

## Laboratory Safety Cryogenics and Dry Ice

Cryogenics are substances used to produce very low temperatures [below  $-153^{\circ}\text{C}$  ( $-243^{\circ}\text{F}$ )], such as liquid nitrogen ( $\text{LN}_2$ ) which has a boiling point of  $-196^{\circ}\text{C}$  ( $-321^{\circ}\text{F}$ ), that are commonly used in laboratories.

Although not a cryogen, solid carbon dioxide or dry ice which converts directly to carbon dioxide gas at  $-78^{\circ}\text{C}$  ( $-109^{\circ}\text{F}$ ) is also often used in laboratories.

Cryogenics, as well as dry ice, can be hazardous to workers if not handled properly.

### General Precautions When Working with Dry Ice or $\text{LN}_2$

- Avoid eye or skin contact with these substances.
- Never handle dry ice or  $\text{LN}_2$  with bare hands.
- Use cryogenic gloves, which are designed specifically for working in freezers below  $-80^{\circ}\text{C}$  and for handling containers or vials stored in these freezers.
- Cryogenic gloves need to be loose-fitting so that they can be readily removed if  $\text{LN}_2$  splashes into them or a piece of dry ice falls into them.
- Always use appropriate eye protection.
- Do not use or store dry ice or  $\text{LN}_2$  in confined areas, walk-in refrigerators, environmental chambers or rooms without ventilation. A leak in such an area could cause an oxygen-deficient atmosphere.
- Never place a cryogen on tile or laminated counters because the adhesive will be destroyed.
- Never store a cryogen in a sealed, airtight container at a temperature above the boiling point of the cryogen; the pressure resulting from the production of gaseous carbon dioxide or nitrogen may lead to an explosion.
- For more information about specific cryogenics, read the Material Safety Data Sheet for the substance in question.

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dry ice or  $\text{LN}_2$   
with bare hands.**

For assistance, contact us. We can help. It's confidential.



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### First Aid

- In case of exposure to cryogenics or dry ice, remove any clothing that is not frozen to the skin. Do NOT rub frozen body parts because tissue damage may result. Obtain medical assistance as soon as possible.
- Place the affected part of the body in a warm water bath (not above 40°C). Never use dry heat.

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