



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

<b>Report:</b>	Optima Belle LLC Explosion and Fire
<b>Recommendation Number:</b>	2021-02-I-WV-R8
<b>Date Issued:</b>	July 6, 2023
<b>Recipient:</b>	Clearon Corporation
<b>New Status:</b>	Open – Awaiting Response or Evaluation/Approval of Response
<b>Date of Status Change:</b>	Not Applicable – Initial Status

### Recommendation Text:

*Develop and implement a formalized program for the development of toll manufacturing agreements using resources such as the Center for Chemical Process Safety's Guidelines for Process Safety in Outsourced Manufacturing Operations and Guidelines for Risk Based Process Safety. Ensure that the program provides for the following:*

- a) Identification of roles and responsibilities of all parties, including the client, toller, and any third-party technical service providers, for all phases of a proposed arrangement;*
- b) Evaluation of equipment requirements/specifications to ensure that they are adequate for the intended operation; and*
- c) Participation by all parties in tolling process development, including process hazards analysis and emergency planning, and appropriate stages of the pre-planning, pre-startup, and production phases.*

### Board Status Change Decision:

#### A. Rationale for Recommendation

On December 8, 2020, a metal rotary cone double dryer containing a chlorinated isocyanurate compound (trade name CDB-56®) exploded following a decomposition reaction that resulted in a fire and toxic chlorine release at the Optima Belle LLC (Optima Belle) facility in Belle, West Virginia. The explosion occurred while Optima Belle, a toll manufacturer, was dehydrating CDB-56® on behalf of Clearon Corporation through a contractual agreement with Richman Chemical Inc.

One Optima Belle employee was fatally injured in the explosion, two others were evaluated for respiratory irritation, and one member of the public reported a minor leg injury. Debris from the explosion was found almost a half-mile from the incident. Local authorities issued a shelter-in-place order for a two-mile radius for over four hours. The facility experienced an estimated \$33.1 million in property damage.

The U.S. Chemical Safety and Hazard Investigation Board (CSB) investigated the incident and found several safety issues including ineffective process knowledge management, a lack of thermal hazard assessment, ineffective selection of process equipment, shortcomings in industry practices related to tolling hazardous materials, and a lack of regulatory coverage of reactive hazards under the Occupational Safety and Health Administration's (OSHA's) Process Safety Management standard (PSM) and the Environmental Protection Agency's (EPA's) Risk Management Program rule (RMP). As a result of these findings, the CSB issued five recommendations to Clearon Corporation. This status change summary addresses **CSB Recommendation No. 2021-02-I-WV-R8**.