



Storage Practices: Part Four: "Plastic Pallets and Sprinkler Design"

No. FP-2009-36 September 8, 2009

Learning Objective: The student shall be able to describe the influence of plastic pallets on fire sprinkler hazard classifications.

For many years, commodities in warehouses may have been arranged on wooden or metal pallets, but as storage, marketing, and product handling methods change, the materials from which pallets are made is changing too.

In an effort to make pallets more durable and recyclable, many manufacturers are making them from plastic materials such as polypropylene or high density polyethylene (HDPE). The unintended consequence of this change is that going from wood or metal to plastic pallets may have an effect on the fire sprinkler system design. Remember, the sprinkler hazard class corresponds to the highest hazard commodity class being stored.



Photo courtesy Kevin Nee.
Plastic pallets may add a significant fuel load to a storage array.

The following table summarizes the changes affecting Class I through IV commodities:

Pallet Material	Influence on Sprinkler Hazard Class
Wood or metal	No increase
Unreinforced polypropylene or HDPE	One class increase
Reinforced polypropylene or HDPE	Two class increase*
Low density polyethylene and polymers	Subject to testing, or, two class increase

*The protection level for Class IV commodities must be increased to the same as a cartoned, unexpanded Group A plastic commodity.

There is no increase required for Group A plastic commodities on plastic pallets.

Unreinforced polypropylene or unreinforced high-density polyethylene plastic pallets must be marked with a permanent symbol to indicate that the pallet is unreinforced. If there is no permanent marking or manufacturer's certification that is not reinforced, it is assumed to be reinforced.

Inspectors should be on the lookout for changes in pallet uses that may affect sprinkler design in existing warehouse occupancies. Changes should be documented, reported to the owner, and appropriate code enforcement conducted.

For additional information, refer to NFPA 13, *Standard for the Installation of Sprinkler Systems* Chapter 5.

