

WORKING SAFELY WITH DRY ICE

Environmental Health & Safety Factsheet • risk@twu.edu • (940) 898-4001

Dry ice, or solid carbon dioxide, is commonly found in TWU laboratories and is used for rapid cooling of materials and shipping of biological materials. However, it poses unique hazards and all users of it should review this document before use.

HAZARDS OF DRY ICE



Contact Hazard - At -109 °F (-79 °C), skin contact with dry ice can lead to severe frostbite: skin cells freeze and become damaged very quickly.



Asphyxiation Hazard - Dry ice will sublime (change from solid to gas) at any temperature above -109 °F. This releases potentially substantial volumes of CO₂ (1 pound solid = 250 liters gas), which can displace oxygen quickly in the air around the dry ice, causing difficulty breathing, loss of consciousness and death. This is especially of concern in non-ventilated or confined spaces.



Explosion Hazard - Due to the rapid emission of large volumes of CO₂ gas, any dry ice that is stored in a closed container can pressurize the container. Given enough time at normal room temperature, such a container may explode if the gas is not able to escape.

HANDLING DRY ICE

Dry ice can come in flake, pellet or block forms. Use the following precautions when handling dry ice:

- Use tongs to handle dry ice when possible
- Use loose-fitting, thermally insulated gloves to manually handle dry ice; nitrile exam gloves will **not** provide enough protection. Never handle dry ice with bare hands
- Wear appropriate eye protection and a lab coat based on a risk assessment of the work being conducted.

STORAGE AND DISPOSAL

- Always store dry ice in a well-ventilated location.
- **Do not store dry ice in confined areas with limited ventilation.** This includes cold rooms, walk-in refrigerators and environmental chambers.
- Never store dry ice in a tightly sealed container, such as a plastic or glass bottle, or any container with a screw-top lid that will not vent. Styrofoam is an appropriate storage material since it is both insulated and not airtight.
- To dispose of dry ice, place it in a well-ventilated area at room temperature; the remainder of the ice will sublimate away.
- Never dispose of dry ice in a trash can, chemical waste container or other garbage/waste can.
- Never dispose of dry ice in a sink, or other fixture; the temperature difference can **destroy plumbing**.
- Do not leave dry ice unattended in open areas.

TRANSPORTING DRY ICE

- Only package dry ice in containers that are appropriate (i.e., non-sealable and not damaged by cold temperatures).
- All packaging must allow for release of CO₂ gas. Never seal a container with dry ice in it.
- If you receive or see a container that appears swollen or bulging, or if you suspect dry ice is improperly placed in a sealed container, secure the area and call 9-1-1. **Do not try to release pressure on your own**, which can cause serious injury.
- Do not ship materials with dry ice unless you have taken hazardous materials shipping training. Contact EH&S for assistance.

Contact EH&S at 940-898-4001 or risk@twu.edu for more information