



MATHESON

The Gas Professionals

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SAFETY ALERT

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Dear Valued Customer:

Matheson is providing this Safety Alert to inform you about potential safety issues when operating your cryogenic freezing or chilling equipment. Specifically, severe injury or death may result from accidental releases of nitrogen or carbon dioxide used in the equipment.

On January 28, 2021, an accidental nitrogen leak at a food processing plant in the US caused the death of six plant employees and injury to ten others. The cause of the leak is still under investigation.

Although the food freezing equipment at that plant was not manufactured or supplied by MBI or CSE, (MBI and CSE are Matheson-owned food freezing and chilling equipment manufacturers); we are taking steps to ensure that your company and employees are aware of the hazards associated with operating food freezing and chilling processes. Please read this entire Safety Alert and in particular note the guidance below concerning the importance of using an interlocking oxygen deficiency monitor and an interlocking CO₂ gas detector for safe operation.

Releases of nitrogen or carbon dioxide reduce available oxygen in the air and may cause asphyxia when released into inadequately ventilated space. Asphyxia is the condition of not getting enough oxygen into the body, usually leading to unconsciousness or death. OSHA defines oxygen deficiency as the oxygen concentration in the air being below 19.5% by volume. Effects of oxygen deficiency may include: rapid breathing, diminished mental alertness, impaired muscular coordination, reduced judgment, depression of senses, emotional instability, and fatigue. As asphyxiation progresses, nausea, vomiting, prostration, and loss of consciousness may result, eventually leading to convulsions, coma, and death. Oxygen levels in the air can only be detected with an oxygen deficiency monitor. Please review the Safety Data Sheet provided by your liquid nitrogen supplier for additional information.

Carbon dioxide (CO₂) presents additional health risks. OSHA Permissible Exposure Limit (PEL) for CO₂ is 0.5 % or 5,000 parts per million (ppm) in the air. This is the concentration that an employee may be exposed to over an 8-hour time-weighted average (TWA), without risk of adverse health effects. At longer exposures or higher concentrations, effects from CO₂ exposure include headaches, muscle cramps, dizziness, difficult breathing, unconsciousness, and coma. CO₂ levels in the air can only be detected with a CO₂ gas detector. Please review the Safety Data Sheet provided by your liquid carbon dioxide supplier for additional information.

Safe operation of a cryogenic freezer requires an emergency gas shutoff system interlocked with a functional oxygen deficiency monitor. And if CO₂ gas is used in your plant, then the emergency gas shutoff system must also be interlocked with a functional CO₂ gas detector. The oxygen deficiency monitor and CO₂ gas detector should be installed and maintained in accordance with manufacturer guidance.

Matheson's primary objective is the safety and well-being of our food freezing and chilling equipment customers and their employees. Matheson appreciates that safe use of our products ultimately resides with our customer/end user. However, as a responsible and ethical equipment supplier, we have a responsibility to warn our customers about unsafe and dangerous practices. Further, Matheson encourages you to discuss with your gas supplier on how to develop a corrective action plan that meets your company's business objectives without jeopardizing the safety of your employees.

We strongly encourage you to immediately inspect your oxygen deficiency monitor and CO₂ gas detection equipment, and ensure that your equipment is operational and interlocked with the emergency gas shutoff system. If you do not currently use an oxygen deficiency monitor and a CO₂ gas detector, or do not have an emergency gas shutoff valve, please contact your gas supplier immediately and ask for their assistance with specifying, purchasing, and installing the appropriate safety equipment.