Grain Handling Safety Stats and Facts

FACTS

1. The grain handling hazards include: fires and explosions from grain dust accumulation, suffocation from engulfment and entrapment in grain bins, falls from heights and crushing injuries and amputations from grain handling equipment
2. Suffocation is a leading cause of death in grain storage bins. Suffocation can occur when a worker becomes buried (engulfed) by grain as they walk on moving grain or attempt to clear grain built up on the inside of a bin. Moving grain acts like “quicksand” and can bury a worker in seconds. “Bridged” grain and vertical piles of stored grain can also collapse unexpectedly if a worker stands on or near it.
3. Grain dust explosions are often severe, involving loss of life and substantial property damage. Grain dust is the main source of fuel for explosions in grain handling. Grain dust is highly combustible and can burn or explode if enough becomes airborne or accumulates on a surface and finds an ignition source (such as hot bearing, overheated motor, misaligned conveyor belt, welding, cutting, and brazing).
4. Falls from height can occur from many walking/working surfaces throughout a grain handling facility. Examples of such surfaces include (but are not limited to) floors, machinery, structures, roofs, skylights, unguarded holes, wall and floor openings, ladders, unguarded catwalks, platforms and manlifts.
5. Mechanical equipment within grain storage structures, such as augers and conveyors, present serious entanglement and amputation hazards.
6. Storage structures can also develop hazardous atmospheres due to gases given off from spoiling grain or fumigation. Workers may be exposed to unhealthy levels of airborne

contaminants, including molds, chemical fumigants (toxic chemicals), and gases associated with decaying and fermenting silage.

STATS

- The United States averaged about 35 reported grain-handling incidents per year from 2005 to 2015, about 60% to 70% of which were fatal, according to Purdue University.
- In 2017, 23 grain entrapments and 12 deaths were recorded; in 2018, 30 grain entrapments and 15 deaths were recorded; and in 2019, 38 grain entrapments led to 23 deaths. Total grain entrapments rose by 65% over that 3-year period.

Data Collection for 2020 shows the following in regard to grain bin entrapments.

- Former Suffocation from engulfment is a leading cause of death in grain bin accidents.
- It takes only seconds to be completely engulfed in flowing grain or overcome by oxygen-deficient atmospheres.
- The majority of grain entrapment cases – 83% – occurred in the Midwest.
- Grain entrapments accounted for 49% of the documented cases of entrapments in confined spaces.