

**SHIPPING ITEMS WITH DRY ICE THAT ARE NOT OTHERWISE  
 DANGEROUS GOODS**

(For assistance, please contact EHS at (402) 472-4925, or visit our web site at <http://ehs.unl.edu/>)

This Standard Operating Procedure (SOP) describes how to prepare a shipment containing dry ice as the only dangerous good for transport by air with a carrier that subscribes to International Air Transport Authority (IATA) standards. The information in this SOP is based on the IATA Dangerous Goods Regulations, 53<sup>rd</sup> Edition.

Only persons who have documentation of current DOT/IATA training are authorized to ship packages containing biological substances. This SOP is a supplement to and not a substitute for the DOT/IATA training provided by EHS. Training is required before engaging in any transport-related function and at least every three (3) years thereafter.

**SAFETY INFORMATION – DRY ICE**

Prior to preparing dry ice for shipment, review the Material Safety Data Sheet.

Following is a broad summary of the hazards of small quantities (e.g., 5 pounds or less) of dry ice shipped in commerce.

- Dry ice sublimates. It changes directly from a solid to a gas. Therefore, packages and over-packs must not be tightly sealed. They must allow gases to escape to prevent the build-up of pressure.
- As dry ice sublimates it creates carbon dioxide gas, which is colorless and odorless. If enough dry ice were to sublime in an unventilated space, the amount of oxygen available could be reduced to an amount that is insufficient to support life.
- Dry ice is extremely cold at -109.3°F (-78.5°C). Touching dry ice unprotected can lead to frostbite. Always handle dry ice with care and wear protective gloves and eyewear. Use mechanical device (e.g., tongs) to handle.

**IATA TABLE 4.2 – DRY ICE ENTRY**

<b>IATA Section 4.2 List of Dangerous Goods (Dry Ice)</b>	
Proper shipping name	“Carbon dioxide, solid” or “Dry ice”
UN/ID No.	UN 1845
Class or Division	9
Hazard Label	Miscellaneous
Packing Group	
Packing Instructions	954
Maximum Quantity/Package for Limited Quantity	“E0”- Not permitted as Excepted Quantity
Passenger/Cargo Aircraft	200 kg
Cargo Aircraft Only	200 kg

Special Provisions	A48 (packaging test not considered necessary); A151 (when used as a refrigerant for other than dangerous goods loaded in a unit load device or other type of pallet, the quantity limits per package...do not apply...); A805 (clarifies that dry ice may be placed directly within an overpack that meets the requirements of Packing Instruction 954)
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### **PACKAGING – DRY ICE (Packing Instruction 954)**

Packing Instruction 954 references the general packaging requirements of IATA 5.0.2, meaning that the packaging must be of good quality; compatible with the contents; and sufficient size to accommodate required labeling. Requirements specific to dry ice include the following:

1. Packaging must be designed and constructed to permit the release of carbon dioxide gas. This usually means that the package is not completely sealed at all seams.
2. The package must be of sufficient size to allow for marking and labeling. No labels may fold over from one surface of the container to the next.
3. Total net weight of dry ice in the package must be less than the maximum amount specified in the IATA Dangerous Goods Table.

### **MARKING & LABELING – DRY ICE**

General marking and labeling requirements must be observed, such as: all markings must be in English; all markings and labels must be durable and in the correct location, and; only relevant markings and label are allowed. The following marking and labeling is required on the outer package.

1. Proper shipping name: “Carbon dioxide, solid” or “Dry ice.” Either name can be used as a proper shipping name.
2. UN 1845
3. Full name and address of shipper (from) and consignee (to).
4. Net weight of dry ice in the package, expressed in kilograms (2.2 lbs = 1 Kg).
5. Class 9 label.

### **DOCUMENTATION – DRY ICE**

A Dangerous Goods Declaration is not required. However, the appropriate box must be checked to indicate that the shipment contains dangerous goods, and the following information must be provided on the Airway bill:

1. UN1845 (pre-printed on the FedEx Airway bill)
2. Proper Shipping Name, including Hazard Class “9” (pre-printed on the FedEx Airway bill)
3. Number of packages containing dry ice (fill in the blank provided on the Airway bill)
4. Net quantity of dry ice in the package (fill in the blank provided on the Airway bill)

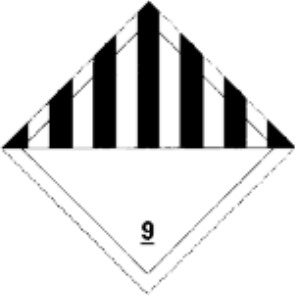
If the person who prepared the package for shipment is different from who is recorded as the shipper on the airway bill, print the name of the preparer in Section 2 of the airway bill. A copy of the airway bill must be retained by the shipper for at least 2 years.

**EXAMPLE PACKAGE AND AIRWAY BILL**

Shipper: Ann Smith  
University of Nebraska – Lincoln,  
3630 E. Campus Loop  
Lincoln, NE 68583-0824

Ship to: Marge Harley  
MBD Inc. 6075 S. Spencer  
Las Vegas, NV 89109

Carbon Dioxide, Solid UN1845, 2 Kg



<p><b>FedEx Express</b> <i>US Airbill</i> <span style="float: right;">Tracking Number: 8531 5774 6190</span></p> <p><b>1 From</b> <small>Please print in full</small>          Date: 9-23-2005      Sender's FedEx Account Number: 1234567890          Sender's Name: Ann Smith      Phone: 402-472-0000          Company: University of Nebraska-Lincoln EHS          Address: 3630 E. Campus Loop          City: Lincoln      State: NE      ZIP: 68583-0824</p> <p><b>2 Your Internal Billing Reference</b> <small>Print in the recipient's shipping address</small>  <i>Ann Smith</i></p> <p><b>3 To</b>          Recipient's Name: Marge Harley      Phone: 000 1 000-0000          Company: MBD Inc.          Recipient's Address: 6075 S. Spencer  <small>We cannot deliver to P.O. boxes or P.O. ZIP codes.</small>          Address:   <small>To require a package to be held in a special FedEx location, print FedEx address here.</small>          City: Las Vegas      State: NV      ZIP: 89109</p>	<p style="text-align: right;">Sender's Copy</p> <p><b>4a Express Package Service</b> <small>Packages up to 150 lbs.</small>  <input checked="" type="checkbox"/> FedEx Priority Overnight <small>Next business day*</small>      <input type="checkbox"/> FedEx Standard Overnight <small>Next business day*</small>      <input type="checkbox"/> FedEx First Overnight <small>Business day before next delivery day*</small>  <input type="checkbox"/> FedEx 2Day <small>Second business day*</small>      <input type="checkbox"/> FedEx Express Saver <small>Third business day*</small>  <small>* FedEx Express does not include Saturday delivery. Minimum charge. See package.</small></p> <p><b>4b Express Freight Service</b> <small>Packages over 150 lbs.</small>  <input type="checkbox"/> FedEx 1Day Freight* <small>Next business day*</small>      <input type="checkbox"/> FedEx 2Day Freight <small>Second business day*</small>      <input type="checkbox"/> FedEx 3Day Freight <small>Third business day*</small>  <small>* Call for details.</small></p> <p><b>5 Packaging</b> <small>* One and only one box</small>  <input type="checkbox"/> FedEx Envelope*      <input type="checkbox"/> FedEx Pak* <small>For Priority, Overnight, FedEx 2Day, FedEx 2Day Freight, FedEx 3Day Freight, FedEx 3Day Freight</small>      <input type="checkbox"/> FedEx Box      <input type="checkbox"/> FedEx Tube      <input type="checkbox"/> Other</p> <p><b>6 Special Handling</b> <small>Include FedEx address in Section 3.</small>  <input type="checkbox"/> <b>SATURDAY Delivery</b> <small>Available ONLY for FedEx Priority Overnight, FedEx 2Day, FedEx 2Day Freight, and FedEx 3Day Freight to select ZIP codes.</small>      <input type="checkbox"/> <b>HOLD Weekday at FedEx Location</b> <small>NOT Available for FedEx Priority Overnight</small>      <input type="checkbox"/> <b>HOLD Saturday at FedEx Location</b> <small>Available ONLY for FedEx Priority Overnight, FedEx 2Day, FedEx 2Day Freight, and FedEx 3Day Freight to select ZIP codes.</small>  <b>Does this shipment contain dangerous goods?</b>  <input type="checkbox"/> No      <input type="checkbox"/> Yes <small>(See package label)</small>      <input checked="" type="checkbox"/> Yes <small>(See package label)</small>      <input checked="" type="checkbox"/> Dry Ice <small>On box(es) 1, 2, 3</small>  <small>Dangerous goods including Dry Ice cannot be shipped in retail packaging. Cargo Aircraft Only.</small></p> <p><b>7 Payment Bill to:</b> <small>Enter FedEx Acct. No. or Credit Card No. below.</small>  <input type="checkbox"/> Sender      <input type="checkbox"/> Recipient      <input type="checkbox"/> Third Party      <input type="checkbox"/> Credit Card      <input type="checkbox"/> Cash/Check</p> <p><b>Total Packages:</b> 1      <b>Total Weight:</b> 4 lbs      <b>Total Declared Value:</b> \$ 0.00  <small>* Our liability is limited to \$100 unless you declare a higher value. See back for details.</small></p> <p><b>8 Sign to Authorize Delivery Without a Signature</b>  <small>By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless for any resulting claims.</small></p> <p style="text-align: right; border: 1px solid black; padding: 2px;">467</p>
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## **SECURITY AWARENESS**

Hazmat employees must receive training relative to security. Following is a summary of the security awareness information included in the EHS IATA training program. Reduce the possibility of unauthorized access, possession, and use of hazardous materials by securing all hazardous materials, including dangerous goods. The following general guidelines represent minimum requirements:

- Packages containing dangerous goods must be kept in a secured area, or under the supervision of a designated shipper, or other authorized employee(s) until picked up by the carrier. Limit access to areas where dangerous goods packages or other hazardous materials are prepared for shipment, received, stored, unpacked or used to authorized employees only. Report latches and locks on doors or other security devices that are damaged, sticky, or have been tampered to your supervisor and the Building Maintenance Reporter.
- Make sure the carrier picking up dangerous goods shipments has identification (e.g. company ID, uses a clearly identified company vehicle, or wears a company uniform).
- Report suspicious individuals, behavior, stolen or missing hazardous materials and hazardous materials packages, and known or suspected unauthorized entry into secured areas to your supervisor and to the UNL Police Department 402-472-2222. Be aware of your surroundings; look for out-of-place vehicles and abandoned or out-of-place backpacks, bags, or other containers.
- Limit information concerning hazardous materials shipments to individuals who need to know, such as other authorized employees, carrier personnel, and supervisors. Do not share information on dangerous goods shipments with casual acquaintances or strangers.
- Be familiar with emergency procedures in place at UNL and know what to do if a package is leaking or damaged.