



U. S. Chemical Safety and Hazard Investigation Board

RECOMMENDATION STATUS CHANGE

SUMMARY

Report:	Fatal Liquid Nitrogen Release at Foundation Food Group
Recommendation Number:	2021-03-I-GA-R2
Date Issued:	December 11, 2023
Recipient:	Messer LLC
New Status:	Open – Awaiting Response or Evaluation/Approval of Response
Date of Status Change:	Not Applicable – Initial Status

Recommendation 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 asphyxiated. Upon discovering the two maintenance employees, an emergency response was initiated which included attempts by other employees to rescue the two maintenance employees and to isolate the freezer from its liquid nitrogen source. During these activities, four additional employees of FFG were asphyxiated. Additionally, three more FFG employees and one firefighter were seriously injured, presenting with symptoms of asphyxia. 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. This status change summary addresses **CSB Recommendation No. 2021-03-I-GA-R2**.