



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

<b>Report:</b>	Yenkin-Majestic Paint and OPC Polymers Corporation
<b>Recommendation Number:</b>	2021-04-I-OH-R3
<b>Date Issued:</b>	November 30, 2023
<b>Recipient:</b>	Yenkin-Majestic
<b>New Status:</b>	Open – Awaiting Response or Evaluation/Approval of Response
<b>Date of Status Change:</b>	Not Applicable – Initial Status

### Recommendation Text:

*Demonstrate the use of prevention through design using the hierarchy of controls in future resin plant designs. Specifically, prioritize inherently safer design and engineering controls to prevent process safety events. Refer to sources such as Safety Instrumented Systems: A Life-Cycle Approach by P. Gruhn and S. Lucchini, Human Error in Process Plant Design and Operations – A Practitioner’s Guide by J. Robert Taylor, Guidelines for Preventing Human Error in Process Safety by the Center for Chemical Process Safety (CCPS), Guidelines for Inherently Safer Chemical Processes – A Life Cycle Approach by the CCPS, and Guidelines for Risk Based Process Safety by the CCPS for guidance. Demonstration could include documentation of conceptual design safety reviews, hazard analysis and risk assessments of detailed project designs, and a plan to address the recommendations to control the hazards.*

### Board Status Change Decision:

#### A. Rationale for Recommendation

On April 8, 2021, a flammable liquid mixture and its vapors became pressurized and then released through the seal of a closed manway of an operating kettle at the Yenkin-Majestic Paint Corporation (Yenkin-Majestic) OPC Polymers resin plant in Columbus, OH. The vapor spread throughout the facility, forming a flammable cloud which found an ignition source and exploded resulting in a fire.

One Yenkin-Majestic employee was fatally injured due to burns and smoke inhalation. This employee was found partially covered by rubble inside the second floor of the resin plant. Eight other employees were transported to area hospitals for treatment of their injuries, which included third-degree burns and limb fractures. One employee required a leg amputation after being crushed under debris.

As a result of the incident the severely damaged facility was demolished. Yenkin-Majestic estimated the total property damage from the incident to be over \$90 million. In addition to the demolished facility, firefighting water runoff contaminated the nearby Alum Creek, and the Ohio Environmental Protection Agency reported observations of offsite impact through at least April 11, 2021.

The U.S. Chemical Safety and Hazard Investigation Board (CSB) investigated the incident and found several safety issues including ineffective guidance on mechanical integrity of low-pressure vessels, ineffective safeguard selection, and a lack of emergency preparedness. As a result of these findings, the CSB issued five recommendations to Yenkin-Majestic. This status change summary addresses **CSB Recommendation No. 2021-04-I-OH-R3**.