



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

Report:	Foundation Food Group Fatal Chemical Release
Recommendation Numbers:	2021-03-I-GA-R2
Date Issued:	December 11, 2023
Recipient:	Messer LLC
New Status:	Closed – Exceeds Recommended Action
Date of Status Change:	August 6, 2026

Recommendations Text:

Update the company product stewardship policy to:

- a) include participation by Messer in customers' process hazard analyses (PHAs). The policy should require that these PHAs be conducted in a manner which conforms with CCPS Guidelines for Hazard Evaluation Procedures prior to the startup of a cryogenic freezing process;*
- b) require verification that proper signage, in accordance with CGA P-76 Hazards of Oxygen-Deficient Atmospheres, is displayed on and/or near equipment; and,*
- c) require a facility and/or equipment siting review to ensure that emergency shutoff devices, including E-stops, are located such that they can be safely actuated during a release of liquid nitrogen.*

Board Status Change Decision:

A. Rationale for Recommendation

On January 28, 2021, liquid nitrogen overflowed from an immersion freezer located inside Plant 4 at the Foundation Food Group (FFG) facility in Gainesville, GA. The release occurred while two maintenance employees were troubleshooting the equipment. Once the liquid nitrogen was released, it quickly vaporized and accumulated inside the room in which the equipment was located, creating an oxygen deficient atmosphere.

The two maintenance employees were fatally injured. Upon discovering the two fatally injured employees, an emergency response was initiated which included attempts by other employees to rescue them and isolate the freezer from its liquid nitrogen source. During these activities, four additional employees of FFG were fatally injured. Additionally, three more FFG employees and one firefighter were seriously injured, presenting symptoms of oxygen deprivation. The incident resulted in an estimated \$1.95 million in damage.

The U.S. Chemical Safety and Hazard Investigation Board (CSB) investigated the incident and found several safety issues including faulty equipment design, inadequate precautions for using liquid nitrogen, the lack of atmospheric monitoring and alarms, inadequate emergency

preparedness, a lack of a safety management system, and a lack of regulatory coverage for cryogenic asphyxiants. As a result of these findings, the CSB issued two recommendations to Messer LLC (Messer). This status change summary addresses CSB Recommendation No. 2021-03-I-GA-R2.

B. Response to the Recommendation

Messer updated their product stewardship policy to meet all of the requirements of the recommendation. Upon review of the relevant documentation provided, the CSB determined that Messer has implemented the recommendation.

Additionally, Messer initiated a Safety 360 Assessment and developed an “app” that allows its employees to assess and document potential safety issues to be addressed. Messer also broadened the scope of the part of the recommendation addressing emergency shutdown devices to include emergency response plans and associated employee training. These actions surpass the objectives envisioned by the Board.

C. Board Analysis and Decision

The Board appreciates the work of Messer in addressing this recommendation. By developing and employing the Safety 360 Assessment, innovating an associated “app” that assess and documents potential safety issues to address, and broadening implementation of a single safety issue to an entire safety system, to include employee training, Messer has gone far beyond what the Board envisioned for this recommendation in a manner that enhances the extent of reduction of future risk.

Based upon the information above, the Board was pleased to vote to change CSB Recommendation No. 2021-03-I-GA-R2 to: “Closed – Exceeds Recommended Action.”