

Safe Transport of HazMats

Complying with DOT Title 49 Regulations

By **PAUL THOMAS**

In 1998, some employees of the author's firm were demobilizing a construction site. Surplus materials, which included six portable fire extinguishers and two gallons of isopropyl alcohol, were needed at a new construction site in Georgia. The employee responsible for the safe packaging of products was on vacation, so the superintendent instructed another employee to package and send the materials by airfreight.

Although the materials appeared harmless to the employee assigned to ship them, they are HazMats, according to Dept. of Transportation (DOT) Title 49 regulations. Fire extinguishers are compressed gas cylinders and isopropyl alcohol is flammable. When shipped via airfreight, both products are regulated to ensure the safety of the aircraft. Unaware of these regulations, the employee took no special precautions when preparing the materials for transport.

During transit, the package broke open, revealing its contents to the shipper. The shipping company knew these items violated DOT regulations; specifically, the packaging was substandard and the air waybill was not completed correctly. As required, the shipper reported the incident to the Federal Aviation Administration (FAA), the agency responsible for all aspects of air safety—including transportation of airfreight. As a result, the

author's company received a citation and penalty from FAA. The fact that the violation was unintentional was not a defense.

KNOW THE REGULATIONS

Unfortunately, many companies unknowingly ship regulated products and unintentionally violate Title 49 regulations. A major home improvement retail chain is facing a \$60,000 civil penalty for allegedly attempting to fly one gallon of flammable paint in a fiberboard box via a major air carrier ("FAA Proposes"). FAA alleges the company failed to comply with DOT Title 49 regulations for packaging, labeling, marking, classing, describing and documenting the product, as well as for ensuring that its employees were adequately trained and that emergency response information was available.

The list of Title 49-regulated materials is long and varied; many items on the list are materials whose dangers may not be immediately apparent. The products listed below are commonly used within the construction industry. All are regulated under Title 49.

- aerosol products, paints, adhesives;
- pesticides, including solids, liquids and gases;
- batteries and battery fluids;
- paints, paint thinner, degreaser and other solvent products;
- soil core samples that could be potentially contaminated with volatile organic

compounds (VOCs) or other regulated materials;

- portable fire extinguishers;
- various chemical products (e.g., propanol and acids).

These are just a few of the thousands of products listed in the Hazardous Materials Table included in Part 172.101 of DOT Title 49 ("Part 172"). That table lists critical information for shippers, including what items are regulated as HazMats; what can be shipped; maximum quantities allowed; and conditions for shipping products. (For example, certain materials cannot be shipped by airfreight, while others can be shipped on specific aircraft only.)

EMPLOYEE TRAINING

One effective way to ensure compliance with Title 49 regulations is to thoroughly train employees on how to pack and ship HazMats. Table 1 outlines the minimum training requirements for various positions in the shipping process chain.

As Table 1 shows, all employees involved in shipping packages must receive some training—its level proportionate to their position in the shipping activity chain. Companies that allow untrained staff to ship regulated products and materials may be subject to regulatory action and penalties, as set forth in the "list of frequently cited violations" in Part 107, Subpart D, Appendix A of Title 49 regulations ("List of Frequently").

HazMat Training: Title 49 Subpart H

Each HazMat employer must:

- train, test and certify that an employee has been trained and tested;
- document current training (inclusive of preceding three years) for each HazMat employee (during the period of employment and 90 days thereafter).

HazMat training must cover:

- general awareness/familiarization;
- function-specific concerns;
- safety concerns;
- driver training (for those who will operate a motor vehicle).

TRAINING FREQUENCY

•Initial Training: A new employee or an employee who changes job functions, may perform HazMat job functions before completing training provided 1) the employee does so under the direct supervision of a properly trained and knowledgeable HazMat employee and 2) the HazMat training is completed with 90 days of employment or change of job function.

•Recurrent Training: Required at least once every three years; the three-year period begins on the actual date of training.

•Relevant training received from a previous employer or source may be used to satisfy the requirements, provided a current training record is obtained from the previous employer/source.

TRAINING RECORD REQUIREMENTS

Under the standard, training documentation must include:

- employee's name;
- date most-recent training was completed;
- training materials used (copy, description or location);
- trainer's name and address;
- certification that the employee has been trained and tested.

KEY DEFINITIONS

HazMat employer is a person who is employed by a HazMat employer and 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 packaging as qualified for use in the transport of HazMat;
- prepares HazMat for transport;
- is responsible for the safety of transporting HazMat;
- operates a vehicle used to transport HazMat.

HazMat employer is a person or entity that uses one or more of its employees in connection with:

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

Source: //hazmat.dot.gov/pubtrain/trainreq.htm#training

Ultimately, the consequences of violating these regulations can be much more serious than a citation and fine. Catastrophic consequences—including loss of life—can occur if proper precautions are not taken when HazMats are shipped by airfreight. For example, if compressed oxygen cylinders ("K" cylinders with 2400 psig, without protective valve caps) are improperly packaged and the aircraft encounters severe air turbulence, the cylinders can strike each other.

As a result, a cylinder's valve attachment can be snapped off or damaged. A damaged cylinder creates an extremely dangerous situation. It can leak, producing an oxygen-enriched atmosphere in the cargo hold. It can become a projectile

that damages or punctures other shipments or the aircraft itself. If the cylinder punctures a shipment of acetone, paint reducer or other flammable substance, a fire and explosion can occur, which may cause an in-air emergency or crash.

To prevent such disasters, companies must properly train employees to be aware of DOT Title 49 regulations and must ensure that all shipments comply with these laws. Whether a safety and health professional or a CEO, one must consider the ethical, financial and legal consequences that may result if DOT Title 49 regulations are violated. ■

REFERENCES

"FAA Proposes \$60,000 Penalty Against

Home Depot for Hazmat Violations." June 21, 2000. <<http://www.faa.gov/apa/pr/safety/pr.cfm?id=1085>>.

"List of Frequently Cited Violations." Chapter 1, Subchapter A, Part 107, Subpart D, Appendix A. Hazardous Materials Regulations and Procedures. <http://63.141.231.97/cgi-bin/om_isapi.dll?infobase=netdot&softpage=Doc_Frame_Pg42>.

"Part 172: Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements." Washington, DC: Dept. of Transportation, Research and Special Administration Program Regulations. <http://63.141.231.97/cgi-bin/om_isapi.dll?advquery=Part%20172&infobase=netdot&record={7}&softpage=Search_Frame_Pg42&zz=>>.

TABLE 1 Minimum Training Requirements in the Shipping Chain

POSITION	TRAINING REQUIRED
Operator's cargo staff	Classification of dangerous goods; list of dangerous goods; packing instructions; marking and labeling; transport documents; operator's responsibility; shipper's responsibility; emergency procedures.
Employees who handle, store and load dangerous goods	General philosophy; marking and labeling; handling and loading procedures; compatibility; emergency procedures.
Passenger-handling, operator and security staff	General philosophy; dangerous goods prohibited; exceptions for passengers; general label identification.
Flight crew members	General philosophy; marking and labeling; pilot's notification; emergency procedures; loading procedures; compatibility.
Crew members (other than flight crew)	General philosophy; dangerous goods prohibited; general label identification; emergency procedures.
Packers	Classification of dangerous goods; list of dangerous goods; general packing requirements; equivalents; specific packing instructions; marking and labeling.
Shipper and shipper's agents	Classification of dangerous goods; list of dangerous goods; prohibitions; packing instructions; marking and labeling; shipper's responsibility; dangerous goods documents.

Paul Thomas, P.E., REA, is vice president of safety for the Kinetics Group, Santa Clara, CA. His 38 years of professional safety experience include work in such diverse industries as aerospace, heavy construction and maritime; he has also worked with federal OSHA. As safety director of two major construction companies, Thomas managed safety programs for several multi-billion dollar U.S. construction projects. He is a professional member of ASSE's Greater San Jose Chapter and a member of the National Construction Safety Executives.

READER FEEDBACK

Did you find this article interesting and useful? Circle the corresponding number on the reader service card.

YES	39
SOMEWHAT	40
NO	41