

Hazardous Materials Shipping

FOR NON-DEPLOYED AIRBAGS & SEAT BELT PRE-TENSIONERS

LARGE FORMAT LITHIUM-ION BATTERIES

The Certified Auto Recyclers (CAR) program requires **documentation of appropriate DOT training for employees associated with the shipping of Hazardous Materials or Dangerous Goods.**

Safety is important when packaging hazardous material for shipping.

Identifying Hazardous Materials

A Hazardous Material (HazMat) means a substance or material, which has been determined by the Department of Transportation to be capable of posing an unreasonable risk to health, safety and property when transported in commerce and which has been designated as Hazardous Material or HazMat. The term includes hazardous substances, dangerous goods, hazardous waste, marine pollutant and elevated temperature materials as defined by Title 49 of the Code of Federal Regulations parts 171-173.

Identification of a hazardous material is the first step, and frequently the most difficult. Of all the shippers' responsibilities, the requirement to properly classify a hazardous material is very important. **It is from the proper identification of the hazardous materials that the other requirements are based.** For automotive recyclers, the hazardous materials in your facilities are:

- 1) **Airbag Inflators:** Consisting of a casting containing an igniter, a booster material and a gas generate. An airbag inflator is a gas generator used to inflate an airbag in a supplemental restraint system in a motor vehicle.
- 2) **Airbag Module:** Consisting of the airbag inflator plus an inflatable airbag assembly.
- 3) **Seat belt pre-tensioner:** Contains similar hazardous material and is used in the operation of a seat belt restraining system in a motor vehicle.
- 4) **Lithium-ion Batteries:** All types of lithium batteries were recently designated as "Dangerous Goods" with shipping restrictions. Automotive large format batteries for electric and hybrid vehicles will be either Nickel Metal Hydride or Lithium-ion batteries.

Training is Required

The general requirements for who needs to be trained and who can train to ship hazardous materials are documented in the most current edition of 49 CFR Parts 100-185, with specific parts of the code that pertain to automotive recycling.

"No person may offer or accept a hazardous material for transportation in commerce unless that person is registered in conformance with the rule as defined in 49 CFR 171.2(a) subpart G of Part 107 of this chapter, if applicable, and the hazardous material is properly classed, described, packaged, marked, labeled, and in condition for shipment as required or authorized."

As owners, operators, employers and employees of your facility there are certain responsibilities that have to be maintained in order to ship the hazardous materials discussed.

DEFINITIONS

Federal regulations require hazardous material training for every “Hazardous Materials Employee”. The DOT requires every “Hazardous Materials Employer” to provide all the necessary information to hazardous material employees so they can perform their individual job functions in a safe and knowledgeable manner.

- 1) “Hazardous Materials Employer” is defined as persons who use their employees to transport hazardous materials or prepare hazardous materials transportation.
- 2) “Hazardous Materials Employee” is defined as a person who is employed by a Hazardous Materials Employer and who has any connection or directly affects the transportation of or the preparation for transport of hazardous material.

A Hazardous Materials Employer must be trained to certify Hazardous Materials Employees or provide certification training to those employees responsible for preparing hazardous materials for shipping. The required areas of training include:

General awareness/familiarization: General awareness and familiarization training is intended to raise the hazmat employees' awareness of the regulation and the purpose and meaning of the hazard communication requirements. All hazmat employees must have this training. General awareness and familiarization training basically means making sure HazMat Employees can identify and recognize that the airbag/modules, seat belt pre-tensioners and Li-ion batteries are hazardous.

Function-specific training: Function specific training is intended to teach the necessary knowledge, skills and abilities for an individual's job function. Function specific training means that designated HazMat Employees have been trained to prepare materials for shipment.

Safety training: This training provides information concerning the hazards posed by materials in the workplace and personal protection measures. The training may include basic emergency response procedures but is not intended to satisfy the requirements of OSHA (29 CFR 1910.120).

Security Training: Each hazmat employee must receive security awareness training of security risks associated with hazardous materials transportation and methods designed to enhance transportation security *for facilities with large quantities being shipped*.

Hazmat employees must receive this training and certification at least once every three years. DOT regulations require that HazMat Employers train, test, and maintain test records for all HazMat Employees in these areas. A new hazmat employee who changes job functions may perform those functions prior to completion of training, provided the employee performs those functions under the direct supervision of a properly trained and knowledgeable hazmat employee; and the training is completed within 90 days after employment or job function. The training documentation must include the HazMat Employees name, completion date and location of training, name and address of the trainer, and a copy of the test and certificate.

Preparing Hazardous Material for Shipping

General requirements for shipping airbags modules or seat belt pre-tensioners are that they must be prepared for shipment in a very specific manner. They must be shipped in what is referred to as

“performance UN packaging”. Also there are terms and numbers that must be printed on the shipping papers, shipping boxes, or both. HazMat shipping papers provide information on several things including; shipper/receiver name and address, HazMat description, DOT proper shipping name, quantity, emergency response information and certification and signature. If you ship or deliver HazMat in your own vehicle, such your own pick-up truck or delivery van, then you must comply 100% with these regulations. Under this scenario no placards are required on the vehicle.

HAZMAT DESCRIPTION

Hazardous Class or Division: Refers to the category of hazard assigned to a hazardous material under the definitional criteria of part 173 of the CFR. **Air bag modules, air bag inflators and seatbelt pre-tensioners can be classified as Class 9 or 2.2 Hazardous Materials** depending on the ignitor material. **Lithium-ion batteries can be classified as Class 9.**

Pyrotechnic Air bag modules air bag inflators, and seat-belt pre-tensioners, are CLASSIFIED as CLASS 9 MISCELLANEOUS HAZARDOUS MATERIALS.

Compressed gas Air bag modules, air bag inflators, and seat-belt pre-tensioners are CLASSIFIED as DIVISION 2.2 NON-FLAMMABLE COMPRESSED GAS HAZARDOUS MATERIALS.

Lithium-ion batteries are CLASSIFIED as CLASS 9 MISCELLANEOUS HAZARDOUS MATERIALS.

UN Number: UN stands for United Nations. The UN number contains 4 digits and refers to packaging conforming to standards in the United Nation Recommendations on the Transport of Dangerous Goods. **For Class 9 airbag modules and seat-belt pre-tensioners the UN Number is UN3268. For 2.2 Hazardous materials the UN Number is UN3353. Li Battery the UN UMBER is UN3090 or UN3091 if packed with or contained in equipment.**

Packaging Groups: A grouping according to the degree of danger presented by hazardous materials. Packaging Group I indicates great danger, while Packaging Group II indicates medium danger. Packaging Group III indicates minor danger. **For air bag modules and seat-belt pre-tensioners are PACKAGING GROUP III. Lithium batteries are PACKING GROUP II.**

EX Number or Product Code: When offered for domestic transportation by highway, rail freight, cargo vessel or cargo aircraft only, a serviceable airbag module or seat-belt pre-tensioner that has been removed from a motor vehicle and manufactured as required for use in the US may be offered for transportation without marking the EX Number or product code on the shipping paper. Instead, the word "Recycled" must be entered on the shipping paper.

DOT Proper Shipping Name: The official name that DOT has determined must be written exactly.

24-Hour Response Telephone Number: Any person or company that ships a hazardous material must provide a 24-hour emergency response telephone number including area code; in case the transportation company has an emergency involving the hazardous material that was shipped. There are businesses that provide these services for a fee. INIFOTRAC is one such business.

Retention of Shipping Papers: Shippers and carriers are required to retain shipping papers or electronic images thereof for a period of one (1) year to be accessible through their respective principal places of business.

BOX or CONTAINER REQUIREMENTS

In order to ship airbag modules or seat-belt pre-tensioners, UN specification packaging must be used. The UN specification marking must not be covered by labels or attachments, such as packing slips or tape.

- 1) Strength: The packaging that is needed is a 4G fiberboard box. Regular cardboard boxes will not work.
- 2) Dunnage: This refers to the cushioning that must be inside the box surrounding the hazardous material. It must be sufficient enough to secure the material to prevent movement during transportation.
- 3) Weight: The total of the package cannot exceed the weight allowed on a UN specification package. Only one (1) airbag module or one (1) seat-belt pre-tensioner per box is allowed.

4) Labeling: Hazardous materials markings must meet the following qualifications. It must be durable, in English and printed on or affixed to the surface of a package or on a label, tag or sign. It must be on a background of sharply contrasting color. It must not be covered by labels or attachments; such as packing slips or tape. And it must be located away from any other markings such as advertising that could substantially reduce its effectiveness.



Some Safe Packaging Practices for Lithium Metal Batteries and Lithium ion Batteries:

Be packaged in combination packagings conforming Packing Group II performance level. The lithium battery or cell must be packed in inner packagings in such a manner as to prevent short circuits, including movement which could lead to short circuits. The inner packaging must be packed within one of the following outer packagings: ~~metal boxes (4A or 4B)~~; wooden boxes (4C1, 4C2, 4D, or 4F); fiberboard boxes (4G); solid plastic boxes (4H2); fiber drums (1G); ~~metal drums (1A2 or 1B2)~~; plywood drums (1D); plastic jerricans (3H2); ~~or metal jerricans (3A2 or 3B2)~~. AND be equipped with an effective means of preventing external short circuits. *[Redactions were made when considering automotive battery recycling.]*

Cells and batteries, for disposal or recycling. A lithium cell or battery offered for transportation or transported by motor vehicle to a permitted storage facility, disposal site or **for purposes of recycling** is exempted from the specification packaging requirements when protected against short circuits and packed in a strong outer packaging conforming to the general packaging requirements.

Batteries employing a strong, impact-resistant outer casing and exceeding a gross weight of 12 kg (26.5 lbs.), and assemblies of such batteries, may be packed in strong outer packagings, in protective enclosures (for example, in fully enclosed wooden slatted crates) or on pallets. Batteries must be secured to prevent inadvertent movement, and the terminals may not support the weight of other superimposed elements. Batteries packaged in this manner are not permitted for transportation by passenger aircraft, and may be transported by cargo aircraft only if approved by the Associate Administrator prior to transportation.

Contact the hazardous materials or dangerous goods office of the carrier you plan to use, such as UPS, FedEx, or DHL. Certain carriers will require you to certify that you have complied with the U.S. or international hazardous materials regulations.

Penalties for Non-Compliance

Any person who knowingly violates a requirement of the Federal Hazardous Material Transportation Law is liable for a civil penalty of not more than \$32,500.00 and not less than \$250.00 for each violation. When the violation is a continuing one and involves hazardous materials or the causing of them to be shipped, each day the violation constitutes a separate offense. Any person who knowingly violates Section 171.2g of this Subchapter or willfully violates a provision of the Federal Hazardous Material Transportation Law shall be fined under Title 18, United States Code, or imprisoned for not more than five years or both.

Sue Schauls is an environmental and safety expert whose career started 23 years ago at the University of Northern Iowa. She is currently the Executive Director of the Iowa Automotive Recyclers trade association and is the compliance consultant to the industry through I-CARE– the *Iowa Certified Automotive Recyclers Environmental Program*. Sue assists recyclers in maintaining environmental and safety compliance through the program and at the national level through writing and committee work for the Automotive Recyclers Association. She writes and publishes the auto recyclers *Safety Subscription*, providing monthly safety training modules to subscribers, and the *Recyclers News Press* six times per year to keep the industry informed on new issues and compliance matters. If you would like to receive a free copy of the HazMat Certification Training Material, also called Airbag Certification, then email Sue at Sue.Schauls@gmail.com with a request. The material includes a powerpoint presentation and training manual that may be used by any certified HazMat shipper to keep their employees trained and certified.