



GUIDE TO DEVELOPING A HAZMAT TRAINING PROGRAM

*General Awareness, Function-Specific, Safety,
Security Awareness, and In-Depth Security Training.*



U.S. Department
of Transportation

Pipeline and
Hazardous Materials
Safety Administration

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GLOSSARY



PURPOSE

The transportation of hazardous materials (hazmat) underpins the American economy and our way of life. We use oil and natural gas to heat and cool homes and businesses, produce electricity, and provide raw materials for plastics, fibers, paints, and other essential products. We rely on chemicals to clean our water, fuel cars, construct buildings, fertilize crops, create medicines, and manufacture clothing and many other essential commodities. While hazmat plays a critical role in our daily lives, the transportation of hazmat introduces some inherent risks to the public, the environment, and property that must be appropriately managed.

Hazmat transportation is a process that involves people performing functions related to handling, packaging, storing, moving, loading and unloading of hazmat, and responding to emergency situations while such materials are in transportation. It includes employees responsible for the safe transportation of hazmat. The process also incorporates functions to design, manufacture, fabricate, inspect, mark, maintain, recondition, repair, or test a package, container or packaging component used in transporting hazmat. With such a complex process, the U.S. Department of Transportation (DOT) has identified human error as a contributing cause for most hazmat transportation incidents.

Human error may result from a variety of factors including:

- Lack of knowledge leading to the mishandling of hazmat
- Lack of knowledge leading to undeclared shipments
- Lack of awareness that hazmat is present
- Failure to follow established safety procedures
- Lack of understanding of one's role during an incident should one occur
- Lack of knowledge on how to respond to an incident should one occur.

Hazmat incidents caused by human error can be reduced through the implementation of an effective training program. An effective training program is a systematic method for providing training, which includes tests and quizzes. It may consist of materials such as handouts, overheads, videos, and exercises, as well as, interactive computer-based training, tests and quizzes and, where there is an instructor, the instructor's notes or course outline. The training program may be a tutored or self-study course. The training provider may be the hazmat employer or an independent training provider.

An effective training program:

- Develops a strong safety culture
- Heightens employee safety by helping employees protect themselves
- Improves a company's effectiveness, efficiency, and productivity
- Increases employee skills
- May prevent regulatory sanctions
- Aids in ensuring safe and secure shipment of hazmat
- Reduces likelihood of catastrophic event such as fire aboard aircraft
- Provides employees with understanding of why compliance and safety are necessary.

This guidance document explains the training requirements in the Hazardous Materials Regulations (HMR), identifies those employees who must be trained, and provides a tool to help hazmat employers determine what type of training and training environment may be best for their employees.



HAZMAT REGULATORY REQUIREMENTS

SCOPE OF THE HAZARDOUS MATERIALS REGULATIONS

The HMR (49 CFR Parts 100- 185), issued by the Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA) under authority of the Federal hazardous materials transportation law (49 U.S.C. 5101 et seq.), establish requirements governing the commercial transportation of hazmat by highway, rail, vessel, and air.

Under the HMR, hazmat are categorized by analysis and experience and assigned hazard classes and packing groups based upon the risks they present during transportation. The HMR specify appropriate packaging and handling requirements for hazmat, and require a shipper to communicate the material's hazards through use of shipping papers, package marking and labeling, and vehicle placarding. The HMR also require shippers to provide emergency response information applicable to the specific hazard or hazards of the material being transported.

THE HAZARDOUS MATERIALS REGULATIONS' TRAINING REQUIREMENTS

The HMR mandate training requirements for persons who prepare hazmat for shipment or who transport hazmat in commerce. The intent of the regulations is to ensure that each hazmat employee is familiar with the HMR, is able to recognize and identify hazmat, understands the specific HMR requirements applicable to the functions he or she performs, and is knowledgeable about emergency response, self-protection measures, and accident prevention methods. The regulations are performance based to provide a baseline set of training requirements while acknowledging the need for flexibility due to the diversity of the hazmat workforce.

Training requirements are located in Subpart H of Part 172 of the HMR. The training requirements apply to hazmat employers and hazmat employees as defined in §171.8. The HMR require all hazmat employees to be trained including hazmat employers with direct supervision of hazmat transportation functions. Hazmat employer and hazmat employee are defined as follows:

HAZMAT EMPLOYER means a person who uses one or more employees in connection with:

- transporting hazmat in commerce;
- causing hazmat to be transported or shipped in commerce; or
- representing, marking, certifying, selling, offering, reconditioning, testing, repairing, or modifying packagings as qualified for use in the transportation of hazmat.

The term “hazmat employer” also includes any department, agency, or instrumentality of the United States, a State, a political subdivision of a State, or Native American Indian tribe engaged in offering or transporting hazmat in commerce. This term includes an owner-operator of a motor vehicle that transports hazmat in commerce.

HAZMAT EMPLOYEE means a person who is employed by a hazmat employer and who directly affects hazmat transportation safety including:

- an owner-operator of a motor vehicle that transports hazmat;
- a person (including a self-employed person) who:
 - loads, unloads, or handles hazmat;
 - tests, reconditions, repairs, modifies, marks, or otherwise represents packagings as qualified for use in the transportation of hazmat;
 - prepares hazmat for transportation;
 - is responsible for the safety of transporting hazmat; or
 - operates a vehicle used to transport hazmat.

Training must be completed within 90 days of the first day of employment or the first day of a change in job function. Until training is completed, a hazmat employee must be directly supervised by a person who has been trained. Further, each hazmat employee must be provided with recurrent training at least once every three years. Each hazmat employee must be tested upon completion of training. Training may be provided directly by the hazmat employer or by other public or private sources. Regardless of who provides the training, the hazmat employer is responsible for ensuring that appropriate testing occurs and that the training is effective, appropriate, and successful in achieving the intended objectives of providing employees with the knowledge and skills necessary to perform their job functions safely.

THE FIVE TYPES OF REQUIRED TRAINING

GENERAL AWARENESS/FAMILIARIZATION TRAINING is training that provides familiarity with the general requirements of the HMR, and enables the hazmat employee to recognize and identify hazmat. All hazmat employees must receive general awareness training.

FUNCTION-SPECIFIC TRAINING is training that provides a detailed understanding of HMR requirements applicable to the function(s) performed by the hazmat employee. Each hazmat employee must be trained on the specific functions they are required to perform.

SAFETY TRAINING is training that covers the hazards presented by hazmat, safe handling, emergency response information, and methods and procedures for accident avoidance. All hazmat employees must receive this training.

SECURITY AWARENESS TRAINING is training that provides a general understanding of the security risks associated with hazmat transportation and the methods designed to enhance transportation security. This training should include methods on how to recognize and respond to possible security threats. All hazmat employees must receive this training.

IN-DEPTH SECURITY TRAINING is training that provides a detailed understanding of a company's security plan including company security objectives, specific security procedures, employee responsibilities, actions to take in the event of a security breach and the organizational security structure. This training must be provided to hazmat employees who handle or perform regulated functions related to the transportation of the materials covered by the security plan or who are responsible for implementing the security plan.

RECORDKEEPING REQUIREMENTS

The hazmat employer is responsible for maintaining training records for each hazmat employee. These records must be kept for the duration of the three-year training cycle while the hazmat employee is employed and for 90 days after the employee leaves employment. Training records must be made available by the employer for audit and review by regulatory authorities upon request.

Training records must include the following:

- The hazmat employee's name
- The most recent training completion date
- A description of, copy of, or reference to training materials used to meet the training requirements
- The name and address of the person providing the training
- A certification that the person has been trained and tested as required

Certification that the hazmat employee has been trained and tested shall be made by the hazmat employer or a designated representative. An example training record can be found in the Implementing Best Practices and Guidelines section on p. 19.



OTHER DOMESTIC AND INTERNATIONAL TRAINING REQUIREMENTS

Employers should be aware that the HMR recognizes that other domestic and international agencies and organizations also have training requirements. For example, the Federal Aviation Administration prescribes training requirements for air carriers in the 14 CFR. Additionally, the International Maritime Dangerous Goods Code for vessel shipments; Transport Canada TDG Regulations; and the International Civil Aviation Organization (ICAO) Technical Instructions for air shipments also prescribe specific training requirements that are important because the HMR authorizes compliance with these regulations.

Therefore, depending on a company's operations, other training requirements in addition to the HMR may apply. Relevant agencies and organizations may include:

- United States Federal Aviation Administration (FAA)
- United States Federal Motor Carrier Safety Administration (FMCSA)
- United States Federal Railroad Administration (FRA)
- United States Coast Guard (USCG)
- United States Occupational Safety and Health Administration (OSHA)
- United States Environmental Protection Agency (EPA)
- Transport Canada TDG regulations (TDG)
- International Maritime Organization (IMO)
- International Civil Aviation Organization (ICAO)

HOW TO DEVELOP A TRAINING PROGRAM

DETERMINE WHO ARE YOUR HAZMAT EMPLOYEES

Safe transportation of hazmat depends on proper preparation of the material for shipment and safe handling of the material while it is being transported. Each hazmat employee must be aware of the hazards of such materials, their potential for causing incidents and accidents, and how they should be safely prepared and transported.

The HMR require all hazmat employees to be trained, including those with hazmat responsibilities including pre-transportation functions (see Glossary or 49 CFR §171.8) and those who supervise hazmat employees. For example, a hazmat employee may be a person (including a self-employed person or an owner-operator of a motor vehicle) who:

- Determines the hazard class of hazmat
- Selects a hazmat packaging
- Places warning signs, blocks wheels, and sets brakes on tank cars placed for loading or unloading with closures open
- Fills or loads a hazmat packaging
- Secures closures on filled hazmat packages or containers
- Marks a package to indicate that it contains a hazmat
- Labels a package to indicate that it contains a hazmat
- Prepares a hazmat shipping paper
- Provides and maintains hazmat emergency response information
- Reviews hazmat shipping papers to verify compliance with the HMR or international equivalents
- For persons importing hazmat into the United States, provides the shipper with information as to the requirements of the HMR that apply to the shipment of the material while in the United States
- Certifies that hazmat is in proper condition for transportation in conformance with the requirements of the HMR
- Blocks and braces hazmat packages in a freight container or transport vehicle
- Segregates hazmat packages in a freight container or transport vehicle from incompatible cargo
- Selects, provides, or affixes placards for a freight container or transport vehicle to indicate that it is carrying hazmat
- Loads or unloads hazmat for the purpose of transportation
- Tests, reconditions, or repairs hazmat packaging
- Operates a vehicle used to transport hazmat

DETERMINE WHAT YOUR HAZMAT EMPLOYEES NEED

As previously mentioned, HMR training requirements are performance based to provide flexibility regarding training format and delivery. Training may be provided directly by the hazmat employer or by independent training providers. Therefore, hazmat employers have a variety of training options available.

The hazmat employer is responsible for selecting training that meets company safety goals and the HMR requirements. The process may begin by conducting a needs assessment based on a thorough understanding of your company's operations and its hazmat employees' responsibilities, knowledge and capabilities.

You may want to begin with these questions:

- What hazmat/wastes does your company handle and which hazards do they represent? For example, do your hazmat employees handle hazmat such as infectious substances and lithium batteries?
- What quantities do you ship and how frequently? For example, do you ship bulk, non-bulk, excepted quantities, or small quantities?
- What modes of transport do you use?
- Are there materials that your employees may not be aware are hazmat and are subsequently being shipped undeclared? Examples include paint, perfume, batteries, aerosols, and fireworks.
- Where do you transport hazmat (i.e., domestic or international locations)?
- Do company accident or injury rates indicate additional training is necessary? If so, in what areas?
- What regulations does the training need to cover?
- What are the job descriptions/functions of your hazmat employees?
- Have your hazmat employees been previously trained?
- Are your hazmat employees trained in all aspects of the function(s) they are performing? For example, are your employees responsible for shipper certification, i.e., trained in each aspect of the hazmat shipping that they are certifying, such as packaging or package closure requirements?
- Have any responsibilities changed?
- Has the company's operations changed?
- What languages need to be addressed?
- Are your employees aware of incident reporting requirements?
- Has anything else changed?

ASSESS YOUR TRAINING OPTIONS

After the needs assessment is complete, it is time to select a training tool. Potential selection criteria are content, method of delivery, and instructor qualifications.

CONTENT should be easy to understand and appropriate for the audience. Sufficient time should be allocated to cover the subject matter, and techniques should be used to ensure that students comprehend and retain the material presented.

A few questions hazmat employers might ask when assessing content include:

- Is the time allotted for training sufficient for employee comprehension?
- Is the information presented clearly and accurately and in a manner that can be understood by employees of varying literacy and language skills?
- Does the training use repetition to confirm that key points are understood?
- Does the training use exercises, questions, or other mechanisms to ensure an understanding of what has been taught?
- Is the information presented in a logical manner?
- Is comprehension tested?
- Is a test provided that allows the hazmat employee to demonstrate that they have satisfactorily completed training?
- Is there a follow-up support system? If so, what is it and does this system meet the need?

METHOD OF DELIVERY is another consideration for your training program. For purposes of this guidance, training options have been broken down into four delivery methods:

- Web-based
- Computer-based
- Classroom
- Hands-on/Mentor training

Each delivery method has advantages and disadvantages.

INSTRUCTOR QUALIFICATIONS are an important element of an effective training program. Hazmat instructors have varying degrees of subject matter expertise and teaching skills. In addition to understanding the subject matter, instructors should understand the best method of delivery for the given audience.

ADVANTAGES AND DISADVANTAGES OF TRAINING OPTIONS

WEB-BASED TRAINING

ADVANTAGES	DISADVANTAGES
Provides standardized training ensuring a consistent message	Bandwidth limitations can place constraints on certain media types
Decreases the time employees are out of the office	Hazmat employees must be self-directed and comfortable using the web
Allows for quick updates for rapidly changing material	Hazmat employees may be distracted or interrupted
Training is more accessible to a larger audience	Difficult to provide opportunities for hands-on experience
Cost effective way to refresh existing training	Some may find it difficult to engage and retain
Training is more convenient for employees -- it is available anytime, anywhere	Limited interaction with an instructor
No travel costs	Difficult to assess employee progress in real time
No costs associated with obtaining new media updates	Compatible equipment may not be available

COMPUTER-BASED TRAINING

ADVANTAGES	DISADVANTAGES
When there is a lot of video or complex graphics, computer-based training can ease download times and improve operations	Requires self-direction
Offers flexibility for the end-user; hazmat employees can simply load and run the training at their convenience	Hazmat employees may be distracted or interrupted
Cost effective way to refresh existing training	It is difficult to provide opportunities for hands-on experience
Training is more accessible to a larger audience	Minimal interaction with an instructor or subject matter expert
Hazmat employees can proceed at their own pace	Information can become outdated
No travel costs	Possible higher cost to update
	Some may find it difficult to engage and retain
	Compatible equipment may not be available
	Difficult to assess employee progress in real time

CLASSROOM TRAINING

ADVANTAGES	DISADVANTAGES
Provides an instructor and a structured approach to teaching	Potential personality differences between the trainer and the hazmat employees
Allows for real-time discussion and provides interaction that isn't easily duplicated even with the most advanced technology	Trainees can dictate the pace of training, leaving some students behind, and others bored with a pace that is too slow for them
Allows for constructive team building	Difficult to guarantee outcomes
Personalized assistance from the instructor can address individual student needs	Scheduling based on trainer or facility availability, not employee needs
Leverages instructor skills and experience	Costs for travel, training, and the instructor
Easy to confirm whether hazmat employees have taken the course	
Easy to use evaluation tools to confirm that learning has occurred	
Opportunity to customize training to meet employer needs and requirements	

HANDS-ON/MENTOR TRAINING

ADVANTAGES	DISADVANTAGES
Simulates the job	Can be high cost, high overhead
Provides hands-on experience allowing the hazmat employee to integrate theory and practice	Variables differ, so it's difficult to guarantee outcomes
Allows the employee to use critical thinking skills and problem-solving processes that incorporate professional knowledge	Timing based on mentor and/or facility availability, not necessarily employee needs
Provides a sense of urgency to develop alternatives and make decisions under pressure without the possibility of consequences	Potential personality differences
Mentors gain more credibility with the employee since they have specific experience relating to the subject being taught	A mentor must be available and capable of training
Procedural and policy gaps are identified	
May avoid comprehension problems related to literacy/language deficiencies	



EVALUATE THE EFFECTIVENESS OF YOUR TRAINING PROGRAM

It is important to evaluate the effectiveness of the selected training tools against your expectations. Conducting an evaluation allows you to improve the future planning and implementation of a training program, determine if training objectives have been achieved, and proactively facilitate any necessary adjustments.

When conducting the evaluation, a few helpful questions include:

- Did the employee believe the training was effective and useful?
- What were the expectations of the training? Were these expectations met?
- After the training, is the employee proficient in performing job duties and responsibilities?
- Does the employee appear to need further training? If so, what functions need additional focus? Is this the result of a deficiency in training?

Many techniques and tools can be used to evaluate training programs. A few methods of evaluating training are:

- Student opinion: Using employee feedback to help determine effectiveness of the training program including identifying how to improve course content and delivery
- Supervisors' observations: Using supervisor observations to assess an employee's performance both before and after the training
- On-the-job improvements: Assessing whether changes occur in job performance that result in changes in accident rates, injury rates, or penalties

Regardless of the approach, if done correctly, you can use information derived from evaluations to help determine whether training is effective and how to apply future training resources.

IMPLEMENTING BEST PRACTICES AND GUIDELINES

DEVELOP A SAFETY CULTURE

The HMR requires training for all hazmat employees; however, your training program should not stop once you have met the HMR requirements. You and your managers should work with employees to develop a supportive safety culture that encourages training as a continuous learning process.

You may want to consider implementing some or all of these measures:

- Visible promotion of a safety culture driven by top management
- Establish accountability for safety that begins with individual employees and includes all management layers
- Encourage employees to report safety issues or problems without fear of retribution or retaliation
- Encourage employees to identify new, improved ways to accomplish safety goals
- Monitor and evaluate employees as they perform their hazmat functions
- Correct potential issues as they are identified
- Provide opportunities for additional training
- Periodically reinforce safe practices through safety meetings
- Assess company safety performance through audits
- Consider implementing a monthly 10% hazmat inventory program wherein 10% of a company's hazmat is spot checked for proper packaging and hazmat communication each month. Implementing such a practice can help detect potential errors
- Keep employees informed of assessments and results
- Review the results of incidents and inspections
- Regularly review regulatory changes and/or changes in company operations

Developing a safety culture is a continuous process, and the rewards are real. Employees take ownership of the operations for which they are responsible and share responsibility equally with management for the overall safety of the company. Enhanced safety measures help to reduce the cost of doing business by reducing accidents, decreasing workers' compensation claims, and providing a more effective and targeted use of resources. Thus, companies and individuals become more competitive while protecting people, property, and the environment.

DESIGNATE A TRAINING COORDINATOR

It is your responsibility to select training options that meet the requirements of the HMR and the needs of your hazmat employees. This can be a challenging task, but it is extremely critical to ensuring that the training program you provide is effective and successful.

One way to manage hazmat training is to designate one or more employees as training coordinators. Suggested qualifications for training coordinators include:

- Knowledge of the HMR as they apply to company operations
- The ability to monitor and understand regulatory changes as they develop
- Knowledge of how to establish and manage a training program
- Experience in one or more of the hazmat duties being performed

Once a training coordinator(s) is in place, he or she can guide the training and development of each hazmat employee. Suggested responsibilities include:

- Arranging for newly trained employees to be evaluated upon completion of a training program and periodically thereafter
- Determining training needs for incumbents and assessing training options
- Consulting with other industry professionals on the best quality training available
- Instituting formal training evaluation programs and providing feedback to training providers
- Communicating on the status of training with management
- Providing feedback to training providers
- Maintaining training records in accordance with the HMR

A committee of trained hazardous materials employees may be established to provide guidance and assistance to the training coordinator. Examples of potential committee responsibilities may include identifying training needs and evaluating the effectiveness of training.

Training Coordinators often use checklists to record their progress during the development of a training program. Examples of these checklists can be found in the Checking Your Program For Accuracy section on p. 22.

IMPLEMENT A PLANNING PROCESS

Implementing a planning process can help you develop a consistent approach for managing training needs. An example planning framework is provided below to assist you in this process. The framework is not intended to be exhaustive or all-inclusive, it is intended to help identify elements that could be considered.

DEFINE OBJECTIVES

Example Objective:

Develop properly trained hazmat employees to meet regulatory requirements for training, develop an educated workforce, improve safety, and minimize the potential negative impacts of hazmat on life, property, and the environment.

DEFINE GOALS

Example Goals:

- Reduce incidents and accidents
- Help employees protect themselves and the environment
- Improve a company's effectiveness, efficiency, and productivity
- Develop a strong safety culture
- Prevent regulatory sanctions
- Heighten employee safety
- Increase employee skills
- Decrease property damage costs
- Help employees identify when hazmat are present
- Increase productivity

IMPLEMENT A TRAINING FRAMEWORK

Example Framework:

- Demonstrate support from all levels of leadership
- Identify point of contact(s) to manage training and coordinate internally, as appropriate
- Implement accountability
- Understand employee responsibilities, the tools they use, and company operations
- Understand status of training to date
- Conduct a needs assessment to determine what training is needed
- Prioritize training needs
- Assess the landscape of available training tools and determine which tools meet the needs of the organization and its employees
- Execute training
- Evaluate training
- Maintain accurate training records to include:
 - The hazmat employee's name
 - The most recent training completion date
 - A description of, copy of, or reference to training materials used to meet the training requirements
 - The name and address of the person providing the training; and a certification that the person has been trained and tested as required
- Continuously improve the training program, as necessary

IMPLEMENT A CONSISTENT PROCESS FOR RECORDKEEPING

The recordkeeping requirements in the HMR specify the content and retention rate of training records for each hazmat employee, but do not specify the format for each record. Below is a sample training record to illustrate what it may look like.

HAZMAT EMPLOYEE TRAINING RECORD

General Awareness / Familiarization Training

Description, Copy, and Location of Training	Trained By	Date Trained	Test / Score
Hazmat Training Introduction Video	Training Officer Janet	July 14, 2017	No Test
Hazmat Transportation Training Modules (On-line)	Training Officer Janet	July 14, 2017	On-line Test; 95%

Function-Specific Training

Description, Copy, and Location of Training	Trained By	Date Trained	Test / Score
Cylinder Requalification Instruction Book	Supervisor Dan	July 21, 2017	Written Test; 98%
Performance demonstration of Packaging, Marking and Labeling Checklist of tasks performed attached to this training record	Supervisor Dan	July 21, 2017	Live Demonstration Test; 100%

Safety Training

Description, Copy, and Location of Training	Trained By	Date Trained	Test / Score
Personal Safety Information Book	Supervisor Dan	July 14, 2017	Written Test; 100%

Security Awareness Training

Description, Copy, and Location of Training	Trained By	Date Trained	Test / Score
Hazmat Transportation Security Awareness Training Module (On-line)	Training Officer Janet	July 28, 2017	On-line Test; 90%

In-Depth Security Training

Description, Copy, and Location of Training	Trained By	Date Trained	Test / Score
Company Security Plan and Risk Guidelines Binder	Supervisor Dan	July 28, 2017	Verbal Test; Passed

I certify that the hazmat employee identified on this training record has been trained and tested as required by the Hazardous Materials Regulations, 49 CFR Part 172 Subpart H.

Employee Name: _____

Signed: _____



DEVELOP A TRAINING CURRICULUM

The HMR mandate five types of training. The HMR do not prescribe in detail what topics to address during each type of training. To assist in evaluating your company's training needs, a list of the types of training with possible curriculums is provided here. These lists are not intended to be exhaustive or all inclusive.

GENERAL AWARENESS/FAMILIARIZATION provides hazmat employees with familiarity with the requirements of the Hazardous Materials Regulations and enables hazmat employees to recognize and identify hazmat. All hazmat employees are required to have general awareness/ familiarization training. This training typically provides a basic understanding of:

- The Identification of Hazardous Materials
- The Hazard Classification System
- How to Use the Hazardous Materials Table
- Packaging
- Markings and Labels
- Placards
- Shipping Papers
- Segregation
- Understanding of the HMR Training Requirements
- Requirements for Incident Reporting
- Security

FUNCTION-SPECIFIC provides hazmat employees a detailed study of the requirements of the regulations applicable to the function(s) for which the person is responsible. Training needs will depend on the company operations and the hazmat employee's responsibilities. Your responsibility is to identify the specific topics and extent to which topics are covered to meet your employees' needs.

Examples of function-specific topics are included within the Function-Specific Knowledge Checklist on p. 25.

SAFETY TRAINING covers the hazards presented by hazmat, safe handling, emergency response information, and methods and procedures for accident avoidance. Training that meets EPA and OSHA regulations may be acceptable in meeting the HMR. All hazmat employees are required to have safety training. Topics may include:

- Emergency Response Information
- Emergency Response Telephone Numbers
- Means of Egress
- Employee Emergency Plans and Fire Prevention Plans
- General Safety and Health Provisions
- Employee Emergency Action Plans
- Bulk Delivery and Mixing Vehicles
- Contract Employer Responsibilities
- Mechanical Integrity
- New Technology Programs
- Personal Protective Equipment
- Hazardous Waste Operations and Emergency Response
- Respiratory Protection
- Fire Protection
- Fire Brigades
- Portable Fire Extinguishers
- Fixed Extinguishing Systems
- Fire Detection Systems
- Employee Alarm Systems
- Materials Handling and Storage
- Moving the Load
- Crawler Locomotives and Truck Cranes
- Electrical Safety-Related Work Practices
- Confined and Enclosed Spaces
- Precautions Before Entering

SECURITY AWARENESS TRAINING provides hazmat employees with a general understanding of the security risks associated with hazmat transportation and the methods designed to enhance transportation security. All hazmat employees are required to have security awareness training. Examples of subjects that could be included are:

- Regulatory Requirements
- Potential Threats
- Potential Targets
- Prevention Tools

IN-DEPTH SECURITY TRAINING directly relates to the required company security plan. Specific content is dependent upon the company security plan and employee responsibilities. Hazmat employees are required to receive training commensurate with their responsibilities. Training must include:

- Security Objectives
- Specific Security Procedures
- Employee Responsibilities
- Actions to Take in the Event of a Security Breach
- Organizational Security Structure

CHECKING YOUR PROGRAM FOR ACCURACY

DO YOU HAVE A TRAINING POLICY?

The hazmat employer is responsible for selecting training that meets company safety goals and the HMR requirements. Although not required by the HMR, many companies establish training policies or standard operating procedures to help with decision-making. Checklists can be used as tools to assist with understanding the status of training efforts and decision-making.

Below is an example of a checklist that can help you to identify elements of your training policy. Rows have been left blank so that you can identify criteria not listed that is included in your company training policy.

TRAINING POLICY CHECKLIST	YES	NO
Do you have a training policy?	<input type="checkbox"/>	<input type="checkbox"/>
If yes, what does it include?		
<ul style="list-style-type: none">Purpose and scope	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none">A definitions section	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none">Identification of employees that require training	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none">A list of employee functions and responsibilities	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none">Identification of the type of training required	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none">Initial training requirements	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none">Recurrent training requirements	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none">Function-specific or company-specific	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none">Testing (pass/fail) requirements	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none">Record keeping requirements	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none">Certification of training requirements	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none">Training as needed (i.e., when regulations are updated or issued)	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none">Training every year	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none">Training every 2 years	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none">Training every 3 years	<input type="checkbox"/>	<input type="checkbox"/>

WHAT TYPE OF TRAINING IS PROVIDED?

Below is an example of a checklist to help you determine what additional training your employees might need. Rows have been left blank so you can identify topics not listed that are important to your company.

TRAINING PROGRAM CHECKLIST	YES	NO
What type of training is provided to your employees?		
• Classroom (In-house or external)	<input type="checkbox"/>	<input type="checkbox"/>
• Computer-based	<input type="checkbox"/>	<input type="checkbox"/>
• Web-based	<input type="checkbox"/>	<input type="checkbox"/>
• Hands-on/Mentor	<input type="checkbox"/>	<input type="checkbox"/>
What topics are included in your program?		
• General Awareness	<input type="checkbox"/>	<input type="checkbox"/>
• Classification	<input type="checkbox"/>	<input type="checkbox"/>
• Documentation	<input type="checkbox"/>	<input type="checkbox"/>
• Packaging	<input type="checkbox"/>	<input type="checkbox"/>
• Marking	<input type="checkbox"/>	<input type="checkbox"/>
• Labeling	<input type="checkbox"/>	<input type="checkbox"/>
• Placarding	<input type="checkbox"/>	<input type="checkbox"/>
• Loading & Unloading (non-bulk)	<input type="checkbox"/>	<input type="checkbox"/>
• Loading & Unloading (bulk)	<input type="checkbox"/>	<input type="checkbox"/>
• Blocking & Bracing	<input type="checkbox"/>	<input type="checkbox"/>
• Security Awareness	<input type="checkbox"/>	<input type="checkbox"/>
• In-Depth Security Awareness	<input type="checkbox"/>	<input type="checkbox"/>
• Safety	<input type="checkbox"/>	<input type="checkbox"/>
• Segregation	<input type="checkbox"/>	<input type="checkbox"/>
• Incident Reporting	<input type="checkbox"/>	<input type="checkbox"/>
• Operations	<input type="checkbox"/>	<input type="checkbox"/>
• Packaging	<input type="checkbox"/>	<input type="checkbox"/>

WHERE IS THE TRAINING PROVIDED?

It is important to evaluate the benefits of training programs as they relate to your company's needs. Below is an example of a checklist and criteria that can assist you with this evaluation. Rows have been left blank so you can include additional criteria that are important to your company.

TRAINING LOCATION CHECKLIST	IMPORTANT	NEUTRAL	UNIMPORTANT
Commercially available programs off-site			
• Knowledge/reputation of instructor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Reputation of training organization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Location of training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Length of time employee will be absent from job	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Commercially available programs for in-house training			
• Knowledge/reputation of instructor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Reputation of training organization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• No interruptions while employees are in training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Length of time required to complete program	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Company-provided in-house instruction			
• Availability of knowledgeable instructor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• No travel costs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Length of time required to complete program	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• No interruptions while employees are in training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Combined instructor and computer-based training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

IS YOUR FUNCTION-SPECIFIC TRAINING ADEQUATE?

The following checklist is provided to assist you in identifying the types of training needed to satisfy function-specific training requirements. This checklist is not intended to be exhaustive or all-inclusive. It is the employer's responsibility to determine which topics require in-depth coverage to enable their employees to perform their hazmat duties safely.

FUNCTION-SPECIFIC KNOWLEDGE CHECKLIST

Hazard Classification

- ☐ Definition of the Nine Hazard Classes
- ☐ Class 1: Explosives
- ☐ Class 2: Gases
- ☐ Class 3: Flammable and Combustible Liquids
- ☐ Class 4: Flammable Solid, Spontaneously Combustible, Dangerous When Wet
- ☐ Class 5: Oxidizer, Organic Peroxide
- ☐ Class 6: Poisonous or Toxic, Infectious Substances
- ☐ Class 7: Radioactive
- ☐ Class 8: Corrosives
- ☐ Class 9: Miscellaneous

Hazardous Materials Table

- ☐ Appendix A
- ☐ Appendix B
- ☐ Special Provisions

Packaging Selection

- ☐ Packing Group Definition
- ☐ Packing Group I (PGI)
- ☐ Packing Group II (PGII)
- ☐ Packing Group III (PGIII)
- ☐ Exceptions for Packing Group Assignments

☐ Packaging Manufacturing

☐ Packaging Retesting

Markings

- ☐ Basic and Additional Markings on Non-Bulk Packaging
- ☐ Markings for Bulk Packaging

Labels

- ☐ Hazard Labels and Placement
- ☐ Primary Hazard Label
- ☐ Subsidiary Hazard Label
- ☐ How Labels Convey Hazard
- ☐ Color
- ☐ Symbols
- ☐ Text
- ☐ Hazard Class Number or Division Number

Placards

- ☐ Requirements
- ☐ Table 1 and Table 2
- ☐ Exceptions to Placard Tables
- ☐ How Placards Convey Hazard
- ☐ Color
- ☐ Symbols
- ☐ Text
- ☐ Hazard Class Number or Division Number
- ☐ Placard Placement Requirements
- ☐ Use of International Placards

Shipping Papers

- ☐ Define Shipping Papers
- ☐ Identify Information Required and Display
- ☐ Basic Description and Sequence
- ☐ Additional Information
- ☐ Emergency Response Telephone Number
- ☐ Emergency Response Information
- ☐ Certification by Shipper
- ☐ Identify Retention Requirements

Operations

- ☐ Highway
- ☐ Air
- ☐ Rail
- ☐ Vessel

Segregation

- ☐ Highway
- ☐ Air
- ☐ Rail
- ☐ Vessel
- ☐ Warehouse (storage)

Handling

- ☐ Loading and Unloading
- ☐ Filling
- ☐ Blocking and Bracing

Incident Reporting Requirements

- ☐ By Telephone
- ☐ In Writing

RESOURCES FOR MORE INFORMATION

LETTERS OF INTERPRETATION

The Pipeline and Hazardous Materials Safety Administration, Office of Hazardous Materials Safety (OHMS) provides written clarifications of the Hazardous Materials Regulations in the form of interpretation letters. These letters reflect the agency's current application of the HMR to the specific facts presented by the person requesting the clarification. Interpretations are one form of Guidance provided by OHMS.

Interpretations do not create legally-enforceable rights or obligations and are provided to help the public understand how to comply with the HMR. OHMS regularly reviews interpretations for accuracy and applicability. Interpretation letters from the last ten years are published to provide the public with a greater awareness and understanding of the HMR.

To access letters of interpretation on line, visit: <https://www.phmsa.dot.gov/regulations/title49/b/2/1>

TRAINING MATERIALS AND PUBLICATIONS

Training, outreach, and information dissemination are important responsibilities of PHMSA. To promote compliance with the HMR, PHMSA develops brochures, charts, publications, training modules, videos and other safety-related information and makes them available to the public through the PHMSA website. Many of the publications spotlight safety concerns such as lithium batteries, undeclared hazmat shipments, wetlines, and alternative fuels such as ethanol.

To order training materials and publications, visit: <https://www.phmsa.dot.gov/training/hazmat/publications>

SEMINARS, WORKSHOPS, AND SPECIAL EVENTS

PHMSA offers free seminars, workshops, and special events throughout the year. These free training events are for anyone who offers or transports hazmat in commerce, provides emergency response to accidents or incidents involving hazmat, or desires to learn more about the HMR.

To learn about upcoming training events, visit: <https://www.phmsa.dot.gov/hazmat/seminars/seminars-and-workshops>

HAZMAT INFO-LINE

Call our Hazmat INFO-LINE: [1-800-467-4922](tel:1-800-467-4922) to obtain hazmat transportation information and copies of rulemakings. Specialists are on duty Monday through Friday from 9 a.m. to 5 p.m. Eastern time. You may call any time, 24 hours a day, seven days a week, and leave a message. We will return your call before the end of the next business day. You may also use this number to report alleged violations of the Hazardous Materials Regulations.



GLOSSARY

Hazmat Employee

Hazmat employee means a person who is:

- (i) Employed on a full-time, part time, or temporary basis by a hazmat employer and who in the course of such full time, part time, or temporary employment directly affects hazmat transportation safety;
- (ii) Self-employed (including an owner-operator of a motor vehicle, vessel, or aircraft) transporting hazmat in commerce who, in the course of such self-employment, directly affects hazmat transportation safety;
- (iii) A railroad signalman; or
- (iv) A railroad maintenance-of-way employee.

This term includes an individual employed on a full time, part time, or temporary basis by a hazmat employer, or who is self-employed, who during the course of employment:

- (i) Loads, unloads, or handles hazmat;
- (ii) Designs, manufactures, fabricates, inspects, marks, maintains, reconditions, repairs, or tests a package, container or packaging component that is represented, marked, certified, or sold as qualified for use in transporting hazmat in commerce;
- (iii) Prepares hazmat for transportation;
- (iv) Is responsible for safety of transporting hazmat; or
- (v) Operates a vehicle used to transport hazmat.

Hazmat Employer

Hazmat employer means:

A person who employs or uses at least one hazmat employee on a full-time, part time, or temporary basis; and who:

- (i) Transports hazmat in commerce;
- (ii) Causes hazmat to be transported in commerce; or
- (iii) Designs, manufactures, fabricates, inspects, marks, maintains, reconditions, repairs or tests a package, container, or packaging component that is represented, marked, certified, or sold by that person as qualified for use in transporting hazmat in commerce; or

A person who is self-employed (including an owner-operator of a motor vehicle, vessel, or aircraft) transporting materials in commerce; and who:

- (i) Transports hazmat in commerce;
- (ii) Causes hazmat to be transported in commerce; or
- (iii) Designs, manufactures, fabricates, inspects, marks, maintains, reconditions, repairs or tests a package, container, or packaging component that is represented, marked, certified, or sold by that person as qualified for use in transporting hazmat in commerce; or

GLOSSARY

A department, agency, or instrumentality of the U.S. Government or an authority of a State, political subdivision of a State, or Native American Indian tribe; and who:

- (i) Transports hazmat in commerce;
- (ii) Causes hazmat to be transported in commerce; or
- (iii) Designs, manufactures, fabricates, inspects, marks, maintains, reconditions, repairs or tests a package, container, or packaging component that is represented, marked, certified, or sold by that person as qualified for use in transporting hazmat in commerce.

Pre-Transportation Function

A function specified in the HMR that is required to assure the safe transportation of hazmat in commerce, including:

- (1) Determining the hazard class of hazmat.
- (2) Selecting a hazmat packaging.
- (3) Filling a hazmat packaging, including a bulk packaging.
- (4) Securing a closure on a filled or partially filled hazmat package or container or on a package or container containing a residue of hazmat.
- (5) Marking a package to indicate that it contains hazmat.
- (6) Labeling a package to indicate that it contains hazmat.
- (7) Preparing a shipping paper.
- (8) Providing and maintaining emergency response information.
- (9) Reviewing a shipping paper to verify compliance with the HMR or international equivalents.
- (10) For each person importing hazmat in the United States, providing the shipper with timely and complete information as to the HMR requirements that will apply to the transportation of the material within the United States.
- (11) Certifying that hazmat is in proper condition for transportation in conformance with the requirements of the HMR.
- (12) Loading, blocking, and bracing a hazmat package in a freight container or transport vehicle.
- (13) Segregating a hazmat package in a freight container or transport vehicle from incompatible cargo.
- (14) Selecting, providing, or affixing placards for a freight container or transport vehicle to indicate that it contains hazmat.

Training Program

A systematic method that has been developed for providing training, which consists of associated material (such as handouts, overheads, videos, exercises, etc., as well as use of interactive computer-based training), tests and quizzes and, where there is an instructor, the instructor's notes or course outline. The training program may be a tutored or self-study course.

GLOSSARY

In-House Training	Training provided to the employees of a company by a company employee or an independent training provider at the company facility.
Training Provider	Any person or organization that offers or provides hazmat training, including a hazmat employer.
Independent Training Provider	A person or organization, independent of a hazmat employer, that offers hazmat training.
Recurrent Training	Training given at intervals (usually not more than two or three years) to provide an update on regulatory changes to ensure a hazmat employee's knowledge remains at the required level to safely carry out their responsibilities.
Safety Training	Training that covers the hazards presented by hazmat, safe handling, emergency response information and methods and procedures for accident avoidance.
Security Awareness Training	Training that is intended to provide a general understanding of the security risks associated with hazmat transportation and the methods designed to enhance transportation security. It should identify possible practical indicators of a potential security threat.
In-Depth Security Training	Training related to a company's required security plan. It should cover company security objectives, specific security procedures, employee responsibilities, actions to take in the event of a security breach and the organizational security structure.

For additional information contact:

The Hazardous Materials Info Center

1-800-HMR-4922

(1-800-467-4922)

E-mail: infoctr@dot.gov

<http://phmsa.dot.gov>

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U.S. Department
of Transportation

**Pipeline and
Hazardous Materials
Safety Administration**

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