

Instructions for Hazardous Materials Shipments

A hazardous material (aka dangerous good) is defined by the DOT in 49 CFR 171.8 as “A substance or material that the Secretary of Transportation has determined is capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and has designated as hazardous under section 5103 of the Federal Hazardous Materials Transportation law (49 U.S.C. 5103)”. For all chemical shipments it is necessary to determine whether the chemical is listed as, or if not specifically listed, meets the hazard characteristics of, a hazardous material.

1. **Check if the chemicals you are shipping or offering for shipment are listed in the DOT Hazmat Table [49 CFR Subpart B, 172.101](#).** This information is located in column 2 of the table.
2. If your chemical is not specifically listed (or you are sending a research product or material that mixture of chemicals), **You Must Determine if Material Meets Any of the HAZMAT Characteristics.**

If you *cannot* find it in column 2 or your material is a *mixture* of items listed in the table then you must consider if what you intend on shipping is a hazardous material because of its characteristics. Review the Department of Transportation hazardous material criteria below to determine whether your chemical, material/mixture exhibits any one or more of these characteristics. (Note: Information on chemical characteristics can be found on the MSDS's.)

- Is it a Compressed Gas?
- Is it Flammable? - Liquid having a flash point of less than 60.5°C (141°F).
- Is it Combustible? - Liquid that has a flash point above 60.5°C (141°F) and less than 93°C (200°F).
- Is it a Flammable Solid? - Self-reactive materials that are thermally unstable and that can undergo a strongly exothermic decomposition even without participation of air; and readily combustible solids including those which may cause a fire through friction, show a burning rate faster than 2.2 mm per second, and ignitable metal powders.
- Is it Spontaneously Combustible? - A pyrophoric material that can ignite within 5 minutes after coming in contact with air; and self-heating material that, when in contact with air, and without an energy supply, is liable to self-heat.
- Is it Dangerous When Wet? - A material that, by contact with water, is liable to become spontaneously flammable or to give off flammable or toxic gas at a rate greater than 1 liter per kilogram of the material per hour.
- Organic Peroxide? - Any organic compound containing oxygen in the bivalent-O-O-structure and which may be considered a derivative of hydrogen peroxide, where one or more of the hydrogen atoms have been replaced by organic radicals, unless the material is classified as an explosive.
- Poisonous? - A material, other than gas, which is known to be toxic to humans as to afford a potential hazard to health during transportation or it is presumed to be toxic to humans because it has been tested on laboratory animals with the following results.
 1. Oral Toxicity- liquid with an LD50 for acute oral toxicities of not more than 500mg/kg. Solid with an LD50 for acute oral toxicity of not more than 200mg/kg.
 2. Dermal Toxicity- A material with an LD50 for acute dermal toxicity of not more than 1000 mg/kg.
 3. Inhalation Toxicity- A dust or mist with an LD50 for acute toxicity upon inhalation of not more than 10mg/L.

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- Infectious? - A viable microorganism, or its toxin, which causes or may cause disease in humans or animals, or any other agent that causes or may cause severe disabling or fatal disease
- Radioactive Material? - Regulated as radioactive materials under state and federal licenses. This category includes uranium and thorium compounds. Contact the UNR Radiation Safety Office, 775-784-4540, for assistance with shipments of radioactive materials/sources.
- Corrosive? - A chemical that causes visible destruction of or irreversible alterations in, living tissue by chemical action at the site of contact. For example, when tested on the intact skin of albino rabbits, it destroys or changes irreversibly the structure of the tissue at the site of contact following an exposure period of four hours. Also a liquid that has a severe corrosion rate on steel or aluminum.

3. Once you have determined you have a hazardous material to ship (or if you aren't sure), complete the [DRI Chemical Shipping Request Form](#). You will be contacted for more information and for copies of the MSDSs. Please note: there are specific packaging, marking and labeling requirements for hazardous materials shipments. However, some exemptions and exceptions may be applicable so before packing your primary containers wait for further instructions from shipping and receiving. Two examples are:

- Small Quantity Exceptions (173.4)
- Materials of Trade Exceptions (173.6)

If exceptions are possible, you will be notified on how to package your primary containers to take advantage of them. (Please note that if you have material that is listed in the Hazmat table and it doesn't fit into any available exceptions then the material must be shipped in compliance with this instruction.)

4. Packaging (49 CFR 173)

UN stamped hazardous materials packaging systems are approved by the United Nations Transportation Board for the transport of hazardous materials and are obligatory for hazardous materials shipping. UN packaging systems are designed and constructed to prevent a release of hazardous material during transportation.

To obtain UN stamped hazardous material packaging systems you can contact the following vendors:

- ULINE <http://www.uline.com/> PHONE 1-800-295-5510 Shipping Supply Specialists
- Lab Safety Supply
- BALCO/(<http://www.labelmaster.com/>, <http://www.labsafety.com/>, <http://www.bostontag.com/>)

Packaging system requirements are specific to the type of hazardous material offered for shipping. Only properly trained and certified personnel may package and offer hazardous materials for transportation (see Section 7). Shipping and Receiving personnel will provide assistance in package selection; however, you will be required to purchase the proper shipping container and packing materials.

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5. Markings (49 CFR 172.300) and Labels (49 CFR 172.400)

Proper markings and labeling on shipment container are mandatory for shipping a hazardous material. Realize -packages with improper or incomplete information will typically not be delivered to their destination. This could subject you to fines or imprisonment by the US DOT. In addition, such hazardous material packages that are involved in a spill or personal injury during transport can make you personally liable for the incident. Labels and markings must be attached to or on the package, be durable and printed in English. Shipping and Receiving will advise you on the required markings and labels and will maintain a supply of labels for DRI use.

6. Shipping Papers (49 CFR 172.200)

Accurate and complete shipping papers are required for all shipments of hazardous materials. In addition, only appropriately trained personnel may sign shipping papers. Shipping and Receiving will provide these services for you. However, you must provide a 24 hour phone number for use as an emergency contact for your shipment. Note: This must be a phone that will be answered by a person who has knowledge of the hazards of the materials being shipped. Do not use your home, office or DRI main number as 24/7 answering is not available. You may use your cell phone provided you have it on and can answer it at any hour during the entire time your package is in transit. Failure to answer or if someone answers, but cannot field questions related to the shipment is a fineable situation. Fines start at \$28,000.00 and go up from there. A better option for the shipper may be to purchase a one-time shipping contract with [CHEMTREC](#).

7. Planning Your Shipment

A completed DRI Chemical Shipping Form must be submitted electronically at least one week prior to your expected shipping date of any material that may be classified as a hazardous material. Shipping and Receiving will determine what regulations, if any, apply to your shipment and will assist you in properly preparing your material for shipment and provide you with the DOT label(s). You will be responsible for providing all appropriate packaging materials required for your shipment. You also must have a current certificate from the [DRI Dangerous Goods shipping course](#) in order to sign the necessary paperwork.

8. Summary

Six pre-shipment requirements and shipper's responsibility:

- Current Dangerous Goods Training
- Packaging
- Marking
- Labeling
- Placarding
- Shipping Documents

