



U. S. Chemical Safety and Hazard Investigation Board RECOMMENDATIONS STATUS CHANGE SUMMARY

Report:	Technic, Inc. Ventilation System Explosion
Recommendation Numbers:	2003-08-I-RI-R1 2003-08-I-RI-R2
Date Issued:	June 6, 2006
Recipient:	Technic, Inc.
New Status:	R1: Closed- Unacceptable Action R2: Closed- Unacceptable Action
Date of Status Change:	June 17, 2013

Recommendation Texts:

Recommendation No. 2003-08-I-RI-R1:

As a part of the engineering process, implement formal process safety review procedures for projects involving chemical processes, including the vent collection system. Incorporate a process hazard analysis, reactive chemical hazard evaluation, and design evaluation consistent with applicable codes and standards.

Recommendation No. 2003-08-I-RI-R2:

Implement a management-of-change program and ensure that reviews are conducted for any proposed changes to the vent collection system and its connected process.

Board Status Change Decision:

A. Rationale for Recommendation

On February 7, 2003, an explosion and fire occurred inside a vent collection system at the Technic plating chemicals manufacturing and research facility in Cranston, Rhode Island. One employee was critically injured and eighteen others were sent to the hospital for medical evaluations. The surrounding community was evacuated and facility operations were interrupted for several weeks.

Technic, Inc. is a privately owned plating chemicals manufacturing company founded in the 1940s. It is one of the largest volume producers in the United States of chemicals used for plating precious and non-precious metals for the electronics and jewelry industries.

The CSB investigation concluded that the incident was likely caused by a chemical reaction inside the vent collection system, which started when the injured employee tapped with a small hammer on a duct that sounded blocked. The vent collection system was designed to transport vapors, gases and mists from various processes to a scrubber, to be treated in accordance with EPA air emission standards.

Technic's ventilation collection system was installed in 1992. Between 1992 and 2003, vent ducts from over twenty process vessels were added, significantly increasing the demand on the system and the mixture of materials transported by it. In addition, the vent collection system was

used to collect dusts, which the initial design did not anticipate. These modifications likely diminished transport velocity and allowed substances, many considered reactive, to settle and accumulate inside the vent collection system. The CSB investigation found that maintenance personnel made these modifications in-house without consulting a ventilation design engineer or similar expert and without applying best practice guidelines

The CSB identified failures within Technic's safety management system as the underlying cause of the incident. The CSB found there were no formal procedures for conducting a process safety review and no formal system for evaluating changes to a process (i.e., a Management of Change procedure). If these safety reviews had been conducted, Technic would likely have identified the potential for incompatible materials to mix in the vent collection system, creating a fire or explosion hazard.

B. Response to the Recommendation:

Technic initially indicated intent to implement the CSB's recommendations; however, they did not respond to multiple requests by the CSB's Office of Recommendations between 2007 and 2012 to provide documentation of actions taken (i.e. copies of formal policies/procedures, copies of process safety reviews/management of change analyses conducted pursuant to these procedures.)

C. Board Analysis and Decision:

These recommendations were issued more than eight years ago, and Technic has had ample time to both implement the recommendations and provide the CSB with the requested documentation. Since repeated requests to collect this information have gone unanswered by the company, the Board voted to designate both recommendations with the status "**Closed-Unacceptable Action.**"