





## Packing with Dry Ice

All package components for Category A, Infectious Substances or Biological Substances, Category B must be assembled per manufacturer's packing instructions.

**Disclaimer:** While we are showing you the procedures for properly packing a Category A or B, Infectious Substances package using dry ice, you must understand that we are using materials that contain no Category A or B substances. These images were staged in order to demonstrate the proper procedures.

<ol style="list-style-type: none"><li>1. Label the primary containers (shown here).<ol style="list-style-type: none"><li>a. The substances in these tubes have been used for purposes of demonstration only – to represent Category A or B, Infectious Substances.</li><li>b. These tubes are <b>not labeled</b>, but primary containers holding infectious substances <b>must be labeled</b> when packing for shipping purposes.</li></ol></li></ol>	
<ol style="list-style-type: none"><li>2. Roll the containers in absorbent material.</li><li>3. Separate them with enough material so that if the primary container should fail, the infectious substances would be absorbed.</li></ol>	
<ol style="list-style-type: none"><li>4. Place the primary containers in an airtight, leak-proof container – called the <b>secondary container</b>.<ol style="list-style-type: none"><li>a. If you did not wrap the containers in absorbent materials, you <b>must</b> place enough absorbent material in this container to absorb the infectious substances should the container fail. (Shown here is a sealable, airtight, leak-proof baggie – like a sandwich bag.)</li></ol></li></ol> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"><p>An alternative to absorbent material and a baggie would be this foam-shipping cylinder and a specialized bag (shown here) as the secondary container.</p></div>	
<ol style="list-style-type: none"><li>5. Wrap the primary container in bubble wrap for extra protection.<ol style="list-style-type: none"><li>a. This step may or may not be necessary. It depends on the infectious substance you are shipping. Contact OH&amp;S if you have questions.</li></ol></li></ol>	

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6. Place a list of contents between the second and third container.
  - a. We are not showing the list here, but it would go between the bubble wrap (if used), the baggie, or the foam container and this crush-proof plastic container.
  - b. The black ring around the third container is known as the O-ring. It **must** be in good shape in order for the container to be sealed properly.



7. Place all labels and marks on the third container as detailed in the courses for BIO201 Shipping Biological Substances Category B or BIO202 Shipping Infectious Substances Category A.
  - a. Note the **WARNING – DO NOT PLACE DRY ICE INSIDE THIS VESSEL**. Sealing dry ice in this type of container could cause an explosion.



8. Place the tightly sealed third container inside the box. Do **NOT** put dry ice in this box. This box does not have a Styrofoam container. The dry ice would destroy the cardboard and the infectious substances.



9. Place the box inside the outer box (known as the **Overpack**). It **must** have a container like Styrofoam to hold the dry ice.
  - a. Please note that this person does not have on gloves. We allowed this because we were not using infectious substances. This was for demonstration purposes only.
  - b. You **must** wear the appropriate PPE when packing infectious substances and using dry ice.



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10. Gently pour, or place, the dry ice pellets around the inside container. Remember, that you may use gel packs instead, but they don't stay as cold as dry ice.



11. Surround the inside third container with dry ice (or gel packs). Do not cover the top of it as the lid to the Styrofoam box might not fit.



12. Place the Styrofoam lid on top. It should fit securely.



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- What this means is, if you ship with dry ice and you are not also shipping Infectious Substances, Category A materials no shippers' declaration is required. However, you must mark the outside of the package:
  - UN 1845
  - "carbon dioxide, solid" or "dry ice"
  - the number of packages
  - the net weight of the dry ice in each package, and
  - the name of the contents being cooled

A shipper's declaration is only required if the package contains material classified as dangerous goods i.e. Infectious Substances, Category A

This is an example of a pre-printed label available on the OH&S website that you can complete and affix on the outside of the package.

If you choose **NOT** to use this label, then you **MUST** mark:

### **CONTENTS BEING COOLED**

and specify the contents on the outside of the

#### CONTENTS BEING COOLED:

Diagnostic or treatment purposes

Exempt animal specimen

Exempt human specimen

Non-regulated \_\_\_\_\_

package.

13. The Styrofoam box fits securely inside the overpack and is then filled with dry ice pellets. The Styrofoam lid should fit securely, but not too tight.

### **Marking and Labeling**

This illustration on the next page will demonstrate how to properly pack, mark, and label an exempt patient specimen using dry ice.

Any information required on the outer package of the samples must be displayed on the overpack.

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In addition to the substance specific marks and labels, packages containing dry ice in an overpack shall have:

A class 9 miscellaneous hazard black & white diamond-on-point label

Proper Shipping Name (which is either UN 1845 Dry Ice OR UN 1845 Carbon Dioxide, Solid)

The weight of the dry ice must be marked on the overpack.

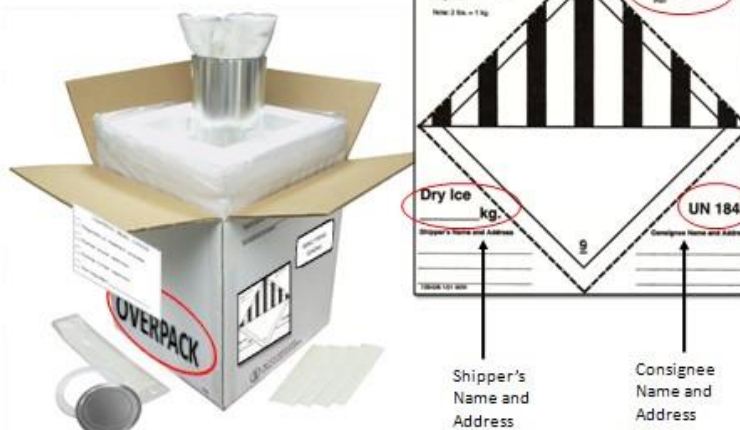
If you are shipping Exempt Patient Specimens (Human or Animal) for diagnostic or treatment purposes packed with dry ice, you should refer to BIO201 Shipping Biological Substances, Category B.

If you are shipping **non-regulated materials with dry ice**, you **MUST** mark the outer package with the name of the contents being cooled.

The word **OVERPACK** must be marked on the box.

Make sure that you remove or completely cover any irrelevant marks or labels.

### Marking and Labeling



### A Shipper's Declaration – Yes or No?

Some substances require a shipper's declaration.

If you are shipping one of those substances AND using dry ice, then you **MUST** add dry ice to the shipper's declaration.

For example, Infectious Substances, Category A require a shipper's declaration. If the package also contains dry ice as the packing refrigerant, then the dry ice **MUST** be listed on the shipper's declaration with the other items.

A UN 3373 Biological Substance, Category B or Exempt Patient Specimen does **NOT** require a shipper's declaration. You do have to mark the outside package with the name of the contents being cooled and the weight of the dry ice.

Refer to [49 CFR 173.217](#) found on the home page of this course under Resources or on the OH&S website to confirm that all requirements have been met.

SHIPPER'S DECLARATION FOR DANGEROUS GOODS		(Provide at least two copies to the carrier)	
Shipper	UN 1845	Net Weight	Net Volume
Consignee			

DANGEROUS GOODS IDENTIFICATION			
Proper Shipping Name	Net Weight	Net Volume	Quantity and type of packaging