

DOT HAZMAT GENERAL AWARENESS

COURSE OUTLINE

- **More than one million shipments of hazardous materials are made every day in the United States.**
 - It's important that these "HAZMATs" be transported properly, and safely.
 - Unsafe practices can lead to spills and other "unplanned" releases, which can result in fires, injuries, even fatalities, and severely contaminate the environment.
- **The Department of Transportation defines a hazardous material 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."**
 - The DOT regulations that govern these materials are located in 49 CFR, parts 100 through 185, and are known as the "Hazardous Materials Regulations" or "HMR".
- **These laws affect all "HAZMAT Employers", which are companies that:**
 - Have one or more employees who are involved in transporting hazardous materials, or causing hazardous materials to be transported.
 - Manufacture, recondition or test the containers that are used in the transportation of hazardous materials.
- **The Hazardous Materials Regulations also apply to "HAZMAT Employees", which includes anyone who directly affects the transport of a HAZMAT, such as workers who...**
 - Load, unload or handle hazardous materials.
 - Prepare the materials for transport.
 - Are responsible for ensuring that safe practices are followed throughout the transportation process.
- **The HAZMAT Employee category also includes:**
 - Workers who manufacture, recondition or test containers and other packaging that is used in the transportation of hazardous materials.
 - Vehicle operators, such as truck drivers and train engineers, who actually transport them.

- **The Department of Transportation also provides comprehensive information about the HAZMATs that the regulations cover.**
 - Each hazardous material is listed in a table in the Hazardous Materials Regulations.
 - The table lists the materials alphabetically by their Proper Shipping Name, provides basic identification information, and cross references each material to all of the DOT shipping regulations that apply to it.
- **The Hazardous Materials Table is revised periodically, so you should always check to make sure you're using the latest version.**
- **No matter what role you play in the transportation of hazardous materials, one important requirement of the HMR is that you receive training on how to work safely with these substances.**
- **The Department of Transportation requires HAZMAT Employees to receive training that:**
 - Increases each employee's awareness of the potential dangers of transporting and handling hazardous materials.
 - Demonstrates how to work with these materials safely.
 - Helps them to take effective security measures for hazardous materials being transported.
- **DOT HAZMAT training is divided into five categories:**
- **The first type of training that the HMR requires is "General Awareness" training.**
 - This focuses on helping employees recognize hazardous materials.
- **The second type of training is "Function-Specific Training."**
 - This addresses how hazardous materials affect each worker's specific job.
 - For instance, people in a Shipping Department need to know how to pack hazardous materials safely and securely for transport, receiving and storage at their final destination.
- **The third type of training required by the HMR is "Safety Training". It covers:**
 - Emergency response information.
 - Measures that can be taken to protect employees from hazardous materials.
 - Procedures that should be used to help avoid accidents when working with or transporting HAZMATs.

- **Because of the possibility that terrorists could use hazardous materials as weapons of mass destruction, the DOT has also created two types of security-related training.**
- **All HAZMAT Employees must receive "Security Awareness Training", which discusses:**
 - The security risks associated with hazardous materials.
 - Procedures that can improve the security of hazardous materials during transport.
 - How to recognize and respond to possible security threats.
- **"In-Depth Security Training" must be given to all HAZMAT Employees who work for companies that are required by the DOT to maintain a Security Plan.**
 - This includes companies that transport any quantity of "dangerous" materials, such as radioactive chemicals, certain types of explosives and some substances that are defined as "poisonous by inhalation".
- **Employees of companies that deal with shipments of hazardous materials which are large enough to require placarding under DOT regulations also fall into this group.**
- **This "In-Depth Security Training" must address:**
 - A company's security objectives.
 - How the company organizes its security operations.
 - Specific security procedures.
 - Employee responsibilities.
 - What to do in the event of a security breach.
- **An important first step in hazardous materials safety is being able to identify these substances in your workplace.**
- **If you work for a company that sells hazardous materials, you could find them in storage tanks, in a warehouse or out on a delivery truck.**
- **If your facility uses hazardous materials, they could be found on trucks arriving at the loading dock and in various locations where manufacturing, maintenance or research work is being performed.**
- **If your company is involved in HAZMAT transportation, you could encounter hazardous materials on trucks, railroad cars and ships, even in pipelines.**

- **Whatever job you do, you need to know how to determine whether or not a material is hazardous.**
 - One of the best ways is by looking for "warning indicators", such as Hazard Class Labels.
- **The Department of Transportation divides hazardous materials into nine different Hazard Classes.**
 - Each class has its own specific label.
- **Hazard Class Labels are displayed on boxes and other shipping containers to identify the hazards that are associated with the material inside.**
- **These labels are designed to attract attention.**
 - They are diamond-shaped and must measure at least 100 millimeters (3.9 inches) on each side.
- **Each Hazard Class has a unique symbol, which must appear in the top corner of the diamond.**
 - This image has been established as part of the U.N.'s Globally Harmonized System (GHS) to identify a specific type of hazard.
- **Labels must also be a specific color and have the "Hazard Class Number" at the bottom of the diamond.**
- **DOT Hazard Classes include:**
 - Class 1... explosives.
 - Class 2... all gases.
 - Class 3... flammable liquids.
- **Additional Hazard Classes include:**
 - Class 4... flammable solids, including those that are spontaneously combustible and dangerous when wet.
 - Class 5... oxidizers and organic peroxides.
 - Class 6... substances that are poisonous and infectious.
 - Class 7... all radioactive materials.
 - Class 8... corrosives, both liquid and solid.
- **Class 9 is a "miscellaneous" class that includes any hazardous substance that doesn't clearly fit into one of the other eight categories.**

- **You will also see placards that display the same symbols as the labels on trucks and rail cars that are carrying hazardous materials.**
 - Because placards are meant to be seen when they are in motion, they are bigger than labels.
 - Placards must measure at least 250 millimeters (9.84 inches) on each side.
- **Additional hazard-related information, such as handling instructions and safety precautions, can sometimes be found marked on the outside of HAZMAT packages and containers as well.**
- **Other types of markings such as "Cargo Aircraft Only" or "This End Up" provide more important information.**
 - Make sure that you read all of the labels and markings on a container.
 - Take the precautions that they indicate are necessary.
- **The "Shipping Papers" that are required to accompany hazardous materials when they are transported are another good source of hazard information.**
- **The first thing they contain is a "Basic Description" of the material, including:**
 - Its Identification Number.
 - Its Proper Shipping Name.
 - The material's Hazard Class or Division Number.
 - Its "Packing Group", which indicates the degree of danger that is associated with the material.
 - The information must be shown in this order, with no additional information mixed in.
- **A twenty-four-hour emergency response telephone number must also be provided, so that additional information about the material can be obtained immediately if an incident occurs.**
- **The last section of the Shipping Papers is a declaration that the shipment is safe, and that it has been packed according to the HMR requirements.**
 - This must be signed by the supplier of the hazardous material.
- **Packages cannot be released for shipment unless they are in full compliance with all of the requirements in the regulations.**

- **The Department of Transportation requires each company that offers hazardous materials for shipment to maintain a paper or electronic copy of all Shipping Papers for a minimum of two years after the shipment has been accepted by the initial carrier.**
 - If the material in question is considered to be a "hazardous waste", the Shipping Papers must be kept for a period of three years.
- **Another important source of information regarding HAZMATs is the DOT's "Emergency Response Guidebook".**
 - It provides first responders with instructions for handling emergencies involving hazardous materials.
- **Since many HAZMATs have the same hazards, the Guidebook organizes initial emergency response actions into 174 "Guides" that are cross-referenced to individual materials.**
 - To determine what should be done in the event of a HAZMAT incident, responders can find the appropriate "Guide Number" by looking up the material that is involved.
- **Like the Hazardous Materials Regulations, the DOT's Emergency Response Guidebook is frequently updated.**
 - Be aware of recent revisions.
 - If you're involved in an emergency response situation make sure that you are using the most up-to-date version of the Guidebook available.
- **How hazardous materials are packaged is also extremely important.**
- **Standard procedures for safe and secure packaging are described by the DOT in section 178.600 of the Hazardous Materials Regulations.**
 - These procedures meet the international packaging requirements established by the United Nations.
 - Packages meeting these standards will carry the "UN" symbol and display information about the type, material and construction of the container on their surface.
- **To find out what type of container should be used to ship a particular HAZMAT, consult the Hazardous Materials Table in the HMR.**

- **If you are involved with loading packages of hazardous materials, you are responsible for verifying that the materials they contain are packed according to DOT requirements. You should:**
 - Double-check that each package has been labeled and marked according to the HMR.
 - Confirm that the Shipping Papers are ready to go with the shipment.
- **You also need to make sure that all of the materials are undamaged.**
 - If there's a problem with the container or the packaging, talk to your supervisor.
- **Remember that some types of materials can react violently with each other, so they should never be shipped or stored together.**
 - The DOT provides tables in the HMR that will show you which HAZMATs should be kept separate from one another.
- **Just as hazard labels should be displayed on all packages that contain hazardous materials, DOT placards must be displayed on all trucks, trailers, tankers and other vehicles that transport them.**
 - Placarding specifications can be found in the two placarding tables in section 172.504 of the HMR.
 - The tables describe what placards are required for a material, depending on how dangerous it is and how much of it is being shipped.
 - The placards must be displayed on each end and each side of both vehicles and freight containers.
- **All carriers should keep a ready supply of extra placards and labels on hand at terminals or similar locations, in case the originals are lost or damaged.**
- **Before a shipment can leave a facility, it should be established that the truck, tanker, ship or other vehicle transporting it is in good running condition as well.**
 - You also need to make sure that the shipment is sealed, and the vehicles' doors are locked.
- **Whenever hazardous materials are on the move, it is important for their Shipping Papers to be readily available in case of an accident or other emergency.**
 - For motor vehicles, the papers are usually kept inside a pouch on the driver's door.

- **Shipping Papers can also be kept other places in the cab as long as:**
 - They are within arm's reach of the driver.
 - They won't be confused with other documents.
- **Once a shipment arrives at its destination, there are several things that need to be checked out before it is unloaded.**
 - First you should make sure the Shipping Papers are in order.
 - Then check them and any container labels for special handling instructions, such as whether personal protective equipment should be worn while unloading the materials.
- **If you're involved in receiving or storing the materials, remember not to accept any packages that have been damaged.**
 - If you happen to find one that's already on the shelf, notify your supervisor.
- **Make sure storage areas are appropriate for the materials that that will be placed in them.**
 - Flammables and combustibles should be kept away from heat and other potential sources of ignition.
 - Be careful to store materials that should be kept separate safely away from each other.

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- **Be able to identify HAZMATs in your workplace.**
- **Understand the hazard labels and other markings that are displayed on their containers.**
- **Get to know the Department of Transportation's Hazardous Materials Regulations, so that you can spot potential problems.**
- **Know how to use the Hazardous Materials Table and other references to get the information you need about the HAZMATs you work with.**
- **Make sure that packages, labels, placards and Shipping Papers meet compliance requirements.**
- **Know how to determine what to do if a HAZMAT emergency occurs.**
- **Now that you know what the Hazardous Materials Regulations are all about, and understand how to comply with them, you can help make the process of storing and transporting HAZMATs safer for yourself, your coworkers and everyone in the community as well!**