

This Date in Safety History: January 29, 2003: The West Pharmaceuticals Dust Plant Explosion



The deadly explosion that raised awareness of combustible dust hazards.

West Pharmaceutical Services is a \$1.5 billion public corporation that manufactures syringes and packaging and delivery systems for injectable drugs. A company that's been in business since 1923 experienced its darkest moment in 2003, when a dust explosion at its Kinston, North Carolina plant killed 6 and injured 38, including 2 firefighters that responded to the incident.

The Polyethylene Dust Powder Explosion

Opened in the early 1980s, the West Pharmaceutical Plant and its 255 workers used a manufacturing process in which rubber strips were doused in a solution of polyethylene powder and water to reduce their stickiness and then blown dry leaving a residue of polyethylene dust. While plant workers regularly cleaned the dust from visible surfaces in production areas, some of it got sucked into air intake and collected above the facility's drop tile ceiling.

Detonation of this accumulated dust caused a chain reaction of violent explosions that ripped the plant apart on January 29, 2003. The blast generated a shock wave strong enough to break windows 1,000 feet (300 m) away and propel debris as far as 2 miles (3.2 km), including glass fragments that injured a student at a school more than a half mile away. Among the first casualties was the plant's sprinkler system, leaving the site defenseless against the massive fire that destroyed half of the 150,000 square foot (14,000 m²) facility by the time it was contained 2 days later.

Emergency Response & Media Reaction

The West Pharmaceutical Plant had been widely regarded to be a safe site. Although a North Carolina OSHA inspector cited the plant for 22 serious safety violations less than 6 months earlier, he described those violations as "routine" for plants in the Carolina countryside and fined West only \$10,000. And many experts, including trial lawyers that make their livelihood filing lawsuits on behalf of injured workers, credited the plant's safety measures with saving the lives of dozens of workers during the incident.

West's media response was also swift and skillful. It immediately issued a press statement and sent its CEO to the plant where he was interviewed by AP, CBS News, ABC News, and the local media. Throughout the crisis and immediate aftermath, West issued a constant stream of press statements describing its actions to provide grief counseling, find affected workers new jobs, and thanking rescue workers and doctors for their efforts. It also organized a community- and company-wide memorial service. Unlike in other disasters involving big corporations, there were no media attacks. Two months after the disaster, West's stock price remained virtually unchanged.

Investigation & Aftermath

However, others were far less impressed. Chemical Safety and Hazard Investigation Board (CSB) investigators issued a scathing report blaming West for not doing enough to control what should have been the foreseeable dangers posed by the polyethylene dust accumulation. While unable to determine the precise cause of the blast, the report noted that:

- The machine that likely detonated the explosion had previously experienced multiple internal fires, including one powerful enough to blow off the mixer door.
- Although West had material safety data sheets (MSDSs) (as they were called back then) from the powder manufacturer warning of explosions, it instead relied on the MSDS from the supplier of the polyethylene-water slurry which omitted this crucial information.
- The company didn't investigate a minor incident in which dust ignited during welding from which it could have identified the imminent explosion danger the dust posed.

But this cloud, too, had a silver lining. A year later, the Science Channel broadcast a documentary about the West dust explosion and subsequent investigation, which the CSB credited as helping to “spread the word about the dangers of combustible dust in the workplace.”