



### Hot Work Hazards

A contract welder and a foreman were repairing an agitator support on top of an atmospheric-pressure storage tank. The tank contained a polyvinyl fluoride slurry with a flammable concentration of vinyl fluoride in the vapor space. An explosion killed the welder, injured the foreman, and blew most of the top off of the tank, leaving the agitator hanging over the tank side (top photo). The U.S. Chemical Safety Board (CSB) investigated the incident and determined that vinyl fluoride vapor from connected process tanks leaked undetected into the storage tank and ignited while the welder was working.

The CSB report noted that, in February 2010, it had issued a “Hot Work Safety Bulletin” reviewing 11 similar fatal incidents. All of these incidents are examples of improperly monitored hot work activities involving flammable conditions inside a container. In April 2012, the CSB released its report on this incident, along with a safety video (available from [www.csb.gov](http://www.csb.gov)) describing what happened. A few weeks later, in May 2012, the CSB sent a team to El Dorado, AR, to investigate another fatal hot work incident.

Another hot work incident in 2006 blew the top off of the oil tank shown in the bottom photo. The CSB issued an investigation report of this incident in 2007.

### Did You Know?

- Hot work is any work that can be a source of ignition when flammable material is present, or that can be a direct fire hazard even if flammable material is not present.
- Examples of hot work include: welding, soldering, metal cutting, brazing, grinding, and drilling.
- Most countries have regulations requiring safety permits for hot work.
- There are industry standards from groups such as the National Fire Protection Association (NFPA), the American Welding Society, the American Petroleum Institute (API), and others, that describe safe procedures for hot work.
- If your job requires that you issue hot work permits, you must be properly trained on your plant’s requirements and procedures before you can issue any hot work permits.
- Many hot work incidents occur because the presence of flammable material was not anticipated. Flammable vapors flowed into the area or equipment where the work was being done by a route that had not been expected.
- Insufficient flammable vapor monitoring of the atmosphere in vessels or other equipment, or in the general work area, is also a frequent contributing cause to hot work incidents.

### What Can You Do?

- Understand procedures and permit requirements for safe hot work in your facility.
- Understand the hazards of your process. Know what has to be done to prepare the work area for safe hot work and be sure it is done before you start.
- Anticipate how far sparks or heat can travel or be conducted. Be prepared in case work area conditions change.
- Make sure that any activities required during the hot work (for example, monitoring for flammable vapors, maintaining purges) are actually done.
- If you do hot work, make sure you understand everything required for you to do each specific job safely, and follow these safety requirements.

### Why do we keep having the same accidents again?

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