

# **Armed Forces Pest Management Board**

**Technical Guide No. 45**

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## **Storage and Display of Retail Pesticides**

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## **AFPMB Technical Guide No. 45 Storage and Display of Retail Pesticides**

The purpose of this Technical Guide is to provide basic information on storage and display of retail pesticides to help ensure the safety of employees and customers, protect the environment, and conserve DoD funds. This TG is not a substitute for government laws and regulations or pesticide label instructions – in the U.S. and its territories, the pesticide label is the law. Compliance with this TG ensures that retail operations are in compliance with pesticide storage and display requirements, as provided in DoD Instruction 4150.07, DoD Pest Management Program, dated: 29 May 2008.

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) governs the sale, distribution, and use of pesticides in the U.S. until they are discarded, after which they are regulated under the Resource Conservation and Recovery Act (RCRA). Some, but not all, pesticides are regulated by the Department of Transportation as DOT hazardous materials while in commerce. The Food and Drug Administration's (FDA's) Food Code 2009: Annex 3, Chapter 7 – Poisonous or Toxic Materials, and the National Fire Protection Association's Code 434 for the Storage of Pesticides and Code 30 for Flammable and Combustible Liquids, also address regulatory requirements for storage and display of pesticides.

### **Acknowledgments**

The initial draft of this TG was produced by Lt Col Terry L. Carpenter, Armed Forces Pest Management Board, and adapted with permission from "Proper Storage, Sale, and Display of Retail Pesticides: A Guide for Pesticide Retailers, Dealers, and Applicators," by Cecil Hernandez and Kevin DeLorenzo, edited by LeAnn Carter, Winter 2012, Bulletin 4, South Carolina Department of Pesticide Regulation (DPR), 511 Westinghouse Road, Pendleton, SC 29670 ([http://www.clemson.edu/public/regulatory/pesticide\\_regulation/](http://www.clemson.edu/public/regulatory/pesticide_regulation/)). Additional information and critical reviews were provided by the U.S. Army Environmental Center's Pest Management Team, as well as by Mr. Joseph H. Tarnopol, Army Senior Pest Management Consultant, and Mr. Clifford A. Myers, Defense Logistics Agency.

Access the AFPMB web site at <http://www.acq.osd.mil/eie/afpmb> for related information.

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**1. General Guidelines** -- Pesticides must always be stored in strict accordance with its own label instructions. Proper handling of pesticides is key to preventing leaks and spills and maintaining pesticide effectiveness, as well as minimizing the risk of problems and maximizing the value to your business. It is important to note that the term “pesticides” is a general term covering any substance or mixture of substances, including biological control agents, that may prevent, destroy, repel, or mitigate pests and are specifically labeled for use by the U.S. Environmental Protection Agency. Herbicides, insecticides, fungicides, and rodenticides are all examples of broad categories of pesticides, with their names based on their respective target pests.

1.1. Only general-use pesticides, appropriate for use by uncertified, untrained personnel, will be sold. Products that carry the label "Restricted Use" will not be sold.

1.2. Pesticides must be protected from extreme low and extreme high temperatures. Read the product labels to ensure that the appropriate requirements are met.

1.3. Pesticides packaged as personal or pet products, such as insect repellents, head lice treatments, pet shampoos, dusts or tick/flea collars, and moth flakes, crystals or cakes, may be handled like other household supplies of similar hazard if they are kept in the manufacturer's original consumer-safe packaging.

1.4. Determine and comply with any and all applicable local codes for pesticide handling.

1.5. Keep a current pesticide inventory, storage location record, and floor plan to use in case of spills, fire, weather-related damage, or theft. Keep copies at the storage site and filed at the office for use by local emergency responders.

1.6. Ensure that workers are especially careful when loading, unloading, and moving pallets containing pesticide products – forklifts and other moving devices can severely damage packing materials and cause leaks or spills.

1.7. Any pesticide item that is leaking or otherwise damaged must be immediately moved to an area where its contents will be fully contained.

1.8. Keep food, drinks, medications, first aid supplies, veterinary supplies, clothing, or protective equipment – especially respiratory protection – separated from pesticide products to prevent cross-contamination from dust, vapors, and spills. Should cross-contamination occur, have the affected area and items promptly decontaminated.

1.9. Follow any specific storage separation requirements on the product label.

1.10. Do not store herbicides above other types of pesticides.

1.11. Any pesticide material that has been spilled must be immediately cleaned up using appropriate decontamination methods, and the area where the pesticide has been spilled must also be decontaminated.

1.12. Follow OSHA guidelines for number and placement of fire extinguishers, in coordination with the local fire protection authority.

1.13. Keep Material Safety Data Sheets (MSDSs) in an accessible location in accordance with 29CFR §1910.1200.

1.14. To minimize off-season storage and associated hazards, purchase only quantities of pesticides required for one season of sale.

1.15. Rotate inventory to ensure that the oldest products are sold first, to move them out before their shelf-life expires, and to minimize chances of leaks from wear and tear on containers.

**2. Bulk Storage of Pesticides** -- If the retail facility possesses bulk quantities of pesticides that are not placed on shelves for retail sale, they must be stored in a dedicated storage area. In general, pesticides must be stored in a manner that promotes safety and security for staff, customers, and the environment.

2.1. Where a distribution system such as DeCA's Frequent Delivery System is used, in which the retail facility orders only what they need for quick turnover and pesticides are limited to smaller quantities of general-use products in consumer-safe packaging, separate bulk storage at the retail facility is not required.

2.2. National Fire Protection Association Code 434 for the storage of pesticides does not apply where storage is 1,000 gallons (3,790 liters) or 10,000 pounds (4,540 kilograms) or less, or where pesticide storage time in a calendar year is 14 days or less, except for hazard identification – hazardous materials must always be clearly identified.

2.3. Site all pesticide storage to prevent physical damage to the products from weather, puncturing, rupturing, or other causes.

2.3.1. Even small amounts of moisture can rust metal containers and disintegrate paper or cardboard packaging, making labels unreadable or causing them to detach. Water and moisture may cause dry formulations to become unusable hazardous waste that can be expensive to discard.

2.3.2. Pesticides released from compromised containers can contaminate the storage area and other parts of the structure or vicinity, requiring expensive cleanup.

2.4. If required by regulations, such as NFPA 434, store pesticides in an approved lockable storage unit.

2.4.1. Site all pesticide storage units in locations that are not subject to flooding by overflow, runoff or tides, and with as little runoff area as possible to prevent contamination of surface waters in case of a leak or spill.

2.4.2. Position storage units as far as practical from other structures that could threaten the storage if they should catch fire, and vice versa.

2.4.3. Position storage units at least 100 feet downslope from surface waters and wells, animal feeding sites or shelters, food or feed storage, and dwellings.

2.4.4. Position storage units with regard to the direction of prevailing winds to minimize potential for contamination downwind in case of a pesticide spill or fire.

2.4.5. If the storage unit is separate from other structures, fence it in and keep the gate locked between authorized accesses.

2.4.6. Locate pesticide storage so that it is accessible to delivery and pickup vehicles, and to emergency vehicles, but not in the way of unrelated vehicular traffic that could damage the storage structure. If it must be in an area with vehicular traffic, use barriers such as posts to prevent damage by vehicles.

2.4.7. Keep the amount of storage space to a minimum to discourage accumulating too many pesticides, but large enough to handle what you might reasonably sell, as well as excess held for turn-in, and damaged containers and cleanup material for proper disposal. Note: Review installation-specific requirements with respect to materials held for disposal.

2.4.8. Limit access to pesticide storage: allow access only to authorized persons and keep out unauthorized individuals, such as workers who do not handle pesticides, visitors, children, *etc.*

2.4.9. Post signs on the storage unit, structure, or fence to mark pesticide storage and warn people to stay out: "Danger - Pesticides / Unauthorized Persons KEEP OUT." If a second language, such as Spanish, Chinese or German, is spoken in your area, post this warning in that language also.

2.5. Post emergency telephone numbers for reporting pesticide spills or accidental release.

2.5.1. At least one telephone number should be posted for emergency response (fire, rescue, *etc.*). Poison Control Center telephone numbers are a good additional choice.

2.5.2. There should be multiple contacts for reporting pesticide-related accidents, in case the contact is a victim of exposure or too involved with other issues to promptly address pesticide concerns.

2.5.3. Clearly indicate the location of the nearest accessible telephone.

2.6. Post "No Smoking" signs and do not allow smoking in or near the pesticide storage area, unit, or facility.

2.7. Proper construction of pesticide storage units is critical to safe function.

2.7.1. The storage unit should be made of nonflammable materials.

2.7.2. The storage unit must be lockable and kept locked between accesses to stock.

2.7.3. Set the unit at least 12 inches off the ground to minimize moisture problems.

2.7.4. Use tie-downs on portable storage structures to prevent tipping, rolling, or moving off site because of water or wind.

2.7.5. The storage unit must be kept dry inside – all doors and windows to the outside should be closed.

2.7.6. If possible, install security lighting, and an alarm system if there is a sufficiently significant threat of theft or vandalism.

2.7.7. Ventilate the storage unit by passive ventilation, mechanical ventilation, or both.

2.7.7.1. For passive ventilation, locate a louvered vent or exhaust fan high at the back of the unit and a louvered vent low at the front (*e.g.*, in the lower part of the door). This allows vapors to flow away from anyone entering or moving materials inside the storage unit.

2.7.7.2. For mechanical ventilation, use an exhaust fan capable of changing the air in the unit at least once every ten (10) minutes. Explosion-proof wiring and switches are recommended.

2.7.7.2.1. Wire the fan to the light switch so that the fan is always on or increases speed whenever pesticide handlers are in the unit.

2.7.7.2.2. If possible, wire the fan to a thermostat set to turn it on when the temperature reaches between 75° and 85° F.

2.7.7.2.3. Fan switches should be weatherproof and located on the outside of the storage unit so that the storage unit can be ventilated before entry.

2.7.10. Good lighting is essential – it enables workers to read labeling, see leaks and damaged containers, clean up spills, and note inventory changes. Explosion-proof wiring and switches are recommended.

2.7.11. Floors must be non-absorbing – metal, sealed concrete, epoxy-coated metal, wood or concrete, no-wax sheet flooring, or some other easily cleaned, non-absorbent material.

2.7.12. Use non-absorbing materials for shelving, such as metal with a lip to contain spills, or leak-proof plastic trays.

2.7.13. Install a continuous internal structural lip or curb of sufficient height to prevent spills from overflowing and getting outside the building.

2.7.14. If the facility has a built-in sump pump or a drain to a sump, locate any external sump next to the building instead of under it for easy access if you need to remove spilled materials. Protect sumps from filling with water from rain or runoff.

**3. Display of Pesticides for Retail Sale --** Pesticides destined for retail sale must be displayed in a manner that protects health and safety. Marketing priorities shall be secondary considerations.

3.1. All pesticide products offered for sale must be in the registrant's approved container with the registrant's labeling permanently attached, and in good, serviceable condition. Punctured, rusted, or leaking pesticide containers and pesticide products with unreadable labels must be immediately removed from the sales area.

3.2. Ensure that workers are especially careful when loading, unloading, and moving pesticide products. A separate safety reminder for pesticide handling actions can help increase awareness and reduce accidents. Contract stocking personnel are held to the same standards that apply to federal employees.

3.3. Check display areas regularly for damaged packaging or displays.

3.4. FDA regulations require that poisonous or toxic materials be stored and displayed for retail sale in such a way that they cannot contaminate food, equipment, utensils, linens, and single-service and single-use articles. This can be accomplished by separating the poisonous or toxic materials through spacing or partitioning, and by locating the poisonous or toxic materials in an area that does not overlie the above items.

3.4.1. Pesticide products must not be displayed adjacent to – beside or above – fresh, soft, and non-prepackaged or loosely packaged food items, such as bread, pastries, vegetables, fresh meats, pasta, or candy.

3.4.2. If there is a solid nonporous barrier between aisle displays, general-use pesticides may be displayed back-to-back with items on adjacent aisles.

3.4.3. Pesticide products in their original consumer-safe packaging may be displayed adjacent to non-food personal/animal-use items (*e.g.*, toiletries, sunscreen, clothing, toys, kitty litter, *etc.*) if separated by non-continuous shelving or a solid, nonporous barrier (plastic, Plexiglas, metal, *etc.*) that prevents the horizontal flow of material. Items displayed on a pegboard or clip-strips next to a shelf also meet this criterion.

3.4.4. Pesticide products must not be displayed above food or animal feed products where an undetected leak could result in contamination of those products.

3.4.5. Place liquid formulations below dry formulations.

3.5. Group pesticides by type (insecticide, herbicide, fungicide, *etc.*) to prevent cross contamination.

3.6. Herbicides must not be displayed above other types of pesticides.

3.7. Display pesticides separately from flammables, such as starter fluid, lighter fluid, lantern fuel, and similar products.

3.8. Place all containers off the floor, preferably on existing shelves, but if pallets are used for temporary display, they should be protected from traffic by kickplates or other barrier devices around the display to prevent damage from carts and other traffic.

3.9. Secure pesticide containers to prevent rolling and sliding and reduce breaking and leaking.

3.10. Protect pesticide containers, especially glass and bags, from breakage, puncture, tears, and degradation due to climatic factors.

3.10.1. If pesticide packages must be kept outside for display, provide a roof over the storage area and use plastic covers for pallets to minimize weather and sunlight damage of the packaging materials. Note: consult the pesticide product label to determine specific storage requirements – the label is the law.

3.10.2. Keep containers out of direct sunlight – do not put pesticide containers, especially glass or aerosol containers, in windows, even temporarily.

3.11. Avoid purchasing and stocking pesticide products that come in glass or other frangible containers; failure-resistant packaging should be used to the greatest extent possible. If glass containers are purchased, place them on the lowest level to minimize damage from falls or drops.



#### 4. Overall Safety

4.1. Ensure that spilled material is cleaned up immediately, and the spill area decontaminated.

4.2. Keep spill control supplies and personnel protective equipment available in or immediately accessible to the pesticide display area for emergency spill containment.

4.2.1. Cleanup materials become hazardous waste for disposal purposes.

4.3. Follow OSHA guidelines for number and placement of fire extinguishers, in coordination with the local fire protection authority.

4.4. Each DoD retail establishment's Hazard Communication (HAZCOM) program must include a statement on how workers will be informed of hazards connected with non-routine jobs, such as dealing with accidental spills of pesticide products.

4.5. DoD retail establishments do not have commercial customers and are not required to supply MSDSs to noncommercial customers, in accordance with 29CFR §1910.1200.

4.5.1. If an MSDS is provided by the manufacturer with the product, it may be maintained with other MSDSs and the product does not have to be entered into the facility's hazardous chemical inventory.

4.6. Coordinate in advance with local firefighting responders to ensure that they are prepared to respond appropriately to a fire at your facility.

**A Note to Remember:** Command Entomologists and environmental compliance inspectors routinely conduct inspections to ensure that pesticides are being displayed, stored and sold according to federal and state regulations. If you need assistance or have questions about the safe storage, sale and display of pesticides, contact your consulting entomologist or other appropriate authority in your chain of command.