

Title: Tips for Preparing Sample Coolers for Shipment
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TIPS FOR PREPARING SAMPLE COOLERS FOR TRANSPORT/SHIPMENT

Proper packaging and cooling of samples is a means to help prevent re-sampling. These tips will help protect sample containers from any impact they might receive when being shipped and ensure that the sample temperature is within the **>0 to ≤6°C temperature range**.

1. Use a transport device that conforms to DOT drop test specifications.
2. Keep the samples on ice. Regular “wet” ice is the best choice for keeping samples cold. **Bag** the ice to prevent water from leaking from the cooler. Large durable plastic garbage bags work very well for containing melted ice. **Blue ice packs are not sufficient to adequately maintain the temperatures for sample coolers.**
3. If a sample is above temperature when collected, **pre-chill the sample in iced water** for a few minutes or place it in the refrigerator for a longer period of time before packing the cooler. This aids in lowering the temperature of the sample quicker and prevents the ice from having to both lower the temperature of the sample and maintain it.
4. **At least 1/3 of the cooler space should be allowed for ice.** Use 20-25 pounds of ice for an average-sized 50-quart cooler. When in doubt – USE MORE ICE. Ice and the associated cost of shipping a heavier cooler are typically much less than having to potentially re-mobilize a crew to re-sample. Tie trash bag with a knot, zip tie or duct tape after placing samples in cooler.
5. **Isolate each sample container with packing material such as a bubble bag.** Glass containers especially tend to break easier during shipment when they are in direct contact with one another. Do not stack glass containers in the cooler or lay the glass on its side-they could break. Use a larger cooler, or multiple coolers if necessary.
6. **Seal each sample container in Ziploc baggies** to prevent water from seeping onto the sample when the ice melts. Use a separate baggie for the Chain of Custody and tape it to the inside top of the cooler.
7. **SEAL the entire cooler with DUCT tape, including a seal around the lid.** This will help prevent leaks. Some carriers will reject “wet” boxes or coolers due to the damage caused to other boxes and packages.
8. **USE BUBBLE BAGS!** Not only is it the ideal packing material for maximum shock protection, but the trapped air also provides thermal insulation and helps to keep the samples cold.
9. **DO NOT USE packing material that absorbs water.** Material such as paper, cardboard, and Styrofoam peanuts become soggy and decompose in water thereby losing their cushioning effects.
10. **DO NOT USE vermiculite.** It does not work well in coolers. It tends to scatter when dry and becomes a soggy mess as it clumps up when wet. Additionally, it tends to prevent samples from rapidly cooling down.
11. **Never use dry ice.** Dry ice could potentially freeze samples compromising sample integrity and possibly shattering glass containers. Dry ice also poses a safety hazard and potential problems if shipping via a commercial courier such as FedEx or UPS.
12. **Do not use water-soluble ink.** Blurred ink could be difficult to read and sample identification could be compromised. Use Sharpie or other permanent ink markers for labeling sample containers.