High-Tech Help for HazMat Classification

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Identifying and classifying hazardous materials for shipment over the nation's roads can be tricky business. One mistake can create risks throughout the chain of custody, from loading dock to transporter, increasing the potential for the wrong response to an incident, not to mention the chance for penalties or fines.

By law, the U.S. Department of Transportation (DOT) requires anyone dealing with hazardous materials to be trained in federal hazmat shipping regulations. But staff turnover, downsizing, new products, new modes of transportation, time and resource restrictions - as well as new regulations - create constant demand for updated training in proper classification methods. For large corporations, the level of expertise among hazardous-materials workers often is high, but that does not eliminate the possibility of different hazmat classifications being created for the same product shipped from different plants. For smaller businesses, the sheer complexity of compliance may interfere with achieving proper classifications.

Classification basics

When a hazardous material arrives in a hazardous materials manager's office, he has to figure out what it is. The material's ingredients are reviewed while the manager looks for inherent hazards. For instance, if a mixture has arsenic in it, that indicates toxicity. But toxins aren't always obvious. Companies employ different methods to find out if a hazard exists in a particular material. Some companies may automatically test the materials. In some cases, testing is the only way to determine if a material presents a hazard for transportation. Many materials come with OSHA-required Material Safety Data Sheets (MSDS) which might identify some hazards. But the MSDS cannot be completely relied upon for transportation purposes because OSHA is looking for long-term exposure hazards. The U.S. DOT is

worried about the immediate impact of exposure in case of an accident.

Once a manager knows what a substance is, he must search the U.S. DOT regulations to answer basic questions that will enable him to classify the substance. Is it corrosive? Is it poison? What's the flashpoint? The response to these and other questions determines the class of the material and the type of package in which it will be shipped.

In addition, it determines the labeling that will be applied to the material's packaging and the placards that appear on trucks, tanks and other freight containers. These diamond-shaped placards, displayed on trucks, indicate details of the substance being shipped, such as "corrosive" or "flammable liquid." Shipping labels and placards are critical to emergency-response personnel because that's what they will look for should an incident occur. In the heat of a congested roadway accident, nobody wants to pour water on improperly labeled material that becomes dangerous when wet.

Classification via the Internet

Help for shippers of all sizes is now available on the Internet. With instant updates and expert online advice, the Internet is a clear improvement over the earlier process of paging through massive U.S. DOT regulation manuals or using software that becomes outdated as new regulations are passed. Using the browser-based computer application known as an "application service provider (ASP), hazmat safety workers can now log onto a Web site customized for them by a new HazMat classification service. By answering yes/no questions, the service walks users through all of the details they need to know to properly classify a material for transportation. The service also produces the proper shipping description, labeling and packaging information.

To access an Internet-based service such as Virtual Compliance's HazMat Digital Expert, users log on to the Virtual Compliance Web site and answer a series of questions that take them through the steps of identification to classification, then to labeling. Once the user is finished, he can link to suppliers who sell specialized hazmat shipping containers.

The system's depth of detail is evident in its ability to provide users multiple levels of hazmat information. For example, consider this sample question included in the classification process: "Does your material meet the U.S. DOT definition of liquid (including materials that have a liquid phase)?"

To obtain a proper definition of "liquid" under U.S. DOT transportation regulations, the user clicks the hypertext-linked word "liquid" in the sentence. The definition provided ("Liquid means a material, other than an elevated temperature material, with a melting point or initial melting point of 20C [68F] or lower at a standard pressure of 101.3 kPa [14.7 psi]. A viscous material for which a specific melting point cannot be determined must be subjected to the procedures specified in ASTM D 4359 'Standard Test Method for Determining Whether a Material is Liquid or Solid.' 49 CFR 171.8.") reminds the user that a simple liquid may not be so simple

under U.S. DOT regulations. An example of this type of liquid would be a material that doesn't flow at room temperature but becomes liquid when the temperature rises to 100 degrees F. It is not unusual for the temperature inside trucks to heat up to 130 degrees F during warmer months.

This type of step-by-step questioning, with resources for addressing varying circumstances, continues throughout the program. Another example: "Does your material meet the U.S. DOT definition of a corrosive material?" This is important to know if a material is corrosive to skin or steel because the product must be packaged to protect workers in the event of an incident.

As the user proceeds through the program, a description of the material builds in the left-hand column on the computer screen. This is part of a navigational and audit aid that helps users check their work as they proceed. If necessary, a user can click backwards through the description menu to recheck answers.

As users proceed through the identification interview, the program scans interconnecting databases to determine the final, critical information needed for proper classification. The description builds the primary hazard class, secondary and tertiary hazard classes (if applicable), the shipping name, the UN/NA number, and the packing group. All of this information is displayed at the end of the interview in a printable report. The report also provides pertinent U.S. DOT special provisions and notes which labels must be displayed on the packaging. Finally, U.S. DOT single packaging options are displayed, which means users can get exact descriptions of the single packaging authorized for use on roadways, such as steel drums, aluminum drums, plastic jerricans or other possibilities. If desired, the program then can take users directly to the suppliers who make the packaging.

This Internet-based system is a simplified approach to the complex world of hazardous materials identification and classification. It can help ensure that potentially dangerous materials are packaged and labeled the right way, that their safety in transport is enhanced, and that the chance for fines and penalties is greatly reduced.

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