Shipping Category A, Infectious Substances

Welcome to the Occupational Health and Safety Shipping Category A, Infectious Substances course. This is the PDF version of the online course. The content is the same. Only the format is different.

A glossary is included in the Resources section on the Home Page of this course and on the website. Terms from this glossary will be on the quiz.

Governing Agencies and the Coordination of Category A Regulations

When shipping Category A, Infectious Substances, you are bound by regulations that come from several national and international agencies as well as governing bodies.

Even though there are multiple agencies and regulations, they have been coordinated (or harmonized) to cause as little confusion as possible.

These regulatory bodies ensure that infectious substances or materials are transported as safely as possible, most notably, by air.

U.S. Regulations and Consequences

In the United States, these regulations are federal law. Failure to comply with these laws can mean fines and/or imprisonment.

UAB and Regulations

Regarding the shipping and receiving of Category A, Infectious Substances and Materials, the University of Alabama at Birmingham follows both the

- International Air Transportation Association Dangerous Goods Regulations and the
What are Dangerous Goods?
Title 49 Code of Federal Regulations (49CFR 171.8), in accordance with IATA, defines a “Dangerous Good” (DG or DGs) as – a substance or material which has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to

- Health
- Safety and
- Property

when transported in commerce and which are shown in the list of dangerous goods in the IATA DGR or which fall under the classifications according to the DGR. (Paraphrased from the CFR)

A PDF chart of the Dangerous Goods List (DGR) can be found on the home page of this course and on the website.

Training Requirements
Any UAB employee who participates in the shipping process for Category A, Infectious Substances must complete training every two years or if regulations change. The shipping process can include packaging, preparing the paperwork, assembling the package, labeling, or any other activity associated with the transport of Category A, Infectious Substances.

This is required by ICAO and IATA.

A copy of the completed training certificate must be maintained in the laboratory files and presented to the proper authorities upon request.

UAB Shipper’s Responsibilities
When shipping packages containing Category A, Infectious Substances or Materials from UAB, you have the responsibility to properly:

- Classify the substance or material,
- Identify the substance or material,
- Select appropriate packaging,
- Pack the substance or material,
- Mark and label the package correctly,
- Complete documentation, and
- Make arrangements with your chosen courier and receiver.

This includes obtaining permits if required. For example, both the USDA and CDC have permit requirements.
UAB Receiver’s Responsibilities
If you receive packages containing Category A, Infectious Substances or Materials at UAB, you have the responsibility to:

- Inspect the documents,
- Inspect the package,
- Get an import permit if necessary,
- Report any damages to the shipper, UAB Biosafety, and the Center for Disease Control (or CDC)
- Notify the sender that the package has arrived, and
- Keep all shipping documents for a minimum of two years

Transporting Category A Substances or Materials on a Plane
The airline industry is very strict about transporting Category A, Infectious Substances or Materials.

You **CAN NOT** carry a Category A, Infectious Substances or Materials package onto a passenger plane no matter how it is packaged.

You **MUST** use a commercial airline courier such as FedEx or DHL. UPS and the United States Postal Service will not accept a Category A, Infectious substances package.

There are quantity limitations for certain items.

If you have questions or need more information, please check with OH&S and/or your courier.

States, Countries, and Courier/CARRIER Variations
Not all couriers/carriers will transport all Category A, Infectious Substances or Materials.

AND not all countries or states in the U.S. accept Category A, Infectious Substances or Materials.

Where there are variations (restrictions) by a state/country or courier/carrier, they may be more restrictive than the IATA DGR or ICAO TI, but never less restrictive.

An example of this would be Federal Express’s forms.

  When shipping by FedEx, **ONLY** typed or computer-generated forms are allowed. Packages with handwritten forms will **not be accepted**.

Permits – When, Who, and Why?
Additional documentation (i.e., permits or certificates) may be required when shipping Category A, Infectious Substances or Materials. For example,

If you are shipping **Select Agents/Toxins**, a certificate is required.
Per regulations by the USDA or the CDC, Select Agents/Toxins require a certificate of registration for
  • Possession,
  • Use, or
  • Transfer – (Note that a transfer requires a CDC/APHIS Form 2 transfer document.)

When shipping internationally, the shipper is responsible for obtaining an export permit.

The receiver is responsible for obtaining all permits necessary for any countries through which the Category A package will travel including USDA permits required for interstate transport.

**Classification**
Classification is necessary in order to follow both national and international regulations.

Classification of an item to be shipped is used to,
  - Identify the actual hazard
  - **NOT** the substance itself.

Category A Infectious substances are those which are capable of posing a risk to health and safety.

Uncontrolled release of these substances into the environment may be life-threatening to humans and/or have similar high consequences for property, animals, and the environment.

Work with these substances usually requires high containment.

You must use the definitions, the *Examples of Infectious Substances Included in Category A or B PDF* file, and the classification flowchart to properly classify your sample.

Links to these files can be found on the home page of this course under Resources and on the OH&S website. If you have questions, please call OH&S.

**Classifying Genetically Modified Organisms (GMOs)**
If your sample happens to be a Genetically Modified Organisms (or GMO) **AND** meets the classification of a Category A, Infectious Substance, then it MUST be classified and shipped as a Category A, Infectious substance.

**Identification – UN Numbers**
UN numbers are required as a part of the identification process. These numbers are taken from the List of Dangerous Goods, and are used to identify a substance or group of substances.

UN 2900 refers to infectious substances that affect animals while UN 2814 refers to infectious substances affecting humans.

This UN Number **always** precedes the Proper Shipping Name or PSN.
**The Proper Shipping Name**
The Proper Shipping Name (or PSN) is assigned by IATA, ICAO, and 49 CFR, and is the name used on shipping documents to describe substances.

Category A Infectious Substances have two proper shipping names – one refers to infectious substances affecting animals and the other affecting humans.

The PSN, **Infectious substance, affecting animals** (along with the preceding UN 2900 number), refers to infectious substances that affect animals and is *only allowed* if the infectious substance is an animal pathogen and can in no way pose a threat to humans.

The PSN, **Infectious substance, affecting humans** (along with the preceding UN 2814 number), is used if the infectious substance can pose a threat to humans *as well as* animals.

**The Technical Name**
The technical name is the substance's genus and species. This must be added to the end of the Proper Shipping Name when shipping Category A substances.

It should be written or typed in parentheses.

For example, a isolate of West Nile virus cultured from a mouse *has* the ability to affect a human.

Therefore, the Shipping Document for this sample would show:

**UN 2814 Infectious substance, affecting humans (West Nile Virus)**

Remember, the technical name goes in the documentation – *NOT* on the package!

**Pressure, Temperature, and Testing**
Either the primary or secondary container must be able to withstand internal pressure of 95kPa (kilopascal) in a temperature of -40 degrees Centigrade (-40°C) to 55 degrees Centigrade (55°C).

kPa is a unit of pressure measurement like PSI or pounds per square inch.

When choosing the correct packing materials, only use packaging in the tested and certified configuration.

For example, you *cannot* ship a Category A, Infectious Substance in an EXAKT-PAK™ secondary container and in a SAF-T-PAK™ outer container (fiberboard box) unless both containers have been tested and certified together.

Most manufacturers *will not* test their products with those of their competitors. If you have questions about your containers and/or boxes, contact the manufacturer about their testing results.
**Quantity Limits**
If the package contains less than 50 milliliters or 50 grams per package, then it can be shipped in the cargo hold of a passenger airplane.

Packages exceeding 50 milliliters or 50 grams must be shipped by cargo aircraft only and have the black on orange **Cargo Aircraft Only** sticker affixed by the shipper.

Packages exceeding 4 liters or 4 kilograms must be shipped by ground transportation or divided to remain under the limit.

**Packing – IATA Packing Instructions 602**
When assembling the package, meet the provisions of national and international regulations. When packing Category A Infectious Substances, use IATA Packing Instructions 602 to assist you. To be precise, UN 2900 Category A Infectious Substances, affecting animals and UN 2814 Category A Infectious Substances, affecting humans must be triple packaged.

The following steps show you how to triple pack those substances.

1. Start with a leak proof primary container.

2. Place sufficient absorbent material inside the secondary container to completely absorb the contents should the primary container fail. Foam protectors, provided by the manufacturer, can be used as the absorbent material.

3. Place the foam container inside a plastic bag, provided by the manufacturer. While this plastic bag is **not** required, it serves to provide an extra measure against spills or breakage.

4. Seal the plastic bag just as an extra precaution to prevent leakage.

5. Place the primary container, wrapped in absorbent material, into a secondary container. The secondary container **must be** leak proof. In this example, an O-ring, the black rubber gasket around the top of the container, produces a leak proof seal when it is tightly secured.

6. Securely tighten the secondary container.

7. Spray the secondary container with the appropriate disinfectant.

8. Wipe down the container after waiting the designated time listed on the disinfectant. Remember to always follow laboratory standard operating procedures (SOPs) for removal of samples from the biosafety cabinet or other primary containment.

9. Place the secondary container into a tertiary (or third) container. The third container must be tested and approved by the manufacturer.
10. Place the required list of contents between the second and third containers. The required list of contents must be:
   - The name of the substances,
   - The volume, and
   - The number of items.

**Questions Regarding Boxes?**
Never use boxes except those that conform to approved standards.

Always look for the UN mark. It indicates that the box has been tested and meets standards.

If you have questions about which boxes are approved, please call OH&S at (205) 934-2487.

**Labeling and Marking**
Marks and labels should be 1) durable, 2) placed so that they are completely visible and not obscured by any other label or marking, and 3) placed all on the same face of the package, **if possible**.

Packages containing a Category A, Infectious Substance **MUST** have the following information on the outer package:

- The complete name and address of the shipper and consignee (receiver)
- The name and telephone number of a responsible person – unless it is on the waybill
- The Proper Shipping Name – UN 2900 Infectious substance, affecting animals **OR** UN 2814 Infectious substance, affecting humans
- The quantity of the dangerous good
- A black and white diamond-on-point Infectious Substance Label printed with the words:
  - **In case of damage or leakage, immediately notify a Public Health Authority**
  - **In U.S.A. notify director – CDC, ATLANTA, GA 1-800-232-0124.**
  - Orientation marks or the words “**THIS SIDE UP**” on packages containing liquids. Two orientation marks or the words “This side up” should be on two opposite sides of the box. However, they must match. Both sides must be orientation marks or both sides must be marked “This side up.”
  - The word **OVERPACK** should also be on the box if an overpack is being used.

All labels and marks must be durable.

Remember to remove or completely cover any irrelevant marks or labels. Try to place all marks and labels on the same face of the package if possible.

When labeling and marking, certain information is required on the outer package.

These marks and labels are used to provide information about

- the contents of the package,
- the nature of the hazard, and
- any special handling requirements.

However, in the event of an emergency, additional information may be needed.
For that reason, a contact name and phone number must be listed on either the package or the waybill.

This must be a responsible person who will answer the phone regardless of the time of day if there are any questions about the package.

**Documentation**

A Shipper’s Declaration for Dangerous Goods is a legal document that is sometimes called a Shipper’s Declaration.

It is required for each shipment of Category A, Infectious Substance.

It is also one of the main reasons packages get rejected – because they are incorrectly prepared!

To keep your Shipper’s Declaration from being rejected, here are some things that you must do:

1. Prepare three copies – one for the shipper and two for the carrier. However, some carriers may require more. Check before submitting.

2. Keep your copies for two years – in case there are questions later.

3. **IF** you have made prior arrangements with the courier, submit your shipper’s declaration information electronically!

4. Fill out each line or space correctly. An interactive form is available on the home page of this course and on the OH&S website. The form is for FedEx, but it should give you a general idea of how to complete a Shipper’s Declaration.

**Already to Ship? Check Again!**

Before handing the package over to the carrier for shipment, ensure that the responsibilities for packing are completely satisfied.

Use the checklist on the home page of this course under Resources as well as on the OH&S website to fulfill courier/carerrier variations.
Emergency Procedures – Category A Spills!
Spills happen – both large and small. When these accidents happen, you should have a biological spill kit prepared and stored nearby. Follow these steps to ensure that the spill is cleaned up properly.

1. Open the spill kit and remove the door signage that tells others NOT to enter due to a spill.
2. Post the sign on the door.
3. Cover the spill with absorbent material.
4. Pour the appropriate disinfectant over the spill starting from the outside spiraling inward.
5. Wait for the designated amount of contact time specified on the disinfectant.
6. Pick up any broken glass or sharps using tongs or hemostats, and place in a sharps container.
7. Pick up the absorbent materials and place in a red biohazard bag.
8. Thoroughly disinfect the work surface inside the biosafety cabinet.
9. Properly disinfect and dispose of the biohazard bag.
10. For spills within containment, report the spill to OH&S Biosafety within 24 hours of the spill.

Spills outside of containment or involving an injury MUST be reported immediately.

For more information about types of spills, spill cleanups, and spill kits, please review the information on the OH&S website. This information will be included on the quiz.

Disinfectants
The appropriate disinfectant is critical to ensuring that the work surface is clean especially after a spill.

For proper disinfection, there are three major factors to consider:
• Choosing the appropriate disinfectant,
• Using the correct concentration of the disinfectant, and
• Providing adequate contact time.

A PDF file is available on the website to assist you with biological spill cleanups. This information will be on the quiz.
First Aid for a Biohazardous Incident
Accidents happen, and too often we are not prepared when they do.
Make sure that YOU know what to do in case of a biohazardous incident.

If a biohazardous substance splashes into the eyes,
Promptly flush the eyes with water for 15 minutes and seek medical attention.

If a biohazardous substance enters the mouth,
Try not to swallow.
Rinse the mouth with water immediately. Don't swallow the rinse water!
And seek medical attention.

If a biohazardous substance comes in contact with the skin,
Promptly and thoroughly wash the affected area with soap and water and remove any contaminated clothing.

Report the accident or injury as soon as possible by following the On-the-Job-Injury (OJI) procedure. This information can be found on the HRM website under HRM Programs – On-the-Job Injury/Illness.

FIRE!!!!
You’ve just received a Category A, Infectious Substance package from the courier at the door. The fire alarm goes off. Do you know what to do next?

Normally, you would leave the building according to the fire alarm procedures.
However, since you are holding a Category A, Infectious Substance package, you must:
2. Make sure that the biosafety cabinet is on and running.
3. Pull the sash down and then
4. Exit the building.

Do NOT take a Category A, Infectious Substances package outside with you!

Three Things to Remember: Your Safety!
In summary...

Category A, Infectious Substances or Materials, if improperly packaged, may be extremely dangerous – not only to you, but also to those around you including property, animals, and the environment.

If it very important that you and those who encounter the substances or materials and their packaging handle, pack, ship, and receive them with care using all safety precautions.

Everything is done to protect YOU!
Three Things to Remember: Regulations
When shipping Category A, Infectious Substances or Materials, you are obligated by international and national regulations to package such material so that anyone who may be near or comes in contact with that package is safe.

Some carriers/couriers and some states have their own unique set of rules or procedures. These must be followed as well.

Three Things to Remember: Protect Yourself and Others
Protect yourself and others around you by wearing the proper PPE, knowing first aid procedures, and knowing what to do in case of emergencies when shipping and/or receiving Category A, Infectious Substances or Materials.

The End
This concludes the OH&S Shipping Category A, Infectious Substances and Materials course. Recertification is required every two years or if regulations change.

Go to the home page of the course to take the quiz. 85% or higher is required to pass.