

SHIPPING EXCEPTED QUANTITIES OF DANGEROUS GOODS

This Standard Operating Procedure (SOP) describes how to prepare a shipment containing excepted quantities of dangerous goods 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 most current IATA Dangerous Goods Regulations.

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.

SCOPE

This SOP applies to shipments containing only the dangerous goods/hazardous materials in excepted quantities meeting all of the following criteria:

- Dangerous goods from hazard class 3 (flammable), 8 (corrosive) or 9 (miscellaneous)
- Dangerous goods from Packing Group II or III only
- Inner packaging(s) containing 30 milliliters (mL) or less of the dangerous goods
- Maximum net quantity per outer package is 500 mL

Shipments of Dry Ice or any other dangerous good/hazardous material other than that described above is beyond the scope of this SOP. As applicable, this SOP must be used in tandem with the following EHS SOP's:

- ***Shipping Items With Dry Ice That Are Not Otherwise Dangerous Goods***
- ***Shipping Biological Substances and Patient Specimens***
- ***Shipping Infectious Substances With or Without Dry Ice***

Refer to the SOPs listed above for examples of completed packages and shipping documentation when the package contains an excepted quantity of dangerous goods in the presence of a material properly classified as an Exempt Patient Specimen, Biological Substance Category B, and which may or may not contain dry ice.

SAFETY INFORMATION – FLAMMABLE LIQUIDS

Prior to preparing inner packages of flammable liquids for shipment, review the Safety Data Sheet for the specific flammable liquid that you are shipping. Following is a broad summary of the hazards of small quantities (e.g., 500 mL or less) of flammable liquids shipped in commerce.

- Vapors from flammable liquids can ignite when near open flames, sparks (electrical, static, or friction), and heated objects. Always keep containers closed tightly.

- Some flammable liquids can dissolve different types of plastic. Always choose inner packaging(s) (receptacles) that are compatible with the contents.
- Some flammable liquids are also irritants and possibly toxic. Always wear standard Personal Protective Equipment (PPE) (safety glasses, nitrile gloves, and a flame resistant lab coat) when handling flammable liquids.

SAFETY INFORMATION – CORROSIVE LIQUIDS

Prior to preparing inner packages of corrosive liquids for shipment, review the Safety Data Sheet for the specific corrosive liquid that you are shipping. In general, contact with corrosives can cause irreversible damage to skin, eyes, respiratory tract, and mucous membranes. Corrosives will generally destroy metal, and are therefore stored in containers made of certain plastics or glass (depending on the specific corrosive material). Following are hazard mitigation strategies for small quantities (e.g., 500 mL or less) of corrosive liquids shipped in commerce.

- Wear appropriate lab attire (long pants, and closed toe shoes) and PPE (protective eye wear, nitrile gloves, and a chemical resistant lab coat).
- Wear nitrile gloves at all times, even when handling closed containers.
- Wear face shields when doing work where splashes can occur and when making the initial dilutions of concentrated acids to protect against splatters caused by vigorous reaction. Face shields are in addition to safety goggles.
- Handle open containers of concentrated corrosives in a fume hood.

SAFETY INFORMATION – MISCELLANEOUS LIQUIDS

Prior to preparing inner packages of miscellaneous liquids for shipment, review the Safety Data Sheet for the specific dangerous good you are shipping. Dangerous goods classified as “miscellaneous” are relatively lower risk than materials classified in other hazardous classes. Regardless, any dangerous good, even a hazard class 9 material should be handled with care and only when wearing appropriate PPE (safety glasses, nitrile gloves, and a lab coat).

PACKAGING – EXCEPTED QUANTITIES OF DANGEROUS GOODS

The packaging ensemble for excepted quantities of dangerous goods must meet certain pressure and drop test requirements found in IATA sections 2.6.5 and 2.6.6. Therefore, commercially-available packaging systems must be used (you can't assemble your own). Packaging must consist of three components:

1. Primary receptacle(s) that is/are leak- or sift-proof (liquids or solids, respectively) and have positive means of closure (e.g., tape reinforced lid closure);
2. Secondary packaging that is/are leak- or sift-proof (liquids or solids, respectively) and have positive means of closure (e.g., tape reinforced lid closure); and
3. Rigid outer packaging. If dry ice is included in the package, then the outer package must be designed and closed in a manner that will allow off-gassing vapors to escape.

In addition,

1. Each package must be of such a size that there is adequate space to apply all necessary labels and markings.

2. Inner packages containing liquids must have sufficient headspace to allow for expansion of the liquid due to temperature/pressure changes.
3. Inner packages must be packed, secured, or cushioned against leakage and/or breakage.
4. Packages cannot be vented except for the venting of dry ice.
5. Packages containing liquids must be orientated with the closures in an upright position, and sufficient absorbent placed between the primary and secondary containers to absorb the entire content. The maximum quantity for each primary receptacle is 30 mL for liquids or 30 grams for solids. Maximum net quantity per outer package is 500 mL for liquids or 500 grams for solids (excluding the weight of dry ice if also included in the outer package).

See **Appendix A** for example packages.

MARKING & LABELING – EXCEPTED QUANTITIES OF DANGEROUS GOODS

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 labels are allowed. The following marking and labeling is required on the outer package.

1. Full name and address of shipper (from) and consignee (to).
2. “Orientation” arrows if the package contains liquids.
3. An Excepted Quantity Package Mark (see below).

EXCEPTED QUANTITY PACKAGE MARK



Packages containing excepted quantities of dangerous goods must be marked with the excepted quantity package mark shown above (minimum size 100mm x 100mm). Replace asterisk with below information.

- * - Insert Hazard Class 3, 8, or 9 based on Hazard Class Table below.

Hazard Class Table

Hazard Class	Chemical
3	Acetone
3	Acetonitrile
3	Ethanol

(Created 7/17)

3	Methanol
8	Formaldehyde ≥ 25%
8	Hydrochloric or Sulfuric acid (not fuming)
8	Acetic acid
8	≤ 20% Nitric acid (not fuming)
9	Formaldehyde solutions 10-25%
Not a dangerous good	Formaldehyde solutions < 10% Example: 10% buffered formalin
Not a dangerous good	Dimethyl Sulfoxide (DMSO)
Not a dangerous good	< 24% aqueous solution of ethanol

Note: Verify with EHS before shipping any chemical that is not listed in the above table.

DOCUMENTATION – EXCEPTED QUANTITIES OF DANGEROUS GOODS

A Shipper’s Declaration for Dangerous Goods is not required. An airway bill is required and must include the words “Dangerous Goods in Excepted Quantities” and the number of packages. However, section six must be checked NO in response to the question “Does this shipment contain dangerous goods?”

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.

See **Appendix A** for example documentation.

Security Awareness Training Reminder

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 by securing all hazardous materials/dangerous goods. The following general guidelines represent minimum requirements:

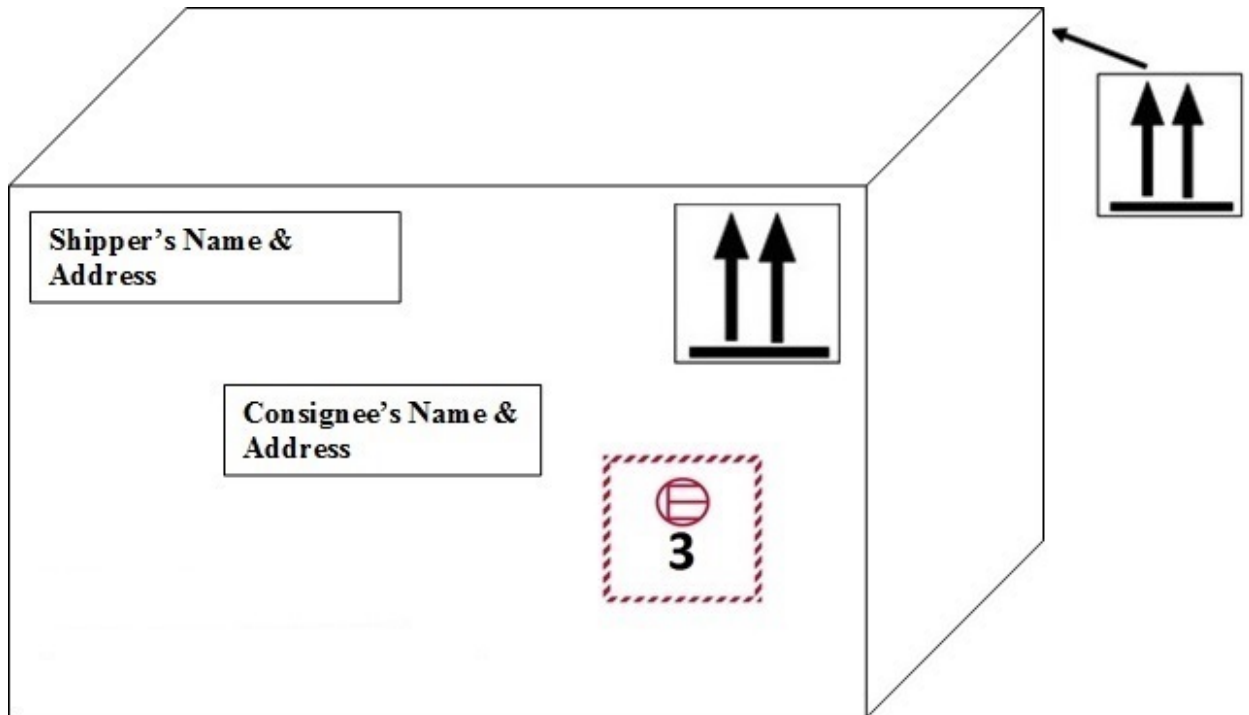
- Packages containing hazardous materials/dangerous goods must be kept in a secured area, or under the supervision of a designated shipper, or other authorized employee(s) until picked up by the carrier. Limit access to areas where dangerous goods/hazardous materials packages are prepared for shipment, 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/hazardous materials 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 dangerous goods/hazardous materials, 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/dangerous goods shipments to individuals who need to know, such as other authorized employees, carrier personnel, and supervisors. Do not share information on dangerous goods/hazardous materials 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.

APPENDIX A EXAMPLE PACKAGES AND DOCUMENTATION

If the package contains any other dangerous good/hazardous material, refer to the following EHS SOP's, as applicable:

- ***Shipping Items With Dry Ice That Are Not Otherwise Dangerous Goods***
- ***Shipping Biological Substances and Patient Specimens***
- ***Shipping Infectious Substances With or Without Dry Ice***



The example above is for a package containing 30 ml or less of ethanol in each primary receptacle (500 ml maximum net quantity per outer package) and no other dangerous good (e.g., patient specimen, Biological Substance Category B, Infectious Substance, etc.). If the package contained an excepted quantity of material that is corrosive (hazard class 8) rather than flammable (hazard class 3), replace the "3" with an "8" on the Excepted Quantity marking. Likewise, if the package contained an excepted quantity of material that is classified as miscellaneous (hazard class 9) rather than a flammable (hazard class 3), replace the "3" with a "9" on the Excepted Quantity marking.

FedEx Express US Airbill Tracking Number **8531 5774 6190** **0200** Sender's Copy

1 From Person/Company
 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**

2 Your Internal Billing Reference **Ann Smith**

3 To
 Recipient's Name **Marge Harley** Phone **000 1 000-0000**
 Company **MBD Inc.**
 Recipient's Address **6075 S. Spencer**
 City **Las Vegas** State **NV** ZIP **89109**

4a Express Package Service Packages up to 150 lbs.
 FedEx Priority Overnight FedEx Standard Overnight FedEx First Overnight
 FedEx 2Day FedEx Express Saver
 FedEx Home Delivery FedEx International Priority

4b Express Freight Service Packages over 150 lbs.
 FedEx 1 Day Freight FedEx 2Day Freight FedEx 3Day Freight

5 Packaging
 FedEx Envelope FedEx Pak FedEx Box FedEx Tube Other

6 Special Handling Include FedEx address in Section 3.
 SATURDAY Delivery HOLD Weekday at FedEx Location HOLD Saturday at FedEx Location
 No Yes Yes Yes Dry Ice Cargo Aircraft Only

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

Total Packages: **1** Total Weight: **4 lbs** Total Declared Value: **\$ 0.00**

8 Sign to Authorize Delivery Without a Signature **467**

Dangerous Goods in Excepted Quantities
1 Package

Try online shipping at fedex.com

The example airway bill above is for a package containing an excepted quantity of a hazard class 3, 8, or 9 material and no other dangerous good (e.g., Patient Specimen, Biological Substance, Category B, Dry Ice, etc.).