



Transporting Pesticides in Pennsylvania

Safety Recommendations and Legal Requirements

Transportation Safety

Pesticides are transported from manufacturers to distributors and dealers, from retailers to end users, and from storage and mixing locations to application sites.

Accidents can happen at any point in the chain, even when transport distances are short.

Careless handling of containers, incorrectly maintained equipment, failure to properly secure loads, and unforeseen accidents can lead to pesticide leaks and spills during transport. Such events have the potential to cause harm to humans and animals, pollute the environment, and lead to financial losses and legal actions.

Preparing to prevent transportation mishaps and properly responding when they do occur could mean the difference between an annoying inconvenience and a community-scale disaster. Every pesticide user needs to understand the potential hazards associated with the chemicals they are transporting and the regulations affecting highway transport of hazardous materials.

Transport vehicle

Pesticide transport vehicles for road and field vary widely in design and use, from bulk tankers and box trucks to pickup trucks and station wagons as well as self-propelled and pull-type sprayers. Some vehicles carry only formulated concentrates for delivery; others incorporate application equipment with premixed spray solutions; others handle both. All, however, share basic common characteristics that affect safety and emergency response capabilities. First and foremost, in Pennsylvania the pesticide business license number (BU) must be prominently displayed on all vehicles involved in the pesticide application phase of the business. The numbers must be at least 3 inches high, in a contrasting color, and placed on both sides of the vehicle in readily visible locations.

Pesticides should never be carried in the passenger compartment of a vehicle because hazardous fumes and spilled chemicals can seriously injure occupants. In addition, spilled pesticides can be difficult or impossible to remove completely from interior upholstery. If pesticides

must be carried in a station wagon, utility van, or similar enclosed vehicle, properly ventilate the cargo and passenger compartments and keep passengers away from pesticides during transport. A safety barrier between the passenger and cargo areas is recommended because cargo can shift during transport.

The cargo area should securely hold containers and provide protection from tears, punctures, or impacts that could lead to container damage. Enclosed, locked cargo boxes provide the greatest protection and offer added security from curious children, careless adults, or vandals; however, they are not always practical. Open truck beds are more convenient for loading and unloading, but precautions must be



taken to minimize the possibility of losing or tipping containers during transport. Tie-down straps and other materials to secure the load should be readily available. Flatbed trucks should have side and tail racks and tie-down rings, cleats, or racks to help secure the load. Inspect the cargo area for nails, stones, and sharp edges or objects that could damage containers. Metal beds or synthetic bed liners are preferable to wood because they are more easily cleaned if a spill should occur.

Transport vehicles should be in good mechanical condition, including power train, chassis, and any onboard bulk tanks and associated plumbing. Make sure that safety and control components such as brakes, tires, and steering are in good working order. A poorly maintained vehicle is a safety risk, and transporting pesticides just increases the risk of additional injury or contamination should a mishap occur. If application equipment is mounted on transport vehicles, regularly inspect sprayer tanks, fittings and lines (especially those under pressure), and booms and nozzles. Look for structural defects, cracks, punctures, and other causes of leaks or failure. Pesticide dealers may consider refusing to load vehicles that are not structurally sound.

Vehicle operator

Both the business owner and the operator of the transport vehicle can be held responsible, in most cases, for any injuries, contamination, or damage resulting from a chemical release. The vehicle operator should be knowledgeable and capable of handling the responsibilities that are required to transport any pesticides.

The vehicle operator is the best—and maybe the only—person capable of

reacting to a spill or other mishap and most likely will need to assist or instruct first response emergency personnel as they arrive on the scene.

At a minimum, the vehicle operator should understand the nature and hazards of the pesticides being transported and the safe and proper procedures for handling them. The operator should also be trained in basic emergency response procedures such as spill control and emergency notification procedures.

Operators of pesticide transport vehicles may be required to have special motor vehicle training and licensing and possibly other additional training and certification. If the pesticides are labeled for agricultural use, the provisions of the EPA Worker Protection Standard (WPS) require that drivers of vehicles transporting pesticides in anything but factory-sealed containers be trained as WPS pesticide handlers or be certified applicators. If the load meets the U.S. Department of Transportation (DOT) definition of a hazardous material or hazardous substance, then special driver training and, in some instances, commercial driver licensing is required. In addition, placarding may be required with these types of loads.

Other safety precautions

Place copies of product labels and material safety data sheets (MSDS) for each product being transported in the vehicle prior to leaving the loading area. These contain information about active ingredients; how to use the product including personal protective equipment; human, environmental, and other hazards; first aid; storage and disposal; precautions needed for emergency personnel; and emergency telephone numbers. Having this

information in the transport vehicle will help guide the operator and/or emergency personnel responding to a spill or release of pesticide. In addition, shipping papers—also called a vehicle manifest—may be required for products that are regulated as hazardous materials. However, the name of the driver of the vehicle is not a required component of the information of the shipping papers but should be readily available in the event of an accident that causes the driver to become unresponsive.

A phone number should be in the vehicle for 24-hour emergency assistance (spill cleanup and so on). Cell phones should be carried by anyone involved in the transport of pesticides or working alone in remote locations. Carry personal protective equipment appropriate for the pesticides in transit and a spill kit, either a commercial or self-assembled version. Operators must be trained to use this equipment properly. Be familiar with the travel route to anticipate and avoid problems.

Containers should be in serviceable condition, with legible and attached labels (preferably the original label), tight closures, and pesticide-free outside surfaces prior to loading. Handle containers carefully during loading to avoid rips and punctures. Packing or shipping containers can be used to provide extra protection and secondary containment. Where practical, cover the floor and sides of the cargo area (especially truck beds) with a synthetic liner or tarpaulin, which can provide containment and easier cleanup of spilled materials.

Organize the load to maximize stability while maintaining access to containers for unloading during the course of the day or the delivery route. The fewer times containers are

handled, the less likely they are to be damaged. Secure the load with tarps, ropes, brace bars, or other appropriate devices to prevent containers from shifting in the cargo area, and secure anything else that could damage a container during transport.

Protect chemicals from temperature extremes and moisture during transit. Extremely high or low temperatures (<40°F or >110°F) can alter the stability or effectiveness of some chemical formulations. Moisture can destroy paper and cardboard and promote rusting of metal containers. A waterproof cover can provide protection from the weather.

Do not allow people, pets, or livestock to ride in a cargo area loaded with pesticides. Food, livestock feed, seed, veterinary supplies, and plant materials should be kept separate from pesticides because contamination may render them unusable or result in a poisoning incident. When possible, herbicides should be kept separate from fertilizers and other pesticides because of the potential for cross-contamination.

When pesticides must be transported with other materials in a single cargo area, elevate the other products in the load to reduce the possibility of contaminating these products with pesticides in the event of an onboard leak or spill. In addition, if both dry and liquid pesticide formulations are being transported, the dry materials should be elevated above liquid formulations to avoid the potential for contamination. For example, place the nonpesticide products and dry pesticide materials on elevated pallets.

Never leave your vehicle unattended when transporting pesticides in an open vehicle. The owner and operator

of the vehicle are responsible if curious children, careless adults, or vandals are poisoned or release pesticides that result in contamination or injury to other persons or the environment. If the cargo area cannot be locked, covering the load with a tarp can reduce the likelihood of tampering by unauthorized individuals.

Emergency procedures

The best emergency procedure is to have a plan in place that outlines the steps to take in the event of an accident or a spill. A written plan, which must be readily available in the vehicle, should not only include the steps to be taken but also a list of contacts to be made at the time of the emergency. If a spill or accident occurs, control the flow of material and contain it to prevent further spread as soon as possible. Be sure to wear the appropriate protective equipment to clean up the spill. Always dispose of any waste materials properly. The Pesticide Safety Fact Sheet “How to Handle Chemical Spills” outlines response procedures for handling chemical spills (available at extension.psu.edu/pested/factsheets).

If the spill is large or potentially dangerous, do not leave the site unattended; have someone else get help. Operators should have radio or telephone communication available in the vehicle should they need to call for assistance. County emergency management offices can provide or coordinate assistance and regulatory compliance (dial 911 or check the blue pages of a phone directory) and are the first contact to make in an emergency. Many pesticide manufacturers list a 24-hour emergency number on the label or MSDS, but these are almost always exclusive for that company’s products. Such a number would not

be acceptable for loads containing products from more than one manufacturer.

CHEMTREC, a service provided by the American Chemistry Council and its members, provides first responders, medical professionals, the transportation industry, and others with access to response information and technical assistance from chemical industry experts for incidents involving chemicals and hazardous materials. Their public service hotline, 1-800-424-9300, is restricted for emergency responders or law enforcement for assistance in emergency incidents involving chemicals and hazardous materials. In addition, companies can contract with CHEMTREC for a fee to use their phone number as the emergency contact number on shipping documents for hazardous materials subject to government regulations.

The Pennsylvania Department of Agriculture defines a significant pesticide accident or incident as an accident or incident involving a pesticide that

- requires a person to obtain medical treatment,
- results in illness requiring veterinary treatment of any wild or domestic animal,
- results in the unintended death of a human or animal,
- pollutes the waters of the Commonwealth, or
- causes damage with results in an economic loss of plants, organisms, structures, or stored commodities.

Several governmental agencies require notification of spills under certain circumstances. See the box on the previous page for the Pennsylvania Department of Agriculture's (PDA) definition of reportable pesticide accidents and incidents. If spilled pesticides can potentially contaminate surface water or groundwater in anyway (runoff from a roadway, through a ditch, etc.), the Pennsylvania Department of Environmental Protection and the Pennsylvania Fish and Boat Commission require notification. The local emergency planning coordinator must also be notified if the pesticide spilled is listed as an extremely hazardous substance and exceeds the reportable quantity as defined by the Emergency Planning and Community Right-to-Know Act of 1986, Title III of the Superfund Amendments Reauthorization Act (SARA). These reportable quantities can be found in the Code of Federal Regulations at ecfr.gpoaccess.gov. (Select "Title 49—Transportation" and click the "Go" button, then select "100-177" and scroll down to "SubChapter C—Hazardous Materials Regulations." From there, click on "172" and then "§172.101 Purpose and use of hazardous materials table" and then scroll down to "Table 1 to Appendix A—Hazardous Substances Other Than Radionuclides.") An online-only fact sheet, "Transporting Pesticides in Pennsylvania, Part 2" contains a shorter list of more common pesticide reportable quantities at extension.psu.edu/pested/factsheets.

Department of Transportation Regulations Affecting the Transport of Pesticides on Public Roadways

Most regulations affecting pesticides fall under the authority of the amended Federal Insecticide, Fungicide, and Rodenticide Act of 1947. However, some pesticides meet the definition of U.S. DOT hazardous materials (HM, hazmat) or SARA Title III hazardous substances and are subject to the special requirements of DOT hazardous materials regulations (49 CFR Parts 171–180) when being transported on public highways.

The DOT regulations are extensive and complex, addressing everything from live munitions to biological organisms to nuclear waste. The portions of the DOT regulations that most often apply to pesticide applicators and transporters are those that require training for vehicle operators. This training should prepare operators to avoid and react to chemical spills and, at the same time, educate them to communicate information to first-response emergency personnel to prevent their exposure or injury when responding to an incident.

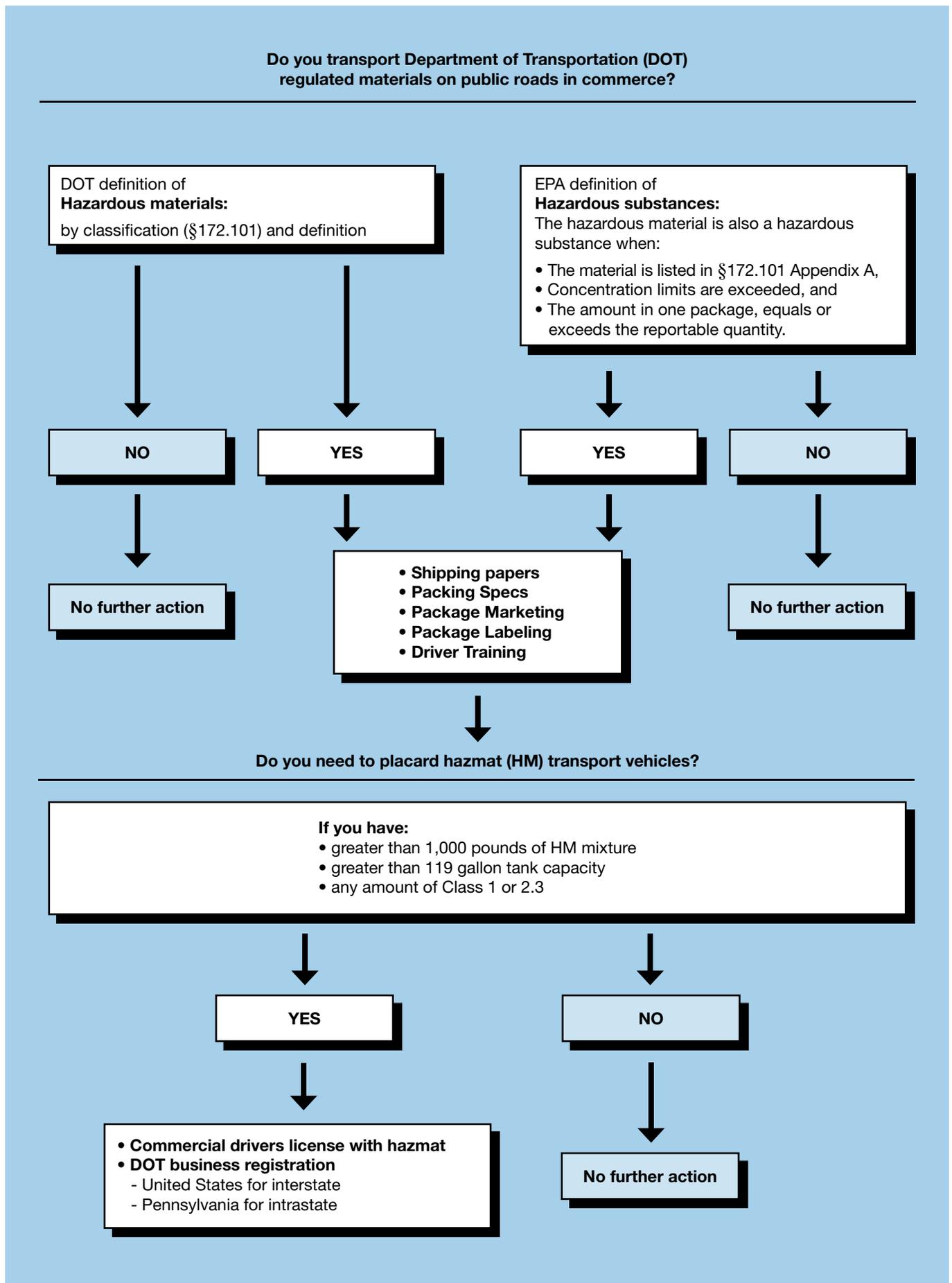
Do you carry DOT-regulated materials?

The first and most important step is to determine if the product(s) being transported is a product or commodity being interchanged between parties and meets the requirements of a U.S. DOT-regulated material. Products used for personal use around the home or hobby farm (no income generated) are exempt from these requirements.

Regulated materials are defined as either hazardous materials by DOT or hazardous substances by EPA in SARA Title III. Pesticides are just a few of the many materials that are DOT-regulated. Therefore, even if the pesticides being transported do not meet these definitions, other products in the load, such as solvents, fuels, or fertilizers, should be evaluated regarding possible DOT regulation.

Figure 1 outlines the process for determining your own DOT hazmat compliance requirements. If in fact the products being transported meet the requirements of U.S. DOT-regulated materials, see the "Transporting Pesticides in Pennsylvania, Part 2" online fact sheet at extension.psu.edu/pested/factsheets for further information.

Figure 1. Flow chart for determining Department of Transportation regulatory requirements (excludes hazardous waste).



Pesticide Safety Fact Sheets are produced by the Pesticide Education Program in Penn State's College of Agricultural Sciences. Topics covered in the series include

- pesticide laws and regulations
- handling chemical spills
- personal protective gear
- pesticides in the environment
- equipment care and cleaning
- pesticide toxicity and health effects

For a complete list of fact sheets and electronic copies or for more information about the Pesticide Education Program, visit extension.psu.edu/pested/factsheets on the web.

Prepared and updated by Kerry H. Richards, director, Sharon I. Gripp, information specialist, and William M. Riden, senior extension associate, of the Pesticide Education Program.

extension.psu.edu

An **OUTREACH** program of the College of Agricultural Sciences

Penn State College of Agricultural Sciences research and extension programs are funded in part by Pennsylvania counties, the Commonwealth of Pennsylvania, and the U.S. Department of Agriculture.

This publication is available from the Publications Distribution Center, The Pennsylvania State University, 112 Agricultural Administration Building, University Park, PA 16802. For information telephone 814-865-6713.

Where trade names appear, no discrimination is intended, and no endorsement by the Penn State Cooperative Extension is implied.

This publication is available in alternative media on request.

The Pennsylvania State University is committed to the policy that all persons shall have equal access to programs, facilities, admission, and employment without regard to personal characteristics not related to ability, performance, or qualifications as determined by University policy or by state or federal authorities. It is the policy of the University to maintain an academic and work environment free of discrimination, including harassment. The Pennsylvania State University prohibits discrimination and harassment against any person because of age, ancestry, color, disability or handicap, genetic information, national origin, race, religious creed, sex, sexual orientation, gender identity, or veteran status and retaliation due to the reporting of discrimination or harassment. Discrimination, harassment, or retaliation against faculty, staff, or students will not be tolerated at The Pennsylvania State University. Direct all inquiries regarding the nondiscrimination policy to the Affirmative Action Director, The Pennsylvania State University, 328 Boucke Building, University Park, PA 16802-5901; Tel 814-863-0471.

© The Pennsylvania State University 2013

Produced by Ag Communications and Marketing

Code UO217 Rev6M05/13mpc