

Storing Pesticides

Learning Objectives

- List the expectations of your storage facility and practices.
- Distinguish between items you can and cannot store with pesticides and pesticide-impregnated materials.
- Recognize features of a suitable location for a pesticide storage facility.
- Identify steps you can take to prevent unauthorized access to a pesticide storage facility.
- List three reasons why proper ventilation is critical in a pesticide storage area.
- Explain why and how you should regulate temperature and humidity in your storage area.
- Discuss fire risks in a pesticide storage facility.
- Provide design details of a storage facility that help reduce the risk of or damage from pesticide spills and fires.
- Discuss the best use of shelves in a storage area, including construction, placement, and how pesticides should be arranged on them.
- Describe storage facility features and practices that will help protect workers who enter the facility.
- Describe proper procedures for putting pesticides into your storage area.
- Identify clues of pesticide product deterioration.

It would be hard to overstate the importance of proper pesticide storage to your business. On a day-to-day basis, you expect your storage facility and practices to:

- Protect your product and investment;
- Make it easy to move product and keep track of inventory;
- Protect your employees, customers, and community from pesticide exposure;
- Prevent environmental contamination;
- Contain pesticides in the event of a spill or fire;
- Prevent theft;
- Comply with building, electrical, fire, and sanitation codes;
- Comply with state and federal laws; and
- Reduce your liability.

To meet these expectations, you need to understand the risks that come with storing pesticides. Such risks often overlap; for example, we will see in this chapter that a single problem could increase the risk of both employee exposure and fire. Once you understand the risks and how they relate to each other, you can develop an integrated approach to managing your storage area.

The Storage Area

The first issue to tackle is the storage facility itself. What will it hold, and how will it accommodate its contents while reducing risk?

Contents

A pesticide storage facility is just that: a pesticide storage facility. What you can and cannot store in it will be the basis for every other decision you make regarding your storage facility and practices.

What Goes In

The facility should hold only:

- Pesticides in their original, labeled containers;
- Pesticide rinsate in designated and labeled tanks;
- Pesticide application and transfer equipment; and
- Emergency response equipment such as spill pillows and fire extinguishers, but NOT personal protective equipment (PPE).



Pesticides go in a pesticide storage area. . . .



. . . and personal protective equipment stays out

What Stays Out

Keep food, feed, seed, plant propagation materials, fertilizer, veterinary supplies, and PPE separate from pesticides. Pesticide storage facilities can harbor fumes, dusts from dry materials, and occasionally leaked liquids. Items contaminated by these pesticide sources can be damaged directly (e.g., plant material harmed by herbicide vapors) or cause harm to plants, animals, or people who are later exposed to them.

Pesticide-Impregnated Materials

What about items such as pesticide-treated seed, herbicide-impregnated fertilizer, and toxic rodent baits that seem to fit under both “What Goes In” and “What Stays Out?” You still need to store them with all the same precautions you apply to storing any pesticide, but you must also keep them separate from other pesticides and from untreated base materials. This is because each of these items can be contaminated by other pesticides and can also be a source of contamination for other base materials. For example, treated seed can be harmed by herbicide vapors. On the other hand, grain that becomes contaminated with a single treated seed cannot be used for food, feed, or oil purposes. Rodent baits that pick up toxic fumes from other pesticides will have an off taste that will reduce their acceptance by rodents.

Location

A pesticide storage facility should be located away from homes, livestock quarters, and domestic water supplies. The site must not be prone to flood and should be situated so that runoff from spills and leaks cannot contaminate surface water, storm sewers, or wells. Ideally, the facility would be downwind (with respect to prevailing winds) from sensitive areas.

The facility should be structurally separated from office or retail space. Pesticides should only be stored at ground level, so a single-story structure is best.

Access

You have two overriding concerns with respect to facility access. You want to:

- Allow safe and efficient employee access and
- Prevent unauthorized access.



Storage area with separate access from retail space

The facility should have its own access to let employees move pesticides in and out of the facility without having to go through office or retail space. This will prevent contamination of those areas and thus protect other employees and your customers.

Preventing Unauthorized Access

Unauthorized access can range from a customer's curious child wandering out of the retail space to intentional trespass with the intent to steal or cause damage. Risks to health, the environment, and your business are obvious. Keep in mind that in many areas of the country, fertilizer is being stolen for the purpose of producing illegal drugs.

Secure entry points (including windows) against unauthorized access to prevent theft, injury, and product damage. Post each access with signs that clearly indicate that you store pesticides in the building. Although a facility may have several access points (e.g., to allow for emergency exits), limit daily use to as few as possible. This will make it easier to monitor building access and thus reduce the potential for unauthorized entry.



Entry ways to storage area should be posted and locked

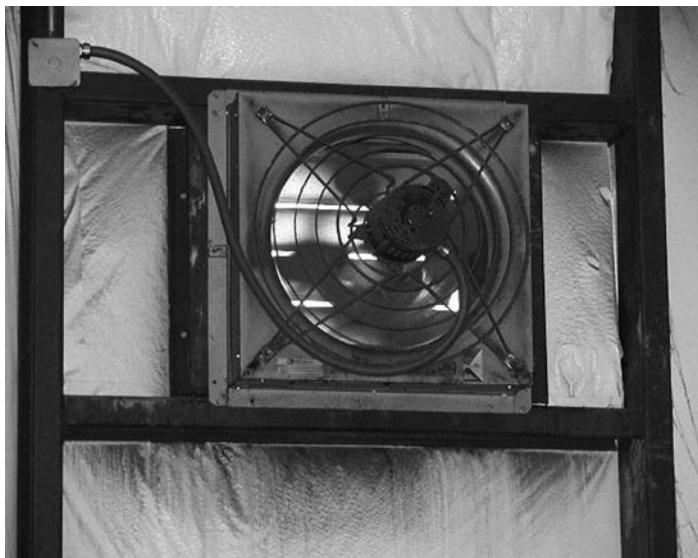
After business hours, bar access to the site with secure fencing and gates. A reliable alarm system could replace or complement security fencing.

Ventilation

Proper ventilation in the storage area is absolutely critical. It helps prevent:

- High temperatures and humidity that can adversely affect stored pesticides,
- The buildup of flammable pesticide fumes that could lead to a fire, and
- Employee exposure to pesticide fumes.

Because a pesticide storage area needs to be heated in the cooler months, natural ventilation would be hard to control and may result in high heating costs. Mechanical ventilation is better. Make sure ventilation units are approved for use in the conditions that exist at your facility (e.g., in the presence of flammable vapors). The ventilation system should be able to provide at least 1 cubic foot per minute for each square foot of floor area or six air exchanges per hour. Lower exchange rates are allowable when the facility is unoccupied.



Ventilation fans reduce risks of pesticide storage

Temperature and Humidity

Insulate and ventilate (with exhaust-type fans) the storage area to keep temperatures within the range needed to prevent product damage. This range is typically between 40° F and 100° F. At low temperatures, liquid pesticide formulations can break down (e.g., some components may settle out as crystals). Frozen containers may easily rupture, possibly causing worker exposure and/or contamination of other products or the facility interior. Heat makes liquids expand; this will put a container's contents under pressure so that a person could get sprayed when they open the container. Also, liquid products may be flammable at high temperatures.

Humidity control helps maintain legible and attached labels. High humidity can cause dry formulations to cake, which makes them harder to handle and measure.

(Remainder of chapter not included in this document.)