PI31

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Secure Pesticide Storage: Workspace Features of a Pesticide Storage Facility [1]

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This document identifies and discusses three key features of a pesticide storage facility's interior that, in combination, promote both worker safety and pesticide container security.

Introduction

Secure storage of pesticide involves more than just protecting your pesticide products from temperature, humidity, severe weather events, and theft. It equally involves incorporating interior design features that enhance the organization, placement, and retrieval of items stored in the facility. Ideally, these features should also help safeguard the health and safety of the workers that use the pesticide storage facility. Three such workspace features include: air exchange, suitable shelving, and adequate lighting.

Air Exchange

Air exchange *means providing air flow through the pesticide storage facility.* Fresh air is especially important when people are in the storage facility.

To provide air-exchange capability, install a switch-activated exhaust fan.

Install the exhaust fan itself in the wall ***opposite the door.*** Locate the fan approximately 4 feet above the storage facility's floor. This configuration promotes a cross-flow of fresh air through the facility.

Mount a wall switch inside the storage facility, near the door. This lets any user activate the exhaust fan as he or she enters the storage facility.

Air cross-flow and exchange is greatest when both the fan is on and the door is open.

Suitable Shelving

Suitable shelving *means combining shelf durability, strength and design in a way that offers good service for pesticide storage.*

In most cases, ***painted steel is best*** for pesticide storage shelving. Steel is non-absorbent and durable. Prefabricated shelving made of 16-gauge steel is readily available. Such steel shelving is strong enough to carry virtually any pesticide storage load.

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When no longer needed, used steel shelving can be readily sold as scrap. This cannot be done with other materials used for pesticide storage shelving.

Wood, by itself (unsealed), is a poor material to use for pesticide storage shelving. Unsealed wood is too prone to soak up spilled chemicals. When wood soaks up certain pesticides, disposal of the wood can become expensive, difficult, or both.

However, wood is strong, easily worked, and readily available. In Florida, wood is often less durable than steel. But this is not always so. ***Wooden shelving thoroughly sealed with a thermosetting resin sealer can be expected to give good service*** as pesticide facility shelving.

Pesticide storage shelving made of ***plastic usually takes third place.*** This is because many plastic shelves are not strong enough to do the job. (Some plastics rapidly lose strength from chemical attack.) During a single season, plastic shelves often warp or bow beyond usability.

Many modern composites (i.e., new plastics) are as strong (or are stronger than) steel. They are non-absorbent and strongly resist chemical attack. These materials are acceptable but expensive.

Selecting a building material for pesticide storage shelving is important. But shelf *design* is usually more important. If shelf design isn't promoting safer work, it's probably inviting storage disaster.

Evaluate shelf design based on:

- work height
- storage dimension
- clearance interval
- toe space

Shelf Work Height

Storage shelf work height should ***never be more than eye level.*** When a storage facility worker cannot fully see all of the contents of a top shelf, the likelihood of a pesticide storage accident increases. A good rule of thumb: have the ***top shelf no higher that 5 feet.***

Shelf Storage Dimension

The storage dimension of a shelf must be big enough for the entire container to fully rest on the shelf -- and have some free shelf space surrounding it.

Pesticide containers that overhang the shelf edge are more prone to accidental bumps and jostles. Such containers are more likely to fall and spill. Shelves that have ample storage dimension protect against this type of accident.

In general, a storage shelf should grant ***at least 2 inches of free shelf surface*** between a pesticide container and the shelf edge.

Shelf Clearance Interval

Clearance interval is the amount of container headroom present when pesticide containers rest on a shelf. Typically, clearance interval should be at least **4 inches** high.

This amount of clearance interval allows a storage facility worker's arm to freely pass between an upright container's top and the next shelf's bottom.

Shelf Toe Space

Toe space *is the height between the lowest shelf and the floor.*

In a pesticide storage facility, **zero toe space** (i.e., the lowest shelf rests on the floor) is a **bad idea**.

This is because, when a spill occurs within the storage facility, some of the spilled pesticide often seeps under the lowest shelf. In virtually every case, such spills are extremely difficult (laborious) to clean up.

Small spills that are difficult to reach tend to be left behind. With time (and additional small spills), cross-contamination of pesticide materials becomes lincreasingly likely. The eventual disposal of small amounts of unusable mixtures of pesticides can be surprisingly expensive.

Having a modest amount of toe space is a simple step toward overcoming these potential problems and their costs.

Toe space should be enough for facility users to:

a) ***easily inspect the floor,*** and

b) ***readily recover spilled pesticide.***

Too much toe space can be a problem. Increasing a lower shelf's height also ***increases the distance a shelved item can fall.*** This increases the possibility of container breakage resulting from a fall.

So, how high is high enough?

Slightly more than the amount of space required for spill cleanup tool use. In actual practice, the amount of toe space needed is often influenced by aisle width and tool handle length.

In general, a toe space of ***4 inches*** usually allows floor inspection and spill cleanup beneath shelving fixtures without greatly increasing the risk of a falling container breaking when it impacts the floor.

Adequate Lighting

Adequate lighting *means enough light for the pesticide storage facility user to clearly see what he or she is doing while working.*

Often, a pesticide storage facility is a comparatively small (100-200 square feet) building or room.

In such situations, the common tendency during construction is to install a single light fixture in the center of the room's ceiling. The thought being that a centrally-located light will adequately illuminate the entire facility.

Such a lighting plan only works when the pesticide storage facility has all shelves positioned along the walls. *(If a free-standing set of storage shelves is positioned in the center of the facility, only the top shelf is illuminated. The working faces of the other shelves will be in shadow.)*

The point is, in a pesticide storage facility, the ***floor plan greatly influences light fixture location.***

To make certain the storage facility's lighting will be adequate, always determine the location of light fixtures only ***after*** the facility's floor plan is decided.

Never locate a lighting fixture directly above a shelf. A light positioned directly above a shelf leaves the shelf front in shadow.

Pesticide storage facility lighting should ***illuminate the walk space and each shelf's front.*** This is best accomplished by placing light fixtures over the ***aisles.***

Illuminated shelf fronts allow a storage facility worker to clearly see the stored pesticide products and their label's front panels.

Illuminated aisles enable a storage facility worker to easily determine that his or her pathway is clear of obstruction or spilled chemical.

Incorporating these workspace features into your pesticide storage facility's interior promotes user safety and pesticide container storage security.