

Prevent Repeat Incidents

On Jan. 29, 2016, the U.S. Chemical Safety and Hazard Investigation Board (CSB) issued a report and video animation of an April 17, 2013, explosion in an agricultural chemical storage facility in West, TX (Photos 1–3). The explosion caused 15 fatalities, more than 260 injuries, total destruction of the plant, and widespread destruction of the surrounding community.

A few days later, on Feb. 5, 2016, the Chinese government released a report on an Aug. 12, 2015, explosion in a chemical warehouse in Tianjin, China. That explosion caused more than

170 fatalities, over 700 injuries, and over a billion dollars in financial loss.

Both of these incidents occurred in warehouses that stored ammonium nitrate (AN), a common fertilizer, as well as a variety of other chemicals. And in both incidents, a fire exposed AN to high temperatures, causing the explosion. The CSB report explains some of the dangers associated with AN: “AN exhibits three main hazards in fire situations: uncontrollable fire, decomposition with formation of toxic gases, and explosion.”



Did you know?

- The CSB report on the West, TX, explosion identifies 32 other explosions involving AN that date back to 1916 (including the 2015 Tianjin, China, explosion). In total, these explosions caused nearly 1,500 fatalities and thousands of injuries.
- The CSB list of AN explosions includes an April 16, 1947, explosion on the ship *Grandcamp* in Texas City, TX, which caused approximately 500 fatalities and 3,000 injuries. This incident is considered to be the deadliest industrial disaster in U.S. history.

What can you do?

- You may not handle AN or other materials with the potential to cause catastrophic damage in your plant, but if you use any hazardous materials or operate at hazardous process conditions, you should be aware of and understand past incidents related to those materials or process conditions.
 - Ask other engineers, managers, and veteran employees to share information about past incidents at your plant and at other plants like yours. Understand what is being done to prevent similar incidents.
 - Search the Internet for past incidents related to the materials and processes in your plant.
 - For other examples of repeat incidents, see the February 2014 and February 2016 Beacons.

Learn from history so it doesn't repeat!

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