



Albert Einstein College of Medicine

Science at the heart of medicine



Shipping Dry Ice Training

Albert Einstein College of Medicine

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Training Requirements

- Federal rules require that anyone wishing to ship dry ice must first have shipping training.
- If you are going to prepare or package dry ice for shipment or sign any type of shipping documentation (such as a FedEx Airbill) for a dry ice shipment, you must follow the training certification requirements outlined below –
 - ▶ Read the PowerPoint presentation from beginning to end.
 - ▶ Complete the quiz at the end of the presentation on Environmental Health & Safety (EH&S).
 - ▶ **Keep the certificate until you need to recertify after two (2) years.**

Purpose

- Dry ice is a hazardous material and, as such, it is regulated for shipment by the United States Department of Transportation (USDOT) and the International Air Transport Association (IATA).
- Regulations require that specific procedures be followed when shipping dry ice.
- This training outlines the procedure to follow when your shipment includes **no hazardous materials other than dry ice.**
- Call EH&S if your intent is to ship unregulated material of biological origin on dry ice (e.g., DNA, RNA, proteins, etc.) or if you are uncertain as to whether or not your samples are regulated.



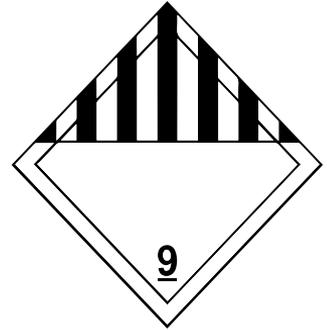
Hazard Identification



- DOT and IATA classify dry ice as a “miscellaneous” hazard, class 9. Dry ice is considered hazardous for three reasons –
 - ▶ Explosion Hazard – Dry ice release large volumes of carbon dioxide gas as it sublimates. If packaged in a container that does not allow for release of the gas, it may explode and cause personal injury or property damage.
 - ▶ Suffocation Hazard – A large volume of carbon dioxide gas emitted in a confined space can create an oxygen deficient atmosphere.
 - ▶ Contact Hazard – Dry ice is a cryogenic material that may cause severe frostbite upon contact with skin.

Hazard Identification (cont.)

- To eliminate the explosion hazard, you must use a package designed to vent gaseous carbon dioxide.
- Suffocation and contact hazards with the dry ice will be reduced by labeling the package correctly. This helps those who come in contact with it to be aware of the hazard within the package.



Preparing Your Shipment

- Make sure that your training is current.
 - Within at least 2 years.
- Ensure that packages are free from damage and conform to Packing Instruction 954.
- Ensure that the quantity of dry ice does not exceed 200kg (per package).
- Wear gloves and other appropriate personal protective equipment when handling dry ice.



Cryogenic Gloves

Air Waybill

- Most shipments of dangerous goods must be accompanied by two shipping documents.
 - Air Waybill
 - Shipper's Declaration for Dangerous Goods
 - The Declaration for Dangerous Goods is not required for dry ice-only packages.
- For domestic shipments containing Dry Ice as the **only** dangerous good, then just the Air Waybill is required.

FedEx USA Airbill Tracking Number: 834163798110 Zip: 0200 Sender's Copy

1 From (Sender's Name, Address, City, State, ZIP)

2 Your Internal Billing Reference (Receiver's Name, Address, City, State, ZIP)

4a Express Package Service (Priority Overnight, Standard Overnight, First Overnight, 2 Day, 3 Day, 4 Day, International)

4b Express Freight Service (1 Day Freight, 2 Day Freight, 3 Day Freight, International)

5 Packaging (FedEx Envelope, FedEx Pak, Other)

6 Special Handling (Signature Required, Signature Required for FedEx Location, Signature Required for FedEx Location, Signature Required for FedEx Location)

7 Payment (Bill Me, Recipient, Third Party, Credit Card, Cash/Check)

8 Release Signature

Try online shipping at fedex.com

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Packaging and Dry Ice

- **Packaging Instructions (PI) for Dry Ice (PI 954)**
- Packing Instructions 954 specifies that the outside of the package be marked with the net weight of Dry Ice contained in the package. This weight must be given in units of kilograms in order to be accepted by Federal Express and other carriers.
- Place tape only as directed by either the packaging manufacturer's instructions or where it will not interfere with gas release.
- **Never** place dry ice in an airtight container.

Packaging and Dry Ice (cont.)

- ▶ Packages containing dry ice must be of adequate strength and strong enough to withstand the handling normally encountered in transport.
- ▶ Packages must be constructed of a durable material and closed in order to prevent any loss of contents that might be caused by vibration or by changes in temperature, humidity, or altitude.
- ▶ Use commercially available packages intended to contain dry ice. Do not use plastics that can be rendered brittle or permeable by extreme temperature changes.
- ▶ Secure your samples so that they do not move freely inside of the insulated box.
- ▶ Fragile containers such as glass tubes or vials should be wrapped with cushioning material.



Marking and Labeling

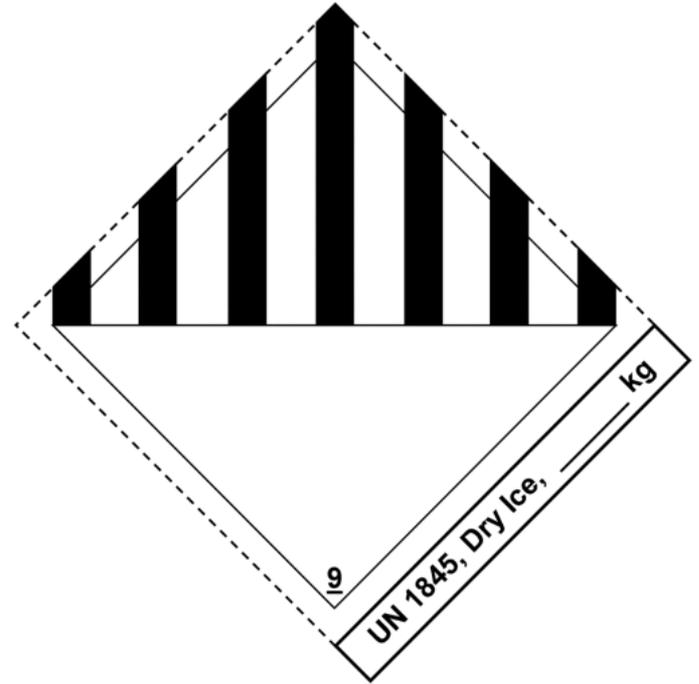
Required markings and labeling of outermost container with:

- A hazard class 9 label
- The word: UN 1845, Dry Ice or

UN 1845 (Carbon dioxide, solid)

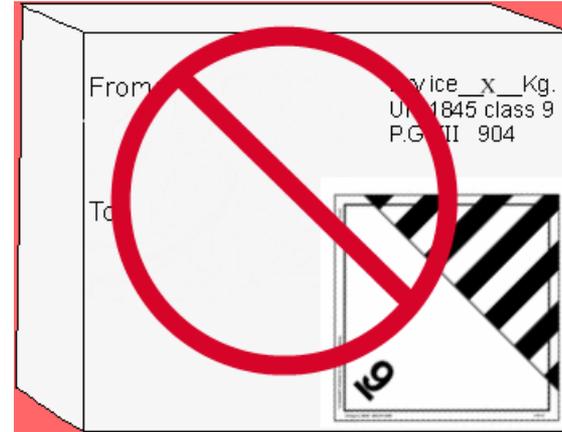
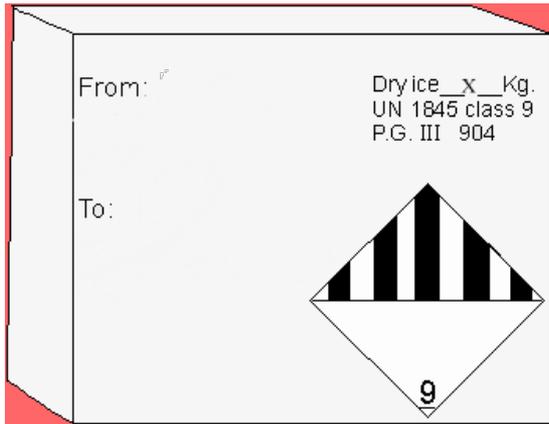
Write on the label:

- the net weight of dry ice in kilograms.
- the full name, address and telephone number of shipper and consignee.



Marking and Labeling (cont.)

- The label should be affixed to a vertical side of the box (not the top or bottom) and oriented as a diamond.



Marking and Labeling

- If reusing a package, all irrelevant or old markings and labels MUST be removed or obliterated.
 - This includes, but is not limited to the following - Address, old FedEx label, barcodes, and hazard labels.
- If you plan on reusing a package, thoroughly inspect the package for both structural integrity and contamination from previous shipments.
- Damaged and/or contaminated boxes that are torn, cut, stained, or if the insulation is cracked or broken should not be used and may be rejected by the carrier.



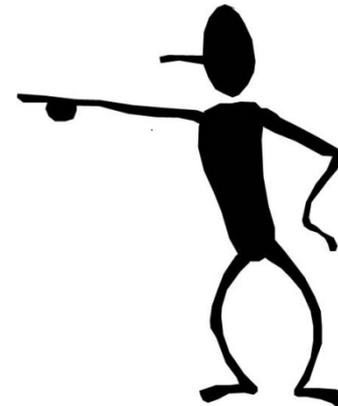
Documentation

- The Airbill must have:
 - Dry ice, 9, UN1845, *number of packages X net weight of dry ice in kilograms.*
- FedEx already has this information typed. You just need to check the appropriate box and write or type in the amount of dry ice.

The image shows a FedEx USA Airbill form. The top left features the FedEx logo and the text "USA Airbill Express" with a tracking number "834163798110". The top right shows a zip code "0200" and "Sender's Copy". The form is divided into several sections:

- 1 From:** Sender's FedEx Account Number, Date, Sender's Name, Company, Address, City, State, ZIP.
- 2 Your Internal Billing Reference:** Optional field for internal reference.
- 3 To:** Recipient's Name, Company, Address, City, State, ZIP.
- 4a Express Package Service:** Includes checkboxes for FedEx Priority Overnight, FedEx Standard Overnight, FedEx 2Day, FedEx Express Saver, and FedEx 1Day Freight.
- 4b Express Freight Service:** Includes checkboxes for FedEx 1Day Freight, FedEx 2Day Freight, and FedEx 3Day Freight.
- 5 Packaging:** Includes checkboxes for FedEx Envelope and FedEx Pak.
- 6 Special Handling:** Includes checkboxes for Saturday Delivery, Hold Saturday at FedEx Location, and other special handling options.
- 7 Payment:** Includes checkboxes for Cash, Recipient, Third Party, Credit Card, and Cash/Check.
- 8 Release Signature:** A section for the recipient's signature.

At the bottom, there is a red banner that says "Try online shipping at fedex.com" and a small box with the number "446".



Carrier

- Do not send dry ice via UPS or US Postal Service who have restrictive policies when transporting shipments of hazardous materials.



- Dry ice shipments can be sent using FedEx and DHL.



Not Subject to IATA Regulations

- Material that does not contain pathogens or only contains inactivated or neutralized pathogens.
- A biological product derived from living organisms and manufactured for use in the prevention, diagnosis, treatment or cure of diseases in humans or animals and are certified by the USDA, FDA, or other national authority (e.g., certain viruses, therapeutic serums, certain toxins, vaccines).
- Dried blood spots or fecal occult screening tests.
- Blood or blood components collected for the purpose of transfusion.
- Tissue or organs for use in transplantation.
- *NOTE: These materials are not subject to IATA regulations, but primary or secondary containers must be marked with a biohazard symbol*



You Can Ship Dry Ice Packages if:

- You have taken and passed the shipping dry ice training.
- Your shipment includes *no hazardous materials other than dry ice.*
- *Send the shipment through FedEx, DHL, or other approved carriers.*



Ask Questions

- If you are not sure if the material you are sending is considered hazardous, contact EH&S at x3560.
- Please complete the quiz using the link or QR :

[Dry Ice Shipping Quiz](#)

