

# Dry Ice

Dry ice is the solid, non-combustible form of carbon dioxide available in pellets, blocks and flakes. It is most often used in laboratory settings for rapid cooling of materials or to ship biological samples (for more information on biological shipping policy see the QR code below).



Dry Ice "flakes"

Dry ice will vaporize directly to the gas state at a temperature of -78.4 C (-108.3 F) or higher.

Potential hazards associated with this material can be seen below:

	Hazard Type	Hazard
	Contact Hazard	At -79 C (-109 F), skin contact with dry ice can cause frostbite; skin cells will freeze and become damaged quickly.
	Asphyxiation Hazard	When dry ice vaporizes into gas at -108.3 F or higher, it releases substantial volumes of CO <sub>2</sub> . When dry ice sublimates, it rapidly displaces the oxygen in the air which can lead to asphyxiation. A lack of oxygen caused by asphyxiation can cause headaches, dizziness, difficulty breathing, and death. Asphyxiation is especially concerning in a nonventilated or confined space.
	Over Pressurization/ Explosion Hazard	Dry ice should never be stored in a closed container; as dry ice sublimates, it releases CO <sub>2</sub> which can pressurize a sealed container, posing the risk of explosion. Dry ice should never be stored in a solid plastic, glass, or other container with a tight fitting lid. Styrofoam is an appropriate storage container material for dry ice because it is insulated and not airtight, thus it does not pose the risk of explosion.

## Fun FAQ!

Carbon Dioxide (s), Dry Ice, is NOT considered a Hazardous Substance by the 2012 OSHA Hazard Communication Standard. Although, it is classified as a Dangerous Good to transport by air.



**Wear loose-fitting, thermally insulated gloves to handle dry ice manually. (Nitrile gloves are NOT enough protection. NEVER handle dry ice with bare hands.)**

## Precautions to follow when handling dry ice

- Only use the quantity needed
- Use tongs to handle dry ice when possible.
- Avoid inhalation!
- Avoid skin contact and wear the proper PPE; Closed-toed shoes, A lab coat covering the ankles, Appropriate eye protection such as goggles and/or a face shield
- Do not store dry ice in metal, plastic, or glass containers. The extremely cold temperature of dry ice will fracture or break these containers which may result in exposure or a spill.
- Never dispose of dry ice in a trash can, chemical waste container or any other garbage or waste bin.
  - To dispose, place dry ice in a well-ventilated area at room temperature and allow the dry ice to sublimate entirely. Dry ice will vaporize directly to the gas state at a temperature of -78.4 C (-108.3 F) or higher

Have more questions? Reach out to EH&S at [Labsafety@columbia.edu](mailto:Labsafety@columbia.edu) or give us a call

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QR Code: Columbia University  
Biological Materials Shipping Guidelines