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-R1
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:

Develop hazardous gas detection and alarm programs and associated procedures based on manufacturer specifications, current codes, standards, and industry good practice guidance, for all hazardous gases that could be released near workers, including hydrogen. The program must address proper installation, calibration, inspection, maintenance, training, and routine operations. Ensure such hazardous gas detection and alarm systems are functional at all times.

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-R1 (R1).

B. Response to the Recommendation

In March 2022, ABSS responded to CSB that it is not manufacturing hydride functional siloxanes at its facilities and had developed a hazardous gas detection and alarm program and procedures based on its current operations using a number of hand-held detectors. ABSS

supplied the CSB with program documentation, procedures, calibration, inspection, maintenance and training documentation to review.

C. Board Analysis and Decision

Based on the above response by ABSS, the Board determined that the intent of CSB Recommendation No. 2019-03-I-IL-R1 was met and voted to change its status to: "Closed – Acceptable Action."