



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

Report:	Chemical Reaction, Hydrogen Release, Explosion, and Fire at AB Specialty Silicones
Recommendation Number:	2019-03-I-IL-R3
Date Issued:	September 24, 2021
Recipient:	AB Specialty Silicones, LLC (ABSS)
New Status:	Closed – Acceptable Action
Date of Status Change:	July 27, 2022

Recommendation Text:

Incorporate into operations and activities at AB Specialty the specific elements recommended in CCPS's [Center for Chemical Process Safety] Essential Practices for Managing Chemical Reactivity Hazards, which are:

- 1. Put into place a system to manage chemical reactivity hazards*
- 2. Collect reactivity hazard information*
- 3. Identify chemical reactivity hazards*
- 4. Test for chemical reactivity*
- 5. Assess chemical reactivity risks*
- 6. Identify and implement process controls and risk management options*
- 7. Document chemical reactivity risks and management decisions*
- 8. Communicate and train on chemical reactivity hazards*
- 9. Investigate chemical reactivity incidents*
- 10. Review, audit, manage change in, and improve hazard management practices and programs.*

Board Status Change Decision:

A. Rationale for Recommendation

On Friday, May 3, 2019, a massive explosion and fire occurred at the AB Specialty Silicones (ABSS) facility in Waukegan, IL, that fatally injured four workers, destroyed the facility's production building, and caused extensive damage to nearby businesses.

The U.S. Chemical Safety and Hazard Investigation Board (CSB) investigated the incident and found that the explosion resulted from the ignition of hydrogen gas that was released during a process upset that occurred while mixing incompatible chemicals in a batch reactor vessel. The CSB determined that the causes of the incident were deficiencies in ABSS's operations, policies, and practices including its hazard analysis program, methods used to store and handle incompatible materials, its double initial procedure program, process safety culture weaknesses, and the lack of a safety management system addressing process safety. Contributing to the severity of the incident were ABSS's batch equipment and ventilation systems design, the lack of a gas detection and alarm system, and ineffective emergency preparedness. As a result of these

findings, the CSB issued three recommendations to ABSS. This status change summary addresses CSB Recommendation No. 2019-03-I-IL-R3 (R3).

B. Response to the Recommendation

In March 2022, ABSS advised the CSB that it had developed and implemented a chemical reactivity program that addressed all ten elements listed in the CCPS's *Essential Practices for Managing Chemical Reactivity Hazards*. ABSS submitted extensive documentation of its program, procedures and training for the CSB to review.

C. Board Analysis and Decision

Based upon the documentation submitted by ABSS, the Board determined that the intent of CSB Recommendation No. 2019-03-I-IL-R3 was met and voted to change its status to: "Closed – Acceptable Action."