Hoeganaes Combustible Dust Flash Fires By: Christina Meyer

https://www.csb.gov/hoeganaes-corporation-fatal-flash-fires/

Activity

Hoeganaes facility is located in Gallatin, TN and specializing in melting and converting scrap metal to assorted metal powders. The plant's chief product is a powder that is 99% iron. The process comprises of melting the iron, cooling, and then milling it into a coarse powder. The powder is then sent through an annealing furnace on a 100-foot -long conveyor belt. The furnace is a hydrogen atmosphere, which reduces oxides in order to prevent the chance of oxidation. The hydrogen is delivered through pipes that are situated in a trench in the floor, which is covered by metal plates. The product that comes from the furnaces is called cake, which is then sent to a cake breaker and then crushed into a particles size of about 45-150 pm.

Hazard

Dust explosions can be catastrophic and cause death and damage. If all five elements (oxygen, heat, fuel, dispersion, & confinement) of the dust explosion pentagon are present, an explosion will occur.

Preventative Actions and Safeguards

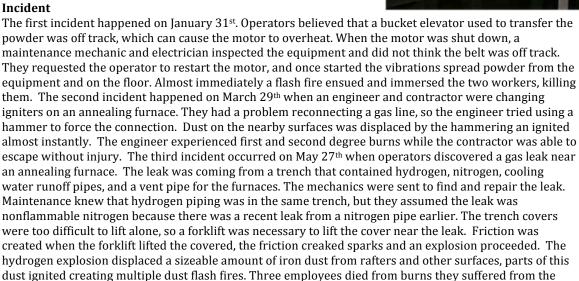
Ensure all workers are aware of all risks and hazards of the process.

Contingency Plan/Mitigating Actions

Perform frequent housekeeping to keep dust amounts to a minimum.

Initiating Event

Since the facility specializes in creating a metal powder, there would be a lot of powder dispersed around the plant. In 2011, the Hoeganaes faced multiple incidents.



Lessons Learned

flash fires.

It is important to fully understand the hazards and risks of the process. Hoeganaes knew the iron dust was a weak explosion hazard and relatively hard to ignite, but they did not think much about it. No matter the level of severity of a hazard, it should always be taken into account and be fully disclosed to workers. The lack of learning from experience was a critical issue for Hoeganaes considering they had three different dust fire incidents within the first half of 2011. An important part of a good process safety culture is learning from previous incidents and trying to prevent the same thing from happening in the future. Good housekeeping is also critical in plants especially those who handle large amounts of dusts and powders. Hazards increase by having large quantities of dust present.

