



UO Guide to Shipping with Dry Ice

ENVIRONMENTAL HEALTH & SAFETY

1901C
2234567890
DELIVERY HEAT TREAT LABEL

State _____ Province _____
 Country _____ ZIP Postal Code _____
 Recipient's Tax I.D. number for Customs purposes _____
e.g., GST#FRANCE/FRANCE, or as locally required

4 Shipment Information For EU Only: Tick here if goods are not in free circulation and provide C.I. All shipments can be subject to Customs charges.¹

Total Packages _____ Total Weight _____ lbs. kg DIM L / W / H in. cm
 Shipper's Label and Country/SAZ _____

Commodity Description	Harmonized Code	Country of Manufacture	Value for Customs

For U.S. Export Only: Check Box No SED required, value \$500 or less Total Declared Value _____ Total Value _____

FedEx cannot estimate Customs charges.

Sender Acct. No. is Section 1 will be billed. Recipient Third Party
Enter FedEx Acct. No. below
 FedEx Acct. No. _____

9 Required Signature
 Use of this Air Waybill constitutes your agreement to the Conditions of Contract on the back of this Air Waybill, and you represent that this shipment does not require a U.S. State Department License. Certain international treaties, including the Warsaw Convention, may apply to this shipment and limit our liability for damage, loss, or delay, as described in the Conditions of Contract. **WARNING:** These commodities, technology, or software were exported from the United States in accordance with Export Administration Regulations. Diversion contrary to U.S. law prohibited.
 Sender's Signature: _____ Date Executed: _____
This is not authorization to deliver this shipment without a recipient signature.

For Completion Instructions, see back of fifth page.

FedEx Tracking Number **1234 5678 901C** Form I.D. No. **0402**

381
FORM 153275-10w Date 7/99
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 PRINTED IN U.S.A.

Questions?
 In the U.S., call (800)247-4747
 Outside the U.S., call your local FedEx office

THIS COPY FOR YOUR RECORDS



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I. Introduction

The U.S. Department of Transportation (DOT) and the International Air Transport Association (IATA) regulate shipments of dry ice because it is a hazardous material. As a result, specific procedures must be followed when packaging and shipping materials refrigerated with dry ice and a record of training must be kept.

Follow procedures outlined in this guide when your shipment includes *no hazardous materials other than dry ice*. If you are not sure if the material you are sending is considered hazardous, contact EHS at 541-346-3192.

Packages refrigerated with dry ice are normally shipped by air in order to reach their destinations rapidly. Therefore, information in this guide pertains to air shipments of dry ice, which is generally the most restrictive form of transport. If you intend to ship your package by other means such as ground, freight, vessel, etc., contact EHS to discuss applicability of shipping regulations.

II. Training Requirements

Federal rules require that anyone wishing to ship dry ice must first have hazardous materials transportation training. If you are going to package dry ice for shipment or sign any type of shipping documentation (such as a FedEx Airbill) for a dry ice shipment, you must first receive training from EHS, or have a valid training certificate on file from another authorized trainer. This guide serves as a supplement to formal training to help explain the general provisions relating to the regulations applicable to dry ice.

Shipping regulations change frequently, so it is necessary to renew your certification at least every two years or as often as the regulations change. Call 541-346-3192 to schedule training or to ask questions regarding the shipment of dry ice.

III. Hazard Identification

Dry ice is classified by DOT and IATA as a “miscellaneous” hazard, class 9. Dry ice is considered hazardous during transportation for three reasons:

1. Explosion hazard: dry ice releases a large volume of carbon dioxide gas as it sublimates. If packaged in a container that does not allow for release of the gas, it may explode, causing personal injury or property damage.
2. Suffocation hazard: a large volume of carbon dioxide gas emitted in a confined space may create an oxygen deficient atmosphere.
3. Contact hazard: dry ice is a cryogenic material that causes severe frostbite upon contact with skin.

Packaging dry ice properly will minimize the risk to personnel transporting the material. The explosion hazard will be eliminated with a package designed to vent gaseous carbon dioxide. Suffocation and contact hazards will be greatly reduced by labeling the package correctly, so those who come in contact with it will be aware of the contents.



IV. Packaging Dry Ice (IATA Packaging Instruction 954)

Requirements

Use the “Intent to Ship” checklist (Appendix A) to confirm requirements are fulfilled.

Gas venting: packages must allow for release of carbon dioxide gas. Dry ice must never be sealed in a container with an airtight seal such as a threaded lid, or a sealed plastic bag.

Package integrity: a package containing dry ice must be of adequate strength for intended use. It must be strong enough to withstand the loading and unloading normally encountered in transport. It must also be constructed and closed in order to prevent any loss of contents that might be caused by vibration or by changes in temperature, humidity, or altitude.

Package materials: do not use plastics that can be rendered brittle or permeable by the temperature of dry ice. This problem can be avoided by using commercially available packages intended to contain dry ice, see Appendix B: Manufacturers of Dry Ice Shipping Containers.

Airbill: the airbill (also referred to as the air waybill) must include the statement “UN1845, Dry Ice, number of packages x net weight in kilograms.” FedEx has a check box on their airbill to satisfy this requirement; see Figure 1.

Labeling: the outermost container must be labeled with a hazard class 9 label, UN 1845, and net weight of dry ice in kilograms. Labels must be self-adhesive from an approved label vendor; an example label is provided in Appendix C for domestic and for international shipments. The label should be affixed to a vertical side of the box (not the top or bottom), oriented upright, and perpendicular to the package top. The maximum allowable net quantity of dry ice allowed per package is 200 kg. Shipper and Recipient names and addresses are marked on the box.

Recommendations

Note the following recommendations when packaging and labeling dry ice shipments:

- Do not write “specimens” or “exempt specimens” on the box. Exempt Human Specimens, and Exempt Animal Specimens are subject to specific packaging requirements and there should not be any misunderstanding about your shipment. Exempt specimens, in shipping terminology, are materials that may be infectious to humans or animals. If you think your samples might be infectious, refer to the UO Shipment of Biological Materials Manual.
- It is advised that new boxes be used for every shipment. Only reuse a box if you can personally verify it is not contaminated, its integrity is intact, and all box surfaces are clean and without previous shipping labels. A box should not be reused if it is torn, cut, stained, or if the insulation is cracked or broken.
- Secure your samples in such a way that when the dry ice sublimates, they will not move freely inside of the insulated box. This can be accomplished by wedging your



samples in place with cardboard or styrofoam. Fragile containers such as glass tubes or vials should be wrapped with cushioning material.

- Minimize the volume of air to which the dry ice is exposed in order to slow the rate of sublimation. If there is any air space after you fill your package with dry ice, fill it with packing peanuts or crumpled paper.
- Shipments are generally recommended to contain 5-10 pounds (2.27-4.54 kg) of dry ice per 24 hours. Refer to your package manufacturer's recommendations. Make arrangements with your consignee to make sure your package will be received on its intended delivery date. Take into account local holidays or closings that might delay package receipt.
- Dry ice shipments can be made with FedEx and DHL Express. UPS and the U.S. Postal Service have extremely restrictive policies concerning shipments of hazardous materials; do not ship dry ice with UPS or the U.S. Postal Service.

Figure 1.

FedEx Airbill. Highlighted area properly documents 1 box containing 6 kg of dry ice.

FedEx Express US Airbill Form ID No. 0215 SLA2 Sender's Copy

Tracking Number: 8034 1102 0582

1 From Please print and press hard.
 Date: _____ Sender's FedEx Account Number: _____
 Sender's Name: _____ Phone (): _____
 Company: U OF O/INST OF MOLECULAR BIO
 Address: 297 KLAMATH HALL ← Example Only
 City: EUGENE State: OR ZIP: 97403

2 Your Internal Billing Reference OPTIONAL

3 To Recipient's Name: _____ Phone (): _____
 Company: _____
 Address: _____
 City: _____ State: _____ ZIP: _____

4 Express Package Service *To most locations. NOTE: Service order fee charged. Please select carefully.
 Packages up to 150 lbs. For packages over 150 lbs., use the new FedEx Express Freight US Airbill.
 Next Business Day: FedEx First Overnight, FedEx Priority Overnight, FedEx Standard Overnight
 2 or 3 Business Days: FedEx 2Day A.M., FedEx 2Day, FedEx Express Saver

5 Packaging *Declared value limit \$500.
 FedEx Envelope*, FedEx Pak*, FedEx Box, FedEx Tube, Other

6 Special Handling and Delivery Signature Options
 SATURDAY Delivery
 No Signature Required
 Direct Signature
 Indirect Signature
 Dry Ice Example 1.6 kg

7 Payment Bill to: _____
 Sender, Recipient, Third Party, Credit Card, Cash/Check

Total Packages: _____ Total Weight: _____ Total Declared Value: _____



Appendix A – Intent to Ship Dry Ice

ACCEPTANCE CHECKLIST FOR DRY ICE

(For use when a Shipper’s Declaration of Dangerous Goods is not required)

The Air Waybill contains the following information in the “Nature and Quantity of Goods” box:		YES	NO
1.	The UN Number written as “UN 1845”		
2.	The words “Carbon Dioxide, Solid” or “Dry Ice”		
3.	The number of packages of dry ice		
4.	The net weight of dry ice in kilograms		
Quantity:		YES	NO
5.	The quantity of dry ice per package is 200 kg or less		
Packages and Overpacks:		YES	NO
6.	The number of packages containing dry ice delivered is consistent as shown on the air waybill		
7.	Packages are free from damage and in a proper condition for carriage		
8.	The packaging conforms with Packing Instruction 954 and the package is vented to permit the release of gas		
Markings and Labels:		YES	NO
9.	The box contains the words “Carbon Dioxide, Solid” or “Dry Ice”		
10.	The UN Number written as “UN 1845”		
11.	Full name and address of the shipper and consignee		
12.	The net quantity of dry ice within each package		
13.	Class 9 label affixed		
14.	Irrelevant marks and labels removed		
State and Operator Variations:		YES	NO
15.	In compliance with applicable state and operator variations		
Comments:			
Checked by:			
Signature:		Date:	

DO NOT CONSIGN FOR SHIPMENT IF ANY BOXES HAVE BEEN CHECKED “NO”. PROVIDE A DUPLICATE COPY OF THIS FORM TO THE SHIPPER.



Appendix B – Manufacturers of Dry Ice Shipping Containers

Air Sea Containers
(866) 801-2581
www.airseacontainers.com

CARGOpak Corporation
(800) 266-0652
www.cargopak.com

DG Supplies, Inc.
(800) 347-7879
www.dgsupplies.com

HAZMATPAC, Inc.
(800) 923-9123
www.hazmatpac.com

Inmark, Inc.
(800) 646-6275
www.inmarkpackaging.com

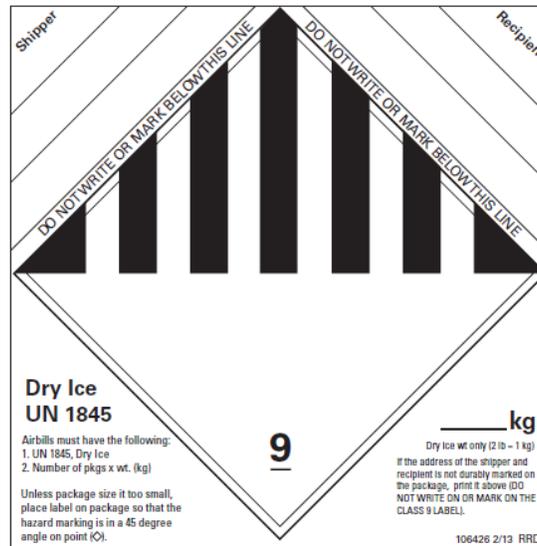
SAF-T-PAK, an Inmark Company
(800) 814-7484
www.saftpak.com

Sonoco ThermoSafe
(800) 225-7443
www.thermosafe.com/products

Appendix C – Dry Ice Shipping Label

Examples only. Labels have size and font requirements, and must be self-adhesive. Purchase approved labels from vendors.

Domestic Shipments via Federal Express: Approved labels are available through EHS, IMB, and Printing and Mailing Services:



International Shipments:

