

The Bhopal Tragedy – 25 Years Ago

One of the worst tragedies in the history of the process industries occurred 25 years ago this month. A highly toxic gas, methyl isocyanate (MIC), was released from a pesticide plant in Bhopal, India, shortly after midnight on Dec. 3, 1984. The number of fatalities may never be known, but estimates have been in the range of 2,000–4,000, with estimated injuries of 100,000 or more people. The International Medical Commission on Bhopal estimated that, as of 1994, more than 50,000 people remained partially or totally disabled as a result of exposure to MIC.

Bhopal was a reactive chemistry incident. MIC reacts exothermically with water. An MIC storage tank was contaminated with water and the reaction generated heat and pressure, causing a relief valve to open. Safety systems had been taken out of service without doing a management of change evaluation, or they were unable to deal with the release. Approximately 40 tons of highly toxic MIC was released into the community, exposing tens of thousands of people.

Photo 1. MIC storage tank (removed from underground vault)

Photo 2. Flare stack where MIC was released

Photo 3. Sodium hydroxide scrubber (not working during incident)

Photo 4. Control room as it looked in 2004



Do You Know?

- Reactive chemistry incidents continue to occur in the process industries. For example, on Sept. 15, 2009, the U.S. Chemical Safety and Hazard Investigation Board (CSB) released a report on a runaway chemical reaction incident in Florida that killed 4 people and injured 32 (www.csb.gov).
- The material released from a relief valve, rupture disk or other pressure relief device must discharge to a safe location or treatment system.
- Critical safety systems must always be properly maintained and fully operational.

What Can You Do?

- Learn more about what happened at Bhopal from Internet resources and the Dec. 2004 Process Safety Beacon (a read-only copy of that Beacon can be viewed at www.sache.org).
- Apply the lessons from Bhopal to your facility — for example: understanding all process hazards, including reactive chemistry hazards; understanding the worst-case consequences of a possible accident; maintaining critical safety systems; and emergency response preparation.
- Never become complacent about the hazards in your facility — remember what can go wrong!

Remember and learn from Bhopal and other tragedies

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