

Pallets. We can't get away from using them – but the debate continues regarding plastic or wood, and often even the auditors don't agree. So, what is the low down on pallets?

PALLETS – WOOD OR PLASTIC, TAKE YOUR PICK

By Linda Jackson (Food Focus)

What do the food safety standards actually say?

BRC Food version 7

Wood should not be used in open product areas (except where this is a process requirement i.e. maturation of cheese) Where the use of wood cannot be avoided, the condition of wood shall continually be monitored to ensure it is in good condition and free from damage or splinters which could contaminate product.

IFS Food

In all areas, e.g. handling of raw materials, processing, packing and storage, where hazard analysis and assessment of associated risks have identified the potential for product contamination, the use of wood shall be excluded. Where the use of wood cannot be avoided, the risk shall be controlled and the wood shall be in good order and clean.

SQF

Wooden pallets and other wooden utensils used in feed handling/contact zones shall be dedicated for that purpose, clean, maintained in good order. Their condition is subject to regular inspection.

ISO 22002-1

Based on hazard assessment, measures shall be put in place to prevent, control or detect potential contamination.

NOTE 2: Sources of potential contamination include wooden pallets and tools, rubber seals, and personal protective clothing and equipment.

Codex Basic Hygiene texts

"Utensils, pallets, carts, forklifts and mobile racks should be dedicated for use in either the raw area or the finished product area to minimize cross-contamination. Where this is not practical, they

should be cleaned and disinfected before entry into the finished product area.

FSA standard

No permeable materials in higher risk areas. No damaged pallets. No pallets without slip-sheets, No wooden pallets in production areas. No cardboard in wet areas.

So, it seems there is some agreement, it is about the potential risk and managing this.

So, what are the risks?

Well it seems it depends who you ask; a wood pallet supplier or a plastic pallet supplier. But the risks can include:

Chemical hazards

In June of 1999, Coca-Cola withdrew millions of cans and bottles of Coke from the European market as a result of suspected product contamination with a fungicide used to treat pallets. When the consumer healthcare giant Johnson & Johnson, had to recall some lots of its Tylenol Arthritis Pain Caplets in November and December of 2010, it also pointed the finger at an unlikely culprit: its wooden shipping pallets. The recall came after consumers complained of a musty, mouldy odour that was causing nausea, vomiting, stomach pain, and diarrhoea.

Biological hazards

A number of studies conducted highlighted the possibility for the pathogen transfer from wooden pallets. An article in Reliableplant.com cites a study where 43 percent of wood pallets tested at an independent scientific laboratory came back positive for E. coli, Listeria and/or Salmonella. One wood pallet tested positive for all three food-poisoning bacteria. (The article

and tests in this case conducted by a plastic pallet supplier). A further study of the testing of 70 wood pallets and 70 plastic pallets that have been loaded with perishable products and shipped to an end user was shipped overnight to an independent microbiology lab for testing. The results came back with 10 percent of the wood pallets positive for E. coli and 1.4 percent positive on the plastic pallets. (CBS News, "Hidden Danger of Pallets" (May 2010)

Physical hazards

The condition of the pallets can contribute to physical contamination of your product. Rusty nails can penetrate outer packaging. Splinters can land up in your product. Using wooden pallets in a freezer increases the splinter rate tremendously.

Environmental hazards

Due to the International Plant Protection Convention (abbreviated IPPC), most pallets shipped across national borders must be made of materials that are incapable of being a carrier of invasive species of insects and plant diseases. The standards for these pallets are specified in International Standards for Phytosanitary Measures No. 15 (ISPM 15). Pallets made of raw, untreated wood are not compliant with ISPM 15. To be compliant the pallets (or other wood packaging material) must meet debarked standards and must be treated by either of the following means under the supervision of an approved agency:

- Heat treatment The wood must be heated to achieve a minimum core temperature of 56 °C (132.8 °F) for at least 30 minutes. Pallets treated via this method bear the initials HT near the IPPC logo.



- **Chemical fumigation** The wood must be fumigated with methyl bromide. Pallets treated via this method bear the initials MB near the IPPC logo. From 19 March 2010, the use of Methyl Bromide as an acceptable treatment according to ISPM15 has now been banned within all EU member states. This is due to causing potential harm to the Earth's stratospheric ozone layer.

Pallets made of non-wood materials such as steel, aluminum, plastic, or engineered wood products, such as plywood, oriented strand board, or corrugated fiberboard do not need IPPC approval, and are considered to be exempt from ISPM 15 regulations. (http://www.ispm15.com/Methyl_bromide_Decision_2008_753_EC.pdf)

So, are plastic pallets the answer?

According to an article in *foodsafetymagazine.com* by a plastic pallet supplier, there are a number of advantages.

- They typically are lighter than their wood counterparts, making them easier to handle and also adding less weight to shipments, thereby saving fuel costs.
- They also are 100% recyclable and can be ground and used to make new pallets.
- They are immune to insect contamination; therefore, pests cannot penetrate the plastic and infest fresh fruits and vegetables, meat, poultry and fish
- They do not absorb pathogens or harmful bacteria such as Salmonella, coli and Listeria
- They do not require fumigation or heat treatment, which also make wood pallets more susceptible to the presence of mould and other toxins

- They can be easily sanitized by washing before re-use
- They do not have loose or protruding rusty nails or splinters, which can puncture and contaminate packaged foods. Wood pallets typically have 150 nails in each pallet.
- They can have embedded radio frequency identification (RFID) tags, which enable organizations to immediately identify contaminated shipments, limit the spread of foodborne illness and facilitate product safety recalls

But is this the full picture?

Is this the full picture? More recent scientific findings, however, suggest the opposite interpretation. Bacteria are able to grow on plastic surfaces and subsequently be transferred to other surfaces. The evidence shows that bacteria are less likely to grow on wood surfaces and that they are less easily transferred from wood. The apparent conclusion is that if a hazard exists, the hazard is from plastic pallets. (And this research is from a wood pallet supplier.)

So, the bottom line is, it is not the pallet type itself that poses a hazard but rather the way the pallet is handled that is the cause for concern. In a comprehensive study done in the Nordic fishing industry, the researchers concluded the following practices are necessary for wooden pallets.

- Use clean, dry pallets for the food industry.
- Wooden pallets should not be stored unprotected outdoors in order to avoid biological, physical and chemical contamination.
- Keep pallets separated – special pallets for hygienic zones

- Use pallet inverters. To avoid contamination a possible, cheap and easy solution is to use wooden pallets with a slip-sheet on top. When depalletizing one pallet the receiving pallet also has a slip-sheet on top. The pallets can be kept in separate zones and the slip-sheets can be made of different materials, expendable or reusable.

The following are excellent practical articles on how to manage your pallet programme. <http://www.foodengineeringmag.com/articles/88847-food-safety-ode-to-the-pallet>

http://www.aibonline.org/aibonline_/www.aibonline.org/newsletter/magazine/sep_oct2011/8pallet.pdf

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