



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-R7
Date Issued:	December 11, 2023
Recipient:	Occupational Safety and Health Administration (OSHA)
New Status:	Open – Awaiting Response or Evaluation/Approval of Response
Date of Status Change:	Not Applicable – Initial Status

Recommendation Text:

Promulgate a standard specific to cryogenic asphyxiants. The purpose of this standard shall be the prevention and/or mitigation of hazards arising from the storage, use, and/or handling of these substances. The new standard shall reference applicable national consensus standards such as those published by the Compressed Gas Association and others, as appropriate. At a minimum the new standard shall:

- a) Address requirements for the design, construction, and installation of process equipment storing or using cryogenic asphyxiants;*
- b) Require atmospheric monitoring where equipment storing or using cryogenic asphyxiants is located indoors;*
- c) Require emergency shutdown systems such that equipment storing or using cryogenic asphyxiants may be isolated during a release without endangerment;*
- d) Address requirements for employee training and hazard awareness specific to cryogenic asphyxiants;*
- e) Require an emergency action plan in accordance with 29 CFR 1910.38; and,*
- f) Address requirements for the use of process safety management elements such as process hazard analysis, management of change, procedures, and others deemed necessary through the rulemaking process to prevent and/or mitigate these hazards.*

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 five recommendations to the Occupational Safety and Health Administration (OSHA). This status change summary addresses **CSB Recommendation No. 2021-03-I-GA-R7**.