Freezing Core with Dry Ice

- Second fastest way to freeze core and preserve fluid saturations
- "Best" for most applications
- Longer freeze time results in little alteration of core physical properties
- Used when fluid saturations and physical properties are of equal importance
 - Preserves volatile and semivolatile hydrocarbons
 - Keeps fluids from migrating in high-permeance materials



Freezing Core with Dry Ice

- 1. Dry Ice is available at most industrial gas supply companies (some supermarkets).
- 2. Large marine ice chests are used to freeze and transport core.
 - a. Up to 72 quart coolers used for smaller core.
 - b. Large marine coolers (94 quarts and greater) used for core over two feet long.
- 3. Place approximately 50 to 75 pounds of dry ice in the bottom of the ice chest.
- 4. Label core, attach end caps, and place core in ice chest.
 - a. Close lid and core will freeze solid in 30 minutes.
 - b. Each ice chest freezes up to 22.5 feet of core using 50-75 pounds of dry ice.
- 5. Caution Do not put dry ice in an unventilated or enclosed space due to risk of death by asphyxiation!

- Place 50 to 75 pounds of dry ice in the bottom of the ice chest.
- Put core in ice chest and close lid. Core will freeze solid within 30 minutes.
- Continue adding core and dry ice as necessary.



Core Handling & Preservation Transporting Frozen Core

- 1. Caution Do not transport dry ice in passenger compartments due to risk of death by asphyxiation!
- 2. Large ice chests are used for transporting frozen core.
- 3. Place a layer of foam, bubble wrap, or "Styrofoam peanuts" in the bottom of ice chest to absorb shock during transport.
- 4. Place one layer of core on top of packing material.
- 5. Place a layer of dry ice over the core.
- a. Dry ice pellets can be used as a "packing material" to secure the core and fill any voids between cores.
- a. Block dry ice can also be used by breaking into smaller pieces and packing around core.
- a. Bubble wrap or styrofoam peanuts can be added to the core layers to cushion the core during transport.



Core Handling & Preservation Transporting Frozen Core

- 6. Continue alternating layers of core, packing materials and dry ice. Do not exceed three layers of core.
- Fill remaining space with dry ice.
- 2. Put Chain of Custody in a zip lock bag and tape inside lid.
- 3. Close lid and seal with tape to keep cold.
- 4. Attach Dry Ice Placards to ice chest.
- 5. Contact Overnight Courier for shipment to laboratory for next day delivery. Notify laboratory of shipment arrival time (tracking numbers).
- 6. Arrange shipment so core does not sit in hot warehouse or truck for days.



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Transporting Frozen Core

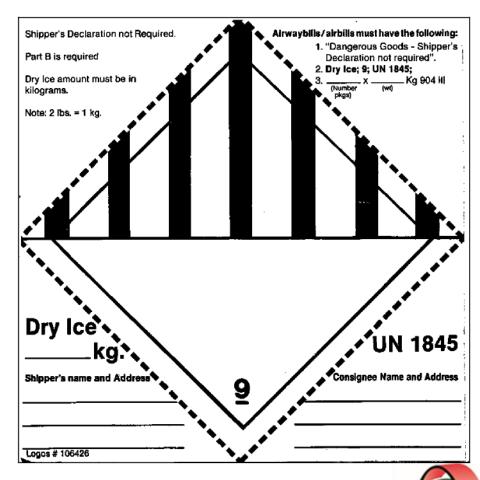
- Ice chest filled
- with cores, dry
- ice, and packing
- material for
- cushioning.

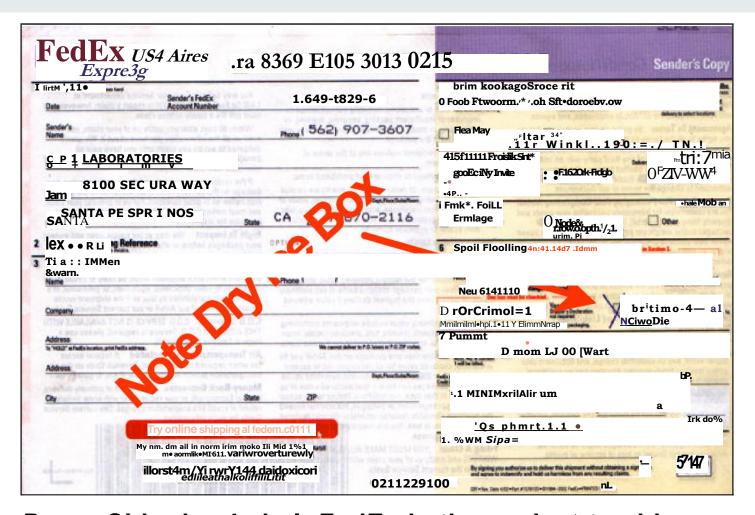




Transporting Frozen Core

Dry Ice Placard:
Overnight couriers
can supply the
placard stickers.





Paper Shipping Label: FedEx is the easiest to ship with, they routinely handle dry ice shipments.



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Electronic Shipping: FedEx is the easiest to ship with, they routinely handle dry ice shipments.