



Market News

The Number of Dust Explosions in the USA increased in 2018, Injuries and Fatalities decreased

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An increase in grain dust explosions were reported in the U.S. at grain handling, feed manufacturing and biofuel facilities in 2018; however, resulting injuries and fatalities were down from the previous year, according to an annual report issued by Purdue University's Department of Agricultural and Biological Engineering.

There were 12 grain dust explosions in 2018 compared to seven the previous year and a ten-year average of 8.4 incidents annually, said Kingsly Ambrose, an associate professor of agricultural and biological engineering and the report's lead author. One fatality and four injuries were attributed to the 2018 explosions, compared to five deaths and 12 injuries in 2017. Facilities at which the explosions occurred included two feed mills, two ethanol plants and eight grain elevators. Ambrose said many of the 2018 incidents were relatively minor and that the higher number of incidents could likely be tied to an increase in grain production and handling. Still, he said it's important to take preventative measures that can dramatically decrease the likelihood of grain dust explosions. "Grain dust acts as a fuel for these explosions, and all it takes is a small spark for ignition to occur," Ambrose said. "That's why it's critical to keep the facility clean, make sure employees and contract workers are properly trained, and ensure that equipment is properly maintained and in good working order." In last year's explosions, the probable ignition source in three cases was hot machine bearings and sparks, while in nine cases the source could not be

confirmed. Grain dust was positively identified as the fuel source in three of the explosions. Illinois and Iowa each reported two explosions last year, while Indiana, Kansas, Louisiana, Minnesota, Nebraska, Oklahoma and Texas each reported a single incident. The year's sole fatality, along with one injury, occurred during a Nebraska grain elevator explosion. The remaining injuries in 2018 occurred at grain elevator explosions in Iowa and Kansas. Ambrose's group has been collecting data related to U.S. grain dust explosions since 2012. The full report is available online at <https://engineering.purdue.edu/FFP/research/dust-explosions>.