Shipment of Dangerous Goods
At
Georgia Institute of Technology
Regulatory Agencies

The Shipment or Transfer of Dangerous Goods is governed by a number of regulatory agencies, including:

- Department of Transportation (DOT)
- International Air Transport Association
- Centers for Disease Control
- U.S. Census Bureau
- Department of Homeland Security
- Etc.
What’s in the Regulations?

- US Shipment Regulations require that any person involved in the transportation of dangerous goods receive training that covers:
  - General Awareness
  - Safety
  - Security
  - Function Specific Items
- This training will cover general awareness along with safety and security. A lab visit will be used to teach function specific duties.
- It will also cover the internal requirements of EH&S to ship your package.
- This training and the accompanying test as well as the hands on laboratory visit for function specific issues will be used to certify that all persons are trained appropriately.
- Training is required before packaging any material having to do with shipment/transport of dangerous goods and must be refreshed every two years.
The Most Important Element

YOU

- You are the person who wants to ship the material
- You are the person most effected if all the requirements are not followed.
- You are the individual most familiar with the material you want shipped:
  - Its properties, characteristics and likely effects
- Ultimately you’re the person packing the inner container, thus you must be trained
What Happens IF:

If you don’t follow the rules:

- Your material may not end up where you want it, when you want it there.
- You may be subject to:
  - Fines, starting around $25,000
  - In some cases, criminal charges.
- Really bad memories if YOUR package is the cause of an accident.
Why Can’t I Just Do It Myself?

- Depending on what you are shipping and the mode of transportation, complete, formal training may take as much as four days and cost over $1,000. It’s just not cost effective for Georgia Tech to have each individual undertake such a program.

- Even with formal training, there is a degree of competency that only comes with repetition – most people only ship a few items each year – EH&S’s specialists ship daily.

- Many shipments require a knowledgeable person be available 24/7 while a shipment is in route – EH&S provides this service.

- THIS TRAINING DOES NOT QUALIFY YOU TO MAKE CLASSIFICATIONS AND SHIP ANY MATERIAL FROM YOU LAB. ALL SHIPMENTS MUST STILL COME THROUGH EH&S.
Dangerous Goods Labeling

- All dangerous goods must be classified into one of nine classes.
- Each class may have multiple divisions within the class that subcategorize hazards with different labels or placards.
- All labels for dangerous goods must state the class number, the hazard, and have a recognized symbol for that hazard.
- EH&S will make the classification determination based on the hazard information that you provide on your shipping request form.
- EH&S will also label all shipments with the proper sticker to signify the appropriate hazard inside the box.
Class 1 and 2

- Class 1 contains explosives and has compatibility grouping for transport with other dangerous goods.

- Class 2 contains Gases that are categorized as flammable, non-flammable, and toxic.
Class 3 and 4

- Class 3 contains flammable liquids

- Class 4 contains flammable solids, spontaneously combustible, and dangerous when wet chemicals.
Class 5 and 6

- Class 5 contains Oxidizers and Organic Peroxides.

- Class 6 includes Toxic substances as well as infectious substances.
Class 7 and 8

- Class 7 includes radioactive materials
- While class 8 contains corrosive materials
Class 9 contains miscellaneous dangerous goods that do not fit into another category.

Class 9 can include but is not limited to:

- Elevated temperature substances
- Genetically modified micro-organisms
- Automobiles
Handling Labels

- Besides the class label, shipments might need a handling label.
- This label tells the carriers, of any restrictions have been placed on the type of connivance or indicates the position of the bottom and top of a box.
- Again, EH&S will determine if a shipment needs any particular label.
Handling Labels

- A magnetized materials label must be used on all shipments with items that have magnetic properties.
- Cargo Aircraft Only is used to indicate that the package is not packed to meet requirements to be shipped on a passenger aircraft.
Handling Labels Continued

- Two arrows are used to indicate the direction of orientation of a package to keep leakage to a minimum and the arrows can be pre-printed on the box.

- If the arrows are used the package must be marked with either “This End Up” or “This Side Up” on the top of the box.
Handling Labels Continued

- Non-flammable liquids that are also cryogenic must be labeled.
- Materials that are sensitive to heat must be labeled with the additional label to protect from self-reactions of materials.
Packing Instructions

- All dangerous goods come with packing instructions.
- These instructions details:
  - The proper inner packaging
  - The maximum amount of material allowed in the inner package
  - The proper outer packaging
  - Any variations to normal packing instructions
Marking Of A Package

- Dangerous goods must be marked with the following:
  - Proper shipping name
  - The UN number, that is the international identifier of a chemical, that matches the proper shipping name.
  - The full name and address of the shipper and the receiver.
  - In some cases the gross weight and in some cases both the gross weight and the net weight
  - The box must come with a UN package rating.
Shippers Declaration of Dangerous Goods

- Dangerous goods shipments requires a declaration that has all the important information about the shipment and the material in one place.

- The declaration must be completed and signed by the shipper and given to the carrier in triplicate.

- This includes:
  - UN Number
  - Proper shipping name
  - Class and Division, if applicable
  - Quantity and type of packaging
  - The packing instruction used
  - A 24 hour emergency contact
Shipper’s Declaration

**Shipper’s Declaration for Dangerous Goods**

*Provide at least three copies to the airline.*

<table>
<thead>
<tr>
<th>Shipper</th>
<th>Air Waybill No.</th>
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<tr>
<th>Consignee</th>
<th>Pages</th>
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**Transport Details**

- This shipment is either passenger or cargo.
- Aircraft only
- Airport of Departure
- Airport of Destination

**Warning**

Failure to comply with all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties.

**Shipment Type**

- Non-hazardous
- Radioactive

**Nature and Quantity of Dangerous Goods**

<table>
<thead>
<tr>
<th>Unit of</th>
<th>Proper Shipping Name</th>
<th>Class or Special Handling</th>
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<table>
<thead>
<tr>
<th>Packing Group</th>
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<table>
<thead>
<tr>
<th>Quantity and type of packaging</th>
<th>Packing List</th>
<th>Authorization</th>
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**Additional Handling Information**

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labelled in accordance with applicable international and national governmental regulations. I declare that all of the applicable air transport requirements have been met.

**Name/Title of Signatory**

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<th>Place and Date</th>
<th>Signatures</th>
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**Emergency Telephone Number**

For Radioactive Material, Shipment Acceptable for Passenger Aircraft. The Shipment Contains Radioactive Material Intended for Use in Research, Medical Diagnosis, or Treatment. See European Transport Statement, Campaign in Accordance with 1442.
Limited and Excepted Quantities

- Dangerous goods can be shipped in packaging that has passed testing or has the appropriate testing markings.
- The box must still have the appropriate labels and be marked with limited quantity or LTD QTY.

- Excepted quantities allows for small amounts, 30 g or 30 ml of a dangerous good to be shipped without a shipper’s declaration, class labeling, and marking.
- The box must have the appropriate excepted quantities label.
- Not all dangerous goods can be shipped in excepted quantities.
SAFETY

- The entire shipping program as well as all related regulations are designed to allow for safe shipping and handling of dangerous goods.
- Proper handling and packaging will ensure your safety, the safety of the other lab members, the safety of the EH&S specialist, and the safety of all transport company personnel handling the package.
- Safety should be a top priority whenever handling materials to be shipped.
Steps to Safe Handling of Dangerous Goods

1. Characterize your material: To properly prepare your shipment its hazards/potential hazards need to be known.
   - This includes determining if the materials fit into one of the classes of a dangerous good
     - You can do this by reading the MSDS, consulting your PI for their professions knowledge, reading scientific papers, using the hazard information of the components of the material, or using your professional knowledge.

2. Package the sample in a compatible container (inner packaging).
Steps to Safe Handling of Dangerous Goods
Continued

3. Clean and/or disinfect the surface of the inner package.

4. Seal the inner package with tape or parafilm.

5. Transport the inner package to EH&S in secondary containment to help prevent spills
   - If you should have an accident and spill the dangerous goods during transit, please call Georgia Tech police at 5-2500 or 911 and EH&S at 4-4635.
   - Do not attempt to clean up the spill yourself. But you will need to keep people out of the area until the police arrive to cordon off the area.
Steps to Safe Handling of Dangerous Goods Continued

- If you are driving dangerous goods to EH&S be sure to use a Georgia Tech vehicle
- Keep the shipment protected while in the car by placing it in an area visible to you but not on the dash.
- EH&S requires that if you drive the shipment on campus, you must have defensive driving classes offered by EH&S through the Office of Organizational Development
Compatible Containers

• Each chemical will have an appropriate container that will protect the shipper and all those that come into contact with the package.

• EH&S will help you determine the appropriate inner packaging (compatible container).

• No shipment will be sent unless a record is on file that the shipper has been instructed on the proper inner container by EH&S.

• EH&S will help you determine the appropriate container at the time of function specific training.
Compatible Containers Continued

- If you are shipping a new material, EH&S will require that the container be selected with our help and a lab visit.

- The material to be shipped cannot react with the container.

- Some Containers not to use with particular chemicals (this list is not comprehensive):
  - Mercury or mercury container material in aluminum containers.
  - Corrosives of any kind in metal containers.
  - Fluorides (to include Hydrofluoric Acid) in glass containers.
SECURITY

Material in transport is vulnerable to theft or diversion for purposes other than that intended. While little of the material shipped by the institute is of a nature or in a quantity to warrant such action. Reasonable precautions should be taken.

- Know the agency/individual to whom material is being transferred. Do not ship to people that randomly request materials.
- Be aware of your surrounding while transporting the materials to EH&S. Make sure that no one has the ability to tamper with or add new hazardous items to your shipment.
- Do not allow the package to leave your sight during transport.
- Do not carry a package to EH&S from someone you do not know or trust.
- Fill out MTA requests completely and accurately.
- Don’t broadcast information on what and when you are planning a shipment beyond those parties who need to know.

If you have other security concerns emanating from the provisions of research grants/contracts consult with the Office of Research Compliance.
At Georgia Tech:

- Office of Legal Affairs (OTL) insures compliance with import/export regulations.
- Office of Research Compliance and the Office of Technology Licensing, through the Material Transfer Agreement (MTA) process, insures that intellectual property rights are protected and that the agency receiving the material is a legitimate recipient.
- Department of Environmental Health and Safety: Prepares shipping papers, prepares outside packing, and labels, and insures that the material is properly identified and shipped legally and safely.
Before Bringing Your Inner Package to EH&S

- Complete all required paperwork (Customs Review, MTA, Shipping Request) Completely and Accurately.
  - Links to Paperwork can be found on the EH&S website at www.ehs.gatech.edu:
    - Biological Shipping Request:
      - http://www.safety.gatech.edu/biological.doc
    - Chemical Shipping Request:
      - http://www.safety.gatech.edu/Chem_Domestic.doc
      - http://www.safety.gatech.edu/Chem_International.doc
    - Material Transfer Agreements:
      - http://www.otl.gtrc.gatech.edu/
      - Click on the Material Transfer Agreement box on the left hand side of the page.
Before Bringing Your Inner Package to EH&S Continued

- Request a shipment in advance
  - This includes completing the MTA form
  - And letting the EH&S specialist know when you want to ship
    - This can be as simple as an email to the shipper stating that you will be bringing over a shipment or making a phone call to the EH&S specialist
    - All shipments must be scheduled at least 48 hours in advance to ensure that the EH&S specialist will be in the office to package and ship the materials.
Bring the Shipment to EHS

- EH&S is located at 490 10\textsuperscript{th} Street. The building is on the corner of Hemphill and 10\textsuperscript{th}, on the right side as you leave campus.
- Be sure to bring all \textbf{COMPLETED} paperwork
- Bring any dry ice or ice packs that are required for temperature sensitive materials.
Questions?

- **Contact:**
  - Lisa Brindel (4-6120) (biological)
    - Lisa.brindel@ehs.gatech.edu
  - Vanessa Keel (5-2963) (chemical)
    - Vanessa.keel@ehs.gatech.edu
  - Ryan List (5-9531) (chemical)
    - Ryan.lisk@ehs.gatech.edu
Take the Test

Download the accompanying examination. Complete the test and fax to 4-5042. You will be contacted by email to establish a date and time for EH&S to visit the lab to complete your training.
Take the Test

Transport of Dangerous Goods for Staff/Faculty Members.

Name: ________________________________     GTID # ___________________________
Phone:________________________________     e-mail:____________________________

1. What agency (ies) governs the transport/transfer of dangerous goods. (Circle the one best answer).
   a. U.S. Department of Transportation (DOT).
   b. Centers for Disease Control (CDC).
   d. All of the above and others.

2. What safety precautions need to be followed in preparing material for shipment (Circle the one best answer):
   a. None, I've fulfilled all safety requirements in preparing my material - other people handling my material need to look out for themselves.
   b. Those safety precautions I've been taught and practice in my normal work as well as the safety practices that are in the EH&S shipping training.
   c. I need to consult with the Occupational Health and Safety Administration for specific requirements for my material.

3. I should (circle the one best answer):
   a. To provide adequate security for my material only take it to EH&S during hours of darkness.
   b. Post on my blog the details of what I am having shipped and when.
   c. Keep the package from being tampered with during transport from the lab to the EH&S office by being aware of my surroundings at all times.

4. There are ________ classes of dangerous goods.
   a. Seven
   b. Twenty
   c. Nine

5. Class labels are required for all shipments regardless of the amount of the material in the inner packaging.
   a. True
   b. False, why ____________________________
6. Who fills out the Shipper’s Declaration of Dangerous Goods form?

   a. EH&S
   b. You
   c. The department Administrative Coordinator

7. What source of information do you use to determine the appropriate inner packaging for your dangerous goods shipment?

   a. Fed Ex
   b. MSDS
   c. EH&S

Please return the form to EH&S via a fax to 4-5042. A time for the hands on function specific training and container determination will be scheduled.