

Shipping with Dry Ice

Conducting research often requires sending refrigerated or frozen samples to labs and off-site contributors. Quite often, these types of shipments are done on dry ice, due to its very cold temperature and sublimation properties. Dry ice is a hazardous material and is regulated by both the U.S. Department of Transportation (DOT) and the International Air Transport Association (IATA). Specific procedures are required for handling, packaging, and shipping materials refrigerated with dry ice.

If you need to send shipments that are refrigerated, you may choose to use gel packs or Solid Carbon Dioxide (Dry Ice). Gel packs are not regulated. They are not capable of the cooling to the temperature and duration achieved by Dry Ice. Wet ice, or ice made from water, is not allowed due to the likelihood of leaks.

For air transport, the amount of dry ice per parcel is limited to five pounds or less.

Dry ice is carbon dioxide in its solid form, and it turns into gas when exposed to open air. The carbon dioxide can then displace oxygen in the air, which can cause difficulty breathing, loss of consciousness and death,

When packing your container with packages of dry ice, use gloves. Dry ice is very cold and can cause serious burns if it comes into contact with bare skin.

Freeze the items prior to packaging

Place your frozen sample in a ziplock bag prior to packing.

You want to make sure the sample and dry ice are packed together tightly. Use newspaper or brown paper bags to make sure it's packed tight.



Use commercially available packaging systems intended for dry ice (see photo above). Do not use plastics that can be rendered brittle or permeable by the temperature of dry ice. The package used to ship dry ice must be:

- Insulated
- Capable of venting gas to prevent the build-up of pressure
- Free from damage and of adequate strength for intended use
- Strong enough to withstand the loading and unloading normally encountered in transport

- Constructed and closed in order to prevent any loss of contents that might be caused by vibration or changes in temperature, humidity or altitude.

You may choose to reuse a dry ice shipping box for future shipments. However:

- All markings, labels, addresses, barcodes and carrier labels on the box must be removed.
- Use caution if reusing a box that had previously been used for shipments of infectious substances or diagnostic specimens. Only reuse a box if you can personally verify it is not contaminated and its integrity is intact

Dry ice must be allowed to vent and dissipate through the packaging and not create internal pressure that could cause it to rupture. Therefore, DO NOT contain the dry ice in a sealed container such as one with a threaded or friction-type closure. Never seal dry ice in a container with an airtight seal such as a container with a threaded lid, ziplock bag, or cooler. Do not tape the lid to the insulated cooler

Add additional packing materials such as peanuts or crumpled paper (to minimize the volume of air to which the dry ice is exposed in order to slow the rate of sublimation).

Pack the insulated cooler in outer cardboard box.

Tape ONLY the center of the cardboard box where the flaps meet on top of the box

Additional Requirements for Preparing Your Dry Ice Shipments:

- DO fill any empty space in your package with appropriate packing material to prevent product movement in transit.
- DO wrap temperature sensitive products in two watertight plastic bags or use absorbent material along with a plastic liner.
- DO avoid shipping temperature sensitive products over the weekend.
- DO wrap the refrigerant in paper or another carton to slow the melting rate and prevent excess space when using dry ice.
- DO NOT place the refrigerant at the bottom of the package because cold air will not circulate.
- Do NOT tape down the lid to the Styrofoam box!