Genetically Modified shipping quick reference

And Shipping labels
Use this label if **Not** using dry ice in the shipment

Print this page and cut out labels to affix to box. (Packing tape is recommended.) Use wide clear tape to completely cover labels to protect from weather; rain, snow, etc.

Use this label if shipping **with dry** ice and the UN3245 sticker.

**Dry Ice**
**UN 1845**

Air bills must have the following:
1. UN 1845, Dry Ice
2. Number of pieces x wt. [kg]

Unless package size is too small, place label on package so that the hazard marking is in a 45 degree angle on point (O).

Dry ice wt only (21 = 1 kg)
If the address of the shipper and recipient is not durably marked on the package, print it above (DO NOT WRITE ON OR MARK ON THE CLASS 9 LABEL).
When do GMOs ship as Dangerous Goods?

- **3.9.2.5.1** Genetically modified micro-organisms (GMMMOs) and genetically modified organisms (GMOs) are micro-organisms and organisms in which genetic material has been purposely altered through genetic engineering in a way that does not occur naturally
  - GMO and GMMO must be assigned to UN3245 if they meet the definition above (DGR 3.9.2.5.1) and are not toxic or infectious (by their definitions)
  - GMO and GMMOs are not subject to the Dangerous Goods Regulations when they are approved for use in the States of origin, transit and destination

- Dangerous goods training is not required to ship GMO
- UN3245 is assigned to packing instruction 959, which does have some requirements on packaging, marking and documentation
Proper Shipping Name & UN Number

• Each Class or Division of Dangerous Goods has an assigned name accompanied by an identification number
  – Assigned name: called the **Proper Shipping Name**
  – Identification number: the **UN number**

• The Proper Shipping Name and UN Number are standardized worldwide

• Abbreviations are not accepted

• The Proper Shipping Name and UN number must be on the package and the transport document
Proper Shipping Names

• Genetically modified organism  
  (shipped internationally)
  – UN 3245 Genetically modified organism
  or
  – UN 3245 Genetically modified microorganism

• Dry Ice
  – UN 1845 Dry Ice
  – UN 1845 Carbon Dioxide, solid
**Triple Packaging-General**

1. **Leakproof primary receptacle(s):** Cryovial, test tube, eppendorf tube, etc. Petri plate INSIDE a ziploc bag
   - All primary containers must be sealed. Tape or parafilm around tube caps, ziploc bags must be taped, etc
   - Multiple fragile primaries must be wrapped individually to avoid contact
   - The maximum quantity allowed in one primary receptacle is 100mL or 100g
   - There is no limit on the volume allowed in one package

2. **Leakproof secondary packaging,** sealed so that it will not open and spill the contents during transport (outer ziploc bags must be taped shut)
   - There must be sufficient **absorbent** to soak up the total volume if breakage occurred. (Not needed if specimen is solid)
   - Absorbent must be placed inside the secondary package.

3. **Outer packaging** that is adequate strength for its capacity, weight, and intended use
   - All surfaces must be at least 4 inches x 4 inches (or 100mm x 100mm)
Refrigerants-Wet Ice and Gel Paks

• All refrigerants must be placed outside the secondary packaging

• **Wet ice** should not be used
  – If wet ice is used, it must be placed in a leakproof container, and the outer package must be leakproof
  – Use **gel paks** instead
    • gel paks are unregulated, there are no requirements for marking or labeling the outer package for use of gel paks
    • But, it’s difficult to achieve and maintain lower temperatures
Refrigerants-Dry Ice

- **Dry Ice: Class 9 Dangerous Good**
  - An insulated package must be used
  - May not be placed inside a sealed primary container
  - The secondary container must be secured such that the original orientation is maintained after the dry ice melts
  - The outer package must be capable of venting gas to prevent the build-up of pressure
  - Arrangements must be made between shipper and carrier to ensure proper ventilation

- **On the outside of the outer package:**
  - A Class 9 Miscellaneous Dangerous Goods hazard label
  - A UN 1845 Dry Ice handling label, including the weight of the dry ice in the package
How Much Dry Ice Should Be Included?

• Recommendation:
  – Dry ice will sublimate from a solid to a gas at a rate of 5-10 pounds (2.27-4.54 kg) per 24 hours when shipped in an appropriate insulated cooler
  • Actual time will vary depending on:
    – Package used
    – Volume and density of the dry ice
  – Refer to package manufacturer’s recommendations to determine the correct amount of dry ice to include in your shipment.
UPS Packaging Quantity Limits

• The weight entered for dry ice must be less than the total weight of the shipment.

• Packages designated for **diagnostic or medical purposes**
  – UPS “Blue Label” is required for shipments designated for diagnostic or medical purpose.

• Packages containing **non-medical, non-hazardous** materials must be 2.5 kg (5.5 pounds or less)
  – If greater than 2.5kg (5.5 pounds) a separate UPS hazardous material agreement is required. Contact UM Procurement for additional details.
Hazard and Handling Labels

• Hazard Labels:
  – Identifies the Dangerous Good
  – Indicate Class and Division of the Dangerous Good
  – Always a square set at a 45° angle
  – Must use the hazard label specific to the Dangerous Good

• Handling labels:
  – Instructions for handling the package
  – Various shapes and sizes
  – Requirements vary by type of Dangerous Good, amount, etc.
The outside of a package containing **Genetically Modified Organisms** shipped internationally must bear 2 labels:

- A **UN 3245** label
- A **Class 9 Miscellaneous Dangerous Goods** hazard label
All packages must have complete shipper and receiver addresses:

**Shipper:**
John Doe  
1 Medical Way  
Pumphandle TX 70123  
PH: 1-714-555-1212

**Consignee:**
Jane Smith  
100 Main Street  
Baltimore, MD 21000  
PH: 1-410-555-1234

All packages containing dry ice must have:

- **Class 9 Miscellaneous Dangerous Goods label**
- **UN 1845 Dry Ice label**, write the mass of the dry ice on the label
- **Orientation label**, for shipments that include more than 50 mL of liquid. The arrows must be oriented with the primary receptacles
- **2 labels**, placed on opposite sides of the package.
Proper Packaging of A Shipment Including Dry Ice

- Place labels on vertical side of box (not top or bottom)
- Ensure shipment will arrive during business hours
- Ensure packaging is constructed for proper venting (unvented dry ice can explode)

Must include the words “Dry Ice” written or printed and “UN1845”

Must use a Class 9, dry ice label for all dry ice packages

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New Requirement:
No vertical line between black stripes and white area

Do Not Forget the Shipment Specific Labels
Based on What is Being Shipped (e.g. Cat B, Exempt or GMMO)