

# Plastic Pallets: From Fire Hazard to Toxic Platform?

*When plastic pallets were first introduced to the market, they created a fire hazard which led insurance companies and fire regulators to require a two-class upgrade for warehouse sprinkler systems in plants using plastic pallets. Many of these pallets remain in the supply chain.*



## From Bad to Worse

Some plastic pallet manufacturers have added the chemical fire retardant deca-bromine to the petroleum-based polymer pallets. According to a lifecycle analysis by Intelligent Global Pooling Systems (iGPS) who purchases its pallets from Schoeller Arca System, its deca-bromine infused plastic pallets contain as much as **3.4 pounds** of the chemical; that volume is necessary for the company to advertise its pallets as equivalent to wood pallets which are the benchmark for pallet safety.

## Deca-Bromine

Penta-bromine has long been banned as dangerous to health and the environment; bans on octa-bromine soon followed. Deca-bromine was originally thought to be safer than penta- or octa-bromines because deca-bromine is a heavy compound and toxicity decreases as the number of bromines increase. But according to a lengthy, scholarly article published by the American Chemical Society, many researchers and environmental groups began to believe that in the environment, deca-bromine can decompose into its more toxic derivatives (octa or penta). Of even more concern, researchers believe the chemical tends to “bleed” so flame retardancy is lost and the toxins can leach.

## Banned Products

As a result of the grave concerns surrounding deca-bromine by researchers, environmental groups and fire fighters (who come into contact with the chemical in its gaseous form), lawmakers are beginning to ban the use of deca-bromine. The states of Maine and Washington have already passed legislation and ten other states have introduced bills that would ban the dangerous chemical. Various countries around the world have also banned deca-bromine in the electronic, furniture, toy and clothing industries. Officials may be unaware that deca-bromine is being used in these quantities in plastic pallets.

## Cost Appears to Drive Risky Choice

According to a University of Massachusetts examination, the cost of bromine flame retardants is less expensive than their alternatives. “Typically, non-halogen flame retardants cost in the \$3.00/lb range whereas the price of bromine is roughly \$1.10/lb. Since bromine is a more efficient flame retardant than most non-halogen systems, less is required for a bromine system to meet [the Underwriters Laboratory vertical ignition test baseline].”

## What This Means to the Supply Chain

- For decades, the wood pallet has been, and remains, the benchmark for fire safety. Plastic pallets require the infusion of substantial amounts of potentially harmful chemicals to reach the same fire safety level.
- Some in the grocery industry have begun to favor plastic pallets, but the fact that studies indicate products with the chemical can leach deca-bromine renders them potentially unsafe for food products.
- As retailers learn about the risks surrounding pallets containing deca-bromine, those that have been moving toward using plastic pallets as a display platform may reconsider that use. The fire hazard posed in non-fire retardant pallets may make them similarly unusable for that purpose.



**Wood is a natural product.** Pallets are a byproduct using wood that is strong and durable, but discarded by furniture and home builders for cosmetic purposes. More than 1.2 billion wood pallets are in service each day in the United States. When these wood pallets can no longer be repaired to a standard that ensures protection of the goods being shipped and safety of workers handling the load, the pallets are recycled into new products such as landscape mulch, animal bedding, boiler fuel, firewood and wood stove pellets. The nails from ground pallet chips are removed through a variety of collection technologies and sold as scrap metal to be used again – from cradle to grave wood pallets are the sustainable choice for those in the supply chain who are concerned about preserving our environment by using natural products like wood.