

# Spotted gum- properties and uses

Prepared for Burnett Sawmill Pty. Ltd

by

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November 2004



## Introduction

Spotted gum is a premium Australian hardwood timber, suitable for a wide range of end uses, across both structural and appearance applications. Sawn, seasoned timber is readily available and this species is the highest volume commercial hardwood in the state of Queensland.

## Nomenclature and distribution

The following tree species comprise the group of timbers allocated the standard trade name ‘spotted gum’:

- *Corymbia henryi* (Grafton, New South Wales (NSW) to Brisbane, Queensland);
- *Corymbia maculata* (Taree to Eden, NSW and Mottle Range, Victoria);
- *Corymbia citriodora* subsp. *citriodora* (Maryborough-Springsure to Atherton, Queensland);
- *Corymbia citriodora* subsp. *variegata* (Coffs Harbour, NSW to Maryborough-Springsure, Queensland).

The two subspecies of *Corymbia citriodora* are also known as ‘lemon-scented gum’. In some areas of occurrence, the name ‘spotted iron gum’ is used. *Corymbia henryi* is also known as ‘large-leaved spotted gum’. Apart from some variation in colour, the properties and applications are the same for all four species.

## Tree description

Spotted gum grows to 45 metres in height and 1.3 metres in diameter and has good form (straightness), even on poor sites. A smooth-barked (‘gum’) species, the tree’s habit of shedding bark in patches gives rise to its trade name.

## Wood appearance

A range of colours is available from spotted gum timbers, depending on the location of the source forest. The heartwood ranges from a light-brown through definite browns to deep red-brown hues. Sapwood is white to light-brown in colour and can be up to 50 mm wide.

Spotted gum is a moderately coarse and uneven textured wood. Some material includes the additional features of wavy grain, giving rise to attractive fiddleback figure, and gum (kino) veins. The wood has a slightly greasy feel, a characteristic which aids machining and boring.

## Wood properties

Mechanical and physical properties determined for spotted gum timber are presented in the table below:

<b>Air dry density</b>	1010 kg/m <sup>3</sup>
<b>Basic density</b>	740 kg/m <sup>3</sup>
<b>Shrinkage (green to air-dry)</b>	6.1% tangential; 4.3% radial
<b>Unit shrinkage</b>	0.38% tangential; 0.32% radial
<b>Modulus of rupture (MOR)</b>	99 MPa (green); 150 MPa (dry)
<b>Modulus of elasticity (MOE)</b>	18 GPa (green); 23 GPa (dry)
<b>Maximum crushing strength</b>	50 MPa (green); 75 MPa (dry)
<b>Impact (Izod value)</b>	20 J (green); 24 J (dry)
<b>Hardness (Janka value)</b>	8 kN (green); 11 kN (dry)
<b>Strength groups</b>	S2 (green); SD2 (dry)
<b>Stress grades</b>	F11, F14, F17, F22 (green); F17, F22, F27, F34 (dry)
<b>Joint group</b>	1
<b>In-ground durability</b>	2 (durable)
<b>Above-ground durability</b>	1 (very durable)
<b>Fixing</b>	Green timber is corrosive to aluminium fittings
<b>Finishing</b>	Accepts paints, stains, polish and paint

## Fire ratings

Spotted gum components 18 mm thick or greater do not require fire retardant treatment for use in construction in bush-fire prone areas. Spotted gum is one of only seven species tested to date which satisfy the criteria described in the relevant Australian Standards. Fire rating data for spotted gum are presented below:

<b>Ignitability index (0-20)</b>	13
<b>Spread of flame (0-10)</b>	3
<b>Heat-evolved index (0-10)</b>	4
<b>Smoke-developed index (0-10)</b>	3

## Applications

Spotted gum has a long history of usage in engineering applications such as wharf and bridge construction, railway sleepers, cross-arms, and mining timbers. Spotted gum is suitable for all building members from posts and poles, framing, flooring, lining, decking and cladding. As well as sawn and round applications, spotted gum is suitable for the manufacture of veneer and plywood.

It is used in boatbuilding (planking, bulkhead sheathing, steam-bent members, bulkhead frames, engine beds, keels, stern posts, decking, framing, masts and spars) and is the primary Australian timber used for tool and implement handles subject to high impact forces (axes, hammers, chisels, mattocks, shovels and picks). It is also used for polo sticks and diving boards.

Compared to other Australian hardwoods, spotted gum is a minimal staining timber, being less prone to bleed-through of tannins than other species. Spotted gum is a suitable carving and woodturning timber.

Spotted gum is suitable for both indoor and outdoor furniture manufacture. Outdoor furniture in spotted gum has consistently won industry awards in Australia and it is exported to a range of destinations around the world.

In the food industries, spotted gum is used for butcher's skewers and dry sawdust is a favoured smoking and curing medium.

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