Harvestore\*, have been built since the late 1940s. These particular silos may store silage, grain, wood particles, or other "flowable" dry commodities. While often used for simple storage, the structures are actually glass-lined in a manner that can be used to create an air-tight "vacuum-packed" storage environment for perishable commodities, like silage or wet corn. Other types of oxygen-limiting silos exist, but the Harvestore brand makes up the far majority.

Why is this a concern in a fire situation? Since these structures are designed to limit the air that enters — smoldering, vent-controlled fires result. Combustible carbon monoxide is then produced and contained by the silo. If a fire is occurring in this vent-controlled environment and firefighters allow oxygen, the result can be deadly, as the silos can explode. **THEREFORE, DO NOTHING THAT WILL CAUSE MORE AIR TO BE DRAWN INTO THE SILO.** Do not open hatches or spray water inside.



This Harvestore silo stores sawdust in a modified non-oxygen-limited fashion at a hardwood millworking facility. The sawdust is then conveyed from the silo to fuel a woodwaste-fired boiler.

In 1993, two firefighters were fatally injured in Georgia when they applied water and foam to a fire in an oxygen-limiting silo. The resulting explosion blew the roof off, sending one fireman to the ground over 100 yards away and the other through the roof of a nearby building. Two personnel on the ground were injured by debris. The top 15 feet of the silo were severely damaged by the explosion and an adjacent silo dented by debris.

The only method recommended by most experts for controlling fires in oxygen-limiting silos is to close all hatches (only allowing pressure to vent from the top hatch) and inject large volumes of inerting gas (carbon dioxide or nitrogen) through the bottom of the silo. Alternatively, you may be able to unload the silo and extinguish material as it exits, but do so with great caution, as the potential for collapse will exist. Advanced fires may be best left to burn themselves out while protecting any exposures.

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