

# Drying of Chilean Hardwoods

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**ABSTRACT**

Wood drying quality and drying properties of some Chilean hardwoods *Nothofagus alpina* (raül), *Nothofagus obliqua* (roble), *Nothofagus dombeyi* (coigüe), *Nothofagus pumilio* (huilín) and *Laurelia phillyifolia* (vina) were revised. Air drying, pre-drying, conventional, vacuum and high temperature drying methods were evaluated. Pre-drying combined with artificial drying-methods optimizes quality and time compromise, during drying of Chilean hardwoods.

Keywords: Wood drying, *Nothofagus dombeyi*, *Nothofagus alpina*, *Nothofagus obliqua*, *Nothofagus pumilio*, *Laurelia phillyifolia*

**INTRODUCTION**

In Chile, the potential availability of productive native forest is more than 1.2 Mm<sup>3</sup> (Castaño 2007). Sawm timber production is about 8.2 Mm<sup>3</sup>, of which approximately 2.1% using native species (INN 2008). The low utilization in solid wood products of this native woods is make them difficult, due their higher level of drying degrade, as result of their low permeability and tendency to defects such as internal checks and collapse (Ananias et al. 1994, 1999, 2009). In this paper are presented some progress on drying Chilean hardwoods.

**METHODOLOGY**

Drying properties as shrinkage and collapse were measured using Chilean standards (INN 1984, 1986). All drying experiments were realized during summer season in Concepción, Chile. Pre-drying, conventional, high-temperature, and vacuum drying were performed in a laboratory-kiln.

**RESULTS**

The air drying curves of *Nothofagus alpina* and *N. obliqua* of 50-mm thickness are shown in Figure 1. Figure 2 shows the conventional-temperature drying curves for *Nothofagus dombeyi* of 50-mm thickness. In Figure 3 the shrinkage and collapse of *Nothofagus dombeyi* are presented.

The vacuum drying curves of *Nothofagus pumilio* 50-mm thickness are shown in Figure 4. The shrinkage and collapse of this specie are described in Figure 5.

Figure 6 shows the high-temperature drying curves of *Laurelia phillyifolia* 30-mm thickness.

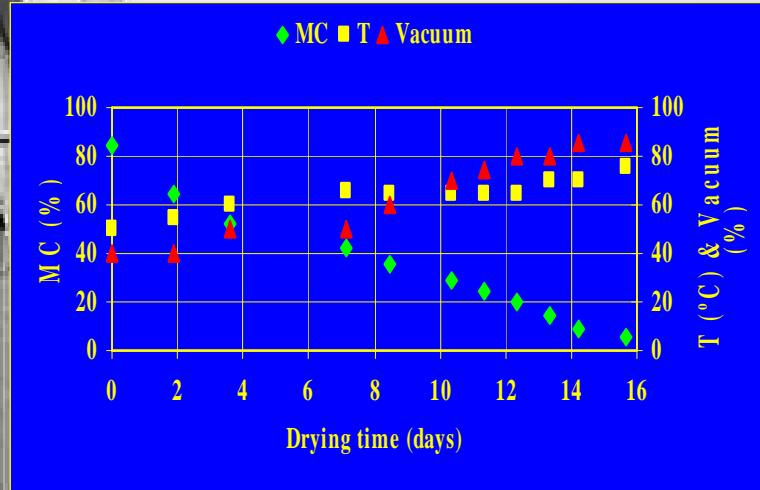


Fig. 4: Vacuum drying curves of *Nothofagus pumilio* 50-mm thickness

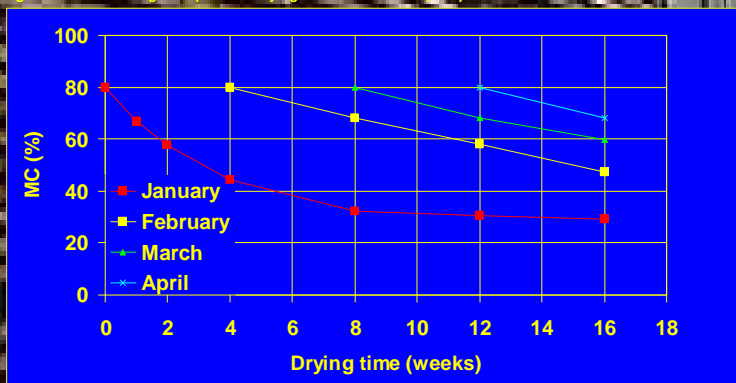


Fig. 1: Air drying curves of *Nothofagus alpina* and *N. obliqua* 50-mm thickness

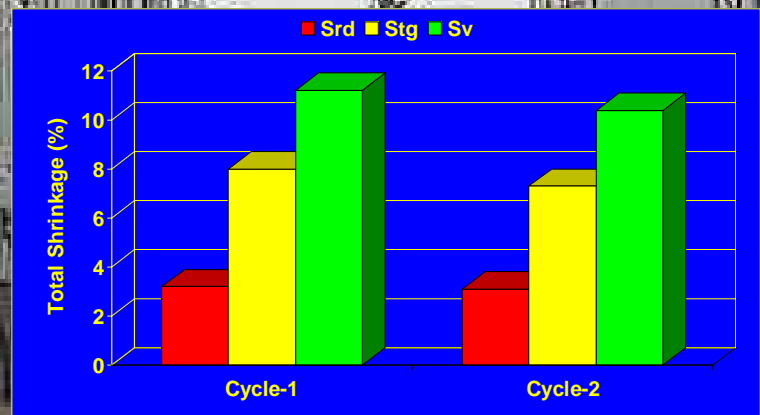


Fig. 5: Total shrinkage during VD of *Nothofagus pumilio* 50-mm thickness

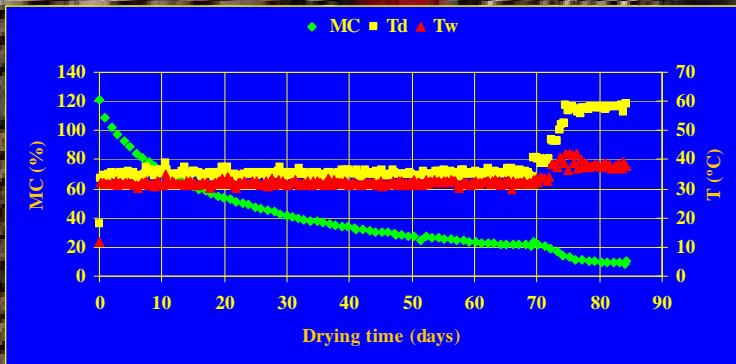


Fig. 2: Conventional drying curves of *Nothofagus dombeyi* 50-mm thickness

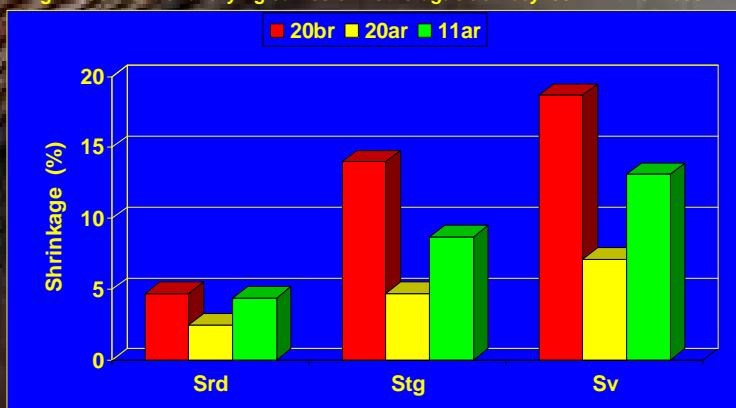


Fig. 3: Total shrinkage during CD of *Nothofagus dombeyi* 50-mm

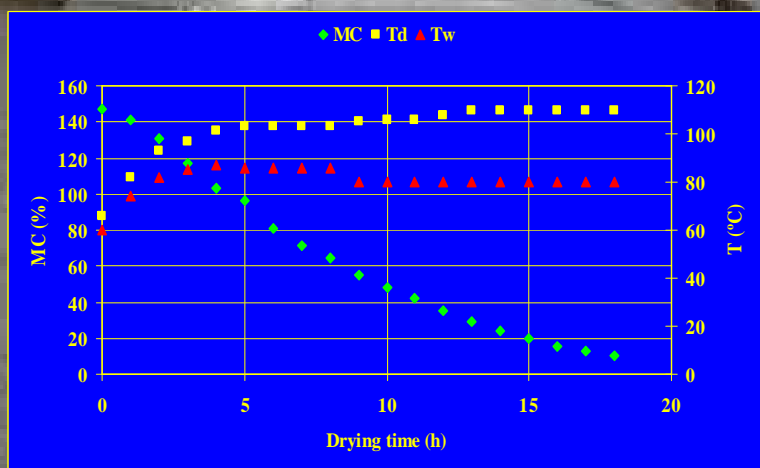


Fig. 6: High temperature drying curves of *Laurelia phillyifolia* 30-mm thickness

**CONCLUSIONS**

Air-drying or pre-drying are critical to the successful artificial dried Chilean hardwoods, prone to checks and collapse. The pre-drying combined with vacuum drying optimizes the compromise between quality and drying time of Chilean hardwoods. High temperature drying can be applied successfully in some Chilean hardwoods of higher permeability.

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