GLOBAL
Industrial Safety Solutions

Sharing is Caring
Lessons on Hidden Major Hazards

Didion Milling, 8 years on: Why the lessons are still relevant

Description

On 31 May 2017, combustible dust explosions and fires occurred at the Didion Milling dry corn mill in Cambria, Wisconsin. Five of the 19 employees working that night were fatally injured, and the other 14 were injured. The mill was extensively damaged and the facility was ultimately destroyed.

During normal mill operations, employees smelled smoke in parts of the mill and began looking for its source in the milling process areas. They believed the smoke was likely coming from the first floor of one of the buildings. While checking the equipment, several employees heard an explosion and saw fire coming from piping on the rotary gap mill discharge.

Employees started to evacuate and tried to warn others by radio. Conflicting radio traffic created confusion. A fire then spread through interconnected process equipment and dust collection systems, leading to explosions in dust collection equipment and further explosions and collapse across the facility.

Key findings

Didion was not only a housekeeping failure. It showed how a familiar material, corn dust, can become a major accident hazard when process hazard recognition, dust hazard analysis, and engineering control decisions are weak.

The CSB identified weaknesses in the design and management of dust collection and pneumatic conveying systems. Interconnected equipment allowed a fire or deflagration that might have remained local to propagate through the plant. Inadequate isolation, venting, suppression, and structural protection increased the severity of the event.

Management of change was also important. Changes to dust collection and conveying systems were not consistently assessed for their effect on safety performance, dust accumulation, or the ability of the systems to control combustible dust hazards.

The investigation found repeated warning signs before the incident, including smouldering fires and process upsets. These events did not lead to sufficient learning or corrective action, allowing abnormal conditions to become increasingly accepted.

The event also exposed weaknesses in emergency preparedness. Employees relied on radio messages during an uncertain and fast-moving situation, but there was no effective facility-wide alarm that could immediately tell everyone to evacuate.

Why does it concern me?

Didion remains relevant because combustible dust is still too often treated as a cleanliness issue rather than a major hazard capable of fatal explosions and structural collapse.

The same pattern can appear in many sectors. Ageing equipment, repeated small fires, incomplete actions, or changes made under production pressure can gradually reduce the margin between normal operation and disaster.

The lesson is not only to clean more often. It is to recognise weak signals, assess management of change properly, and use engineering controls where the consequence of failure could be catastrophic.

Ask the following questions:

- Are combustible dust hazards understood as major hazards?
- Are we relying on procedures where engineering controls are needed?
- Have recent changes affected dust collection or explosion protection?
- What warning sign has become normal over time?

The information included is given in good faith and without any liability on the part of Global Industrial Safety Solutions Ltd.
www.globalindustrialsafetysolutions.com