

recycling

wood pallets and packaging

Corporate responsibility doesn't just mean protecting your company's valuable goods, but protecting the environment as well.



Benefits of wood packaging

Wood pallets and crates are tough, practical and economical. Wood is also a renewable resource; it stores the carbon absorbed from the atmosphere and uses small amounts of energy in the manufacturing process compared to plastic and metal.¹ This is especially important in this age of corporate responsibility and where moving goods from A to B does not just mean protecting your company's valuable goods, but protecting the environment as well.

Wood packaging, when sterilised (with heat) or fumigated (with methyl bromide gas) according to the international standard ISPM-15, can be used for transporting goods all over the world.²

Reuse and recycling

Wooden pallets and packaging can be repaired and reused, or at the end of their packaging life, recycled into a large range of useful products or used as bioenergy, displacing the use of greenhouse intensive fossil fuels. Already, one third of all end-of-life wood packaging is recovered for reuse, recycling or use as bioenergy in Australia.³

The good news is that there are an increasing number of options for end-of-life wood packaging; so even more companies can recycle their wood packaging.

This brochure is designed to encourage further reuse, recycling and use of the bioenergy of wood pallets and packaging by:

- > clarifying information about methods used to minimise the spread of pests and diseases; and
- > assisting generators of end-of-life wood pallets and packaging to find a place that can productively use their wood waste.

Carbon benefits

Reuse and recycling wood packaging can result in reductions in greenhouse gas emissions. For example 670 kg of carbon dioxide (equivalent) is saved for each tonne of wood packaging diverted from landfill. The greenhouse gas reduction benefits of a range of reuse and recycling options in New South Wales can be estimated with the online *Carbon Benefits of Not Landfilling Wood Pallets & Packaging* calculator.⁴

¹ CRC for Greenhouse Accounting & Forest and Wood Products Australia (2006) Forests, Wood and Australia's Carbon Balance. Available at www.fwpa.com.au

² European Federation of Wooden Pallet and Packaging Manufacturers (2008). Available at www.fefpeb.org

³ A3P and TDANSW (2007) Current Utilisation of Waste Timber and Recommendations for Future Use. Available at www.timberstewardship.org.au

⁴ Available at www.timberstewardship.org.au/calculator

What are wood pallets and packaging recycled into?

Wood pallets and other packaging such as crates, boxes and cable reels can be repaired and reused. They can also be recycled into a whole range of different products or used as renewable bioenergy.

Repair and reuse

Many pallets and crates can be reused 'as is' or salvaged for repair. While there are existing large scale repair companies such as Chep, Loscam and EPAL euro pallets – many smaller companies also repair and reuse standard size pallets.

Particleboard

Two of Australia's particleboard manufacturers now use recycled wood packaging in the manufacture of new particleboard.

Animal bedding

Wood recovered from end-of-life pallets and packaging makes a good alternative for animal bedding as it combines preferred insulation and absorption properties with lower cost. It is used for poultry, pigs, cattle, racehorses as well as pets.

Mulch and compost

Mulch and composts made from recycled pallets and packaging helps suppress weeds, retain soil moisture and, as it degrades, adds precious carbon to Australia's carbon deficient soils. The mulch and compost is used in parks, gardens and beside roads as well as in broadacre land rehabilitation applications.

Biofilter

Pallet and packaging wood can be used to make products that filter urban stormwater or odours and gases from industrial and intensive agricultural sources. Urban stormwater biofilters filter out particles, oil, heavy metals and pesticides, as well as nitrogen and phosphorous.

Renewable bioenergy

Bioenergy is a form of heat or electricity produced by combustion of biomass fuels which include timber waste. Energy produced from combustion of renewable wood is considered by the Australian Department of Climate Change and Energy Efficiency to emit over 50 times less greenhouse emissions than combustion of black coal and over 30 times less than natural gas when used in industrial facilities.⁵



*Photos courtesy of:
Eastern Metropolitan
Regional Council,
Australian Chicken Meat
Federation Inc., TDA,
NSW Environmental
Protection Authority,
The Australian Firewood
Association.*

⁵ Department of Climate Change and Energy Efficiency (2012) *National Greenhouse and Energy Reporting (Measurement) Technical Guidelines Reporting Year 2012-2103*. Available from www.climatechange.gov.au Comparison based on kg of carbon dioxides equivalents emitted per gigajoule of energy.

What about chemicals used to reduce the spread of pests and diseases?



The Australian Quarantine and Inspection Service (AQIS) require that all wood packaging and dunnage imported into Australia made from solid timber or a combination of solid timber and reconstituted wood or plywood must be sterilised, fumigated or preservative immunised to prevent the spread of pests and diseases.

Wood packaging manufactured in Australia and used to transport goods within Australia, with the exception of some wood packaging manufactured in Western Australia, is not required to be sterilised, fumigated or immunised. More information can be found in the AUSTRALIAN wood pallets and packaging section.

Sterilisation, fumigants and preservatives used for immunisation are not a problem in the reuse, recycling or use for bioenergy for the vast majority of imported and Australian manufactured packaging.⁶

IMPORTED wood pallets and packaging

The following methods to reduce the introduction of pests and diseases into Australia from imported wood packaging are acceptable to AQIS:

- Sterilisation with heat; or
- Fumigation with gas; or
- Immunisation with preservatives.

Sterilisation with heat: Heat sterilisation involves heating the wood packaging to a high temperature for a period of time. No chemicals are involved in this process.

Fumigation with gas: Fumigation with gas involves enclosing goods and wood packaging, pumping in the gas and leaving it enclosed for a period of time to allow full penetration. Gas is used as it penetrates into the wood and then dissipates, leaving no chemicals in the wood packaging. Methyl Bromide and Sulphuryl Fluoride are both acceptable fumigants.

Immunisation with preservatives: Immunisation of wood pallets and packaging with preservatives is rare as it is more expensive than sterilisation and fumigation. Research by the timber industry^{7,8} indicates the incidence of immunisation with metal-based permanent preservatives⁹ is less than 1% in the wood packaging waste stream in Australia.

⁶ Department of Agriculture Fisheries and Forestry (2012) *Timber packaging and dunnage import requirements*. Available at www.daff.gov.au/aqis/import/timber/timber_packaging_and_dunnage_import_requirements

⁷ Hyder Consulting (2007) *Mapping the Waste Stream for Timber Packaging and Pallet Waste in Australia*. Available at www.timberstewardship.org.au

⁸ Timber Development Association of NSW (2008) *Characteristics of Post-consumer Wood Packaging*. Available at www.timberstewardship.org.au

⁹ Such as Copper Azole or Copper Chrome Arsenate (CCA).

How do I know what my imported packaging was sterilised, fumigated or immunised with?

Sterilisation with heat and fumigation with methyl bromide gas are **by far** the most popular methods as they are the cheapest, easiest and quickest. These two methods are also the only methods accepted under the international standard ISPM-15 and may carry the ISPM-15 mark (see below) which also allows the wood pallets to be reused for exports.

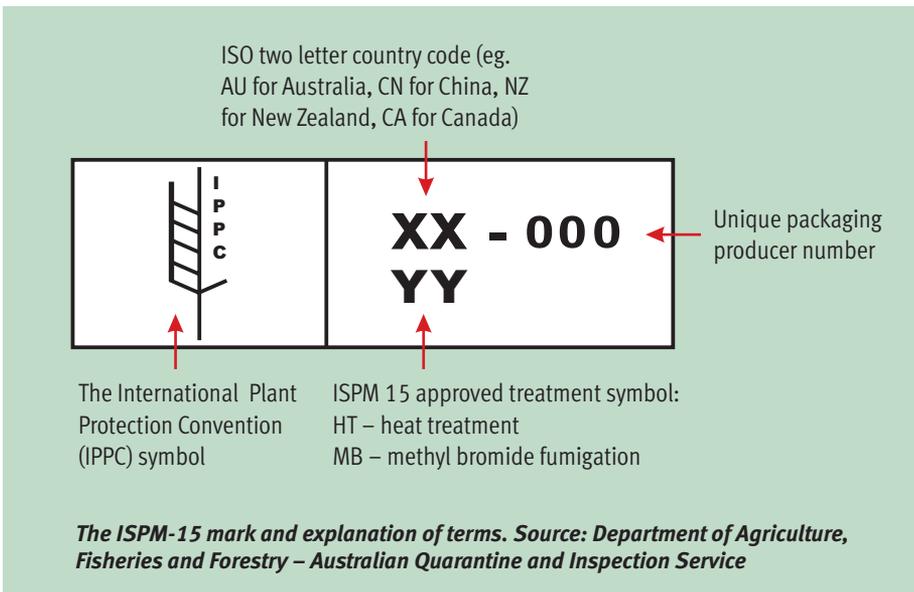
The ISPM-15 mark is now very commonly seen on wood packaging and the various terms and symbols are explained in the diagram below. Additional information may be included in the mark such as DB for debarked, KD for kiln-dried, DUN for dunnage. The packaging manufacturer's name may also be included.



Fumigation of wood packaging with Methyl Bromide (MB) gas at port entry into Australia



Sterilisation of wood packaging by heat (HT) at packaging producer.





Not all imported wood pallets and packaging carries the ISPM-15 mark. If it does not have the mark, the packaging must be accompanied by a certificate in a form approved by AQIS detailing the sterilisation, fumigation or immunisation used. As outlined above, the vast majority of imported timber packaging is heat sterilised or fumigated with methyl bromide.



What about imported particleboard, MDF or plywood pallets and crates?

Wood packaging that is free from solid timber components and made solely of reconstituted wood, (e.g. particleboard, MDF, hardboard, oriented strand board) and plywood and veneer (or a combination of these) has been sufficiently processed to present minimal biosecurity concern so does not require further sterilisation, fumigation or immunisation of any kind.

If biosecurity risk material is found on inspection by AQIS the wood packaging may, if allowed into the country, be fumigated with Methyl Bromide on arrival.



AUSTRALIAN wood pallets and packaging

For wood pallets and crates manufactured and used in Australia no sterilisation or fumigation of any kind is required.¹⁰

Immunisation with preservatives is not required *except* in some areas of Western Australia where there are currently requirements to prevent the spread of the European House Borer (see discussion and identification on page opposite).

European House Borer

The European House Borer (EHB) has been found in a small number of areas in Western Australia and Australian governments and industry are working together to eradicate this pest. As a result there are restrictions on the movement of wood packaging within and out of Western Australia and requirements to immunise some wood packaging with insecticide to contain and eliminate EHB.

Photos courtesy of TDA.

¹⁰ Australian wood packaging made to export goods must meet the importing country's conditions of entry. ISPM-15 methods (sterilisation with heat or fumigation with methyl bromide) and marking are widely accepted.

Some wood packaging manufacturers in Western Australia are now immunising wood pallets and crates with the same organic insecticides that are used to protect plantation pine house trusses and framing against termite attack. These insecticides, from a group called synthetic pyrethroids, are also used in common household applications such as insect sprays and head lice treatments. The synthetic pyrethroid insecticides used, at exceptionally low rates, to protect plantation pine framing have been chosen for their proven effectiveness and for their inherent safety to humans, animals, and the environment.¹¹

To distinguish this EHB packaging from other packaging, pallets and crates are currently either marked with EHBT or H2-F stamp and/or dyed a mauve colour (see pictures to the right).

Are EHB immunisation insecticides a problem in recycling?

Normal domestic and trade users can dispose of this wood packaging through normal waste collection and disposal services or through industrial incineration. Wood to which these insecticides have been applied should not be used for domestic heating, cooking fuel or burned in any confined spaces. They are not recommended for mulching or animal bedding.¹² However, some wood recyclers can accept small quantities for some applications, such as recycling into particleboard or for bioenergy in industrial facilities. Speak to the wood recycler about whether EHBT or H2-F timbers are acceptable in their recycled products.

Please minimise use of copper-based preservatives

Packaging made with copper-based preservatives (such as Copper Chrome Arsenate – CCA) can be a problem in recycling and bioenergy. It can be readily identified by a light green tinge which the copper gives to the wood.

Unless a permanent preservative treatment is critical to your needs, please specify to your importer or your Australian pallet manufacturer that no permanent preservatives such as CCA are used in your packaging.



Photos courtesy of TDA.

¹¹ A3P (2010) Q&A – *termite protected plantation pine framing (H2-F Blue Pine)*. Available at http://www.bluepine.com.au/documents/FINALQAaboutTermiteProtectedBlueFraming_H2-F_.pdf

¹² AS 5605-2007 *Guide to the safe use of preservative-treated timber*



Find a wood recycler

Many companies, including waste disposal companies and landfills now reuse and recycle wood pallets and packaging as well as other waste wood products.

You can find many recyclers in the Reuse and Recycling Directory on the National Timber Products Stewardship Group website at: www.timberstewardship.org.au and Planet Ark's Business Recycling website at: www.businessrecycling.com.au

More information

Australian Timber Product Stewardship Group

(02) 8424 3700 www.timberstewardship.org.au

Carbon Benefits of Not Landfilling Wood Pallets & Packaging in New South Wales

Online calculator www.timberstewardship.org.au/calculator/

Department of Agriculture, Fisheries and Forestry

Australian Quarantine and Inspection Service, Timber and Timber Products National Co-ordination Centre

(03) 8318-6929 www.daff.gov.au/aqis/import/timber

European House Borer Hotline

1800 084 881 www.ehb.wa.gov.au

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