Title: Comparison of Py-GC/FID and Wet Chemistry Analysis for Lignin Determination in Wood and Pulps from Eucalyptus globulus

Author(s): Lourenço, Ana [1]; Gominho, Jorge [1]; **Marques, António Velez** [2]; Pereira, Helena

Source: Bioresources **Volume:** 8 **Issue:** 2 **Pages:** 2967-2980 **Published:** 2013

Document Type: Article

Language: English

Abstract: The kraft pulps produced from heartwood and sapwood of Eucalyptus globulus at 130 degrees C, 150 degrees C, and 170 degrees C were characterized by wet chemistry (total lignin as sum of Klason and soluble lignin fractions) and pyrolysis (total lignin denoted as py-lignin). The total lignin content obtained with both methods was similar. In the course of delignification, the py-lignin values were higher (by 2 to 5%) compared to Klason values, which is in line with the importance of soluble lignin for total lignin determination. Pyrolysis analysis presents advantages over wet chemical procedures, and it can be applied to wood and pulps to determine lignin contents at different stages of the delignification process. The py-lignin values were used for kinetic modelling of delignification, with very high predictive value and results similar to those of modelling using wet chemical determinations.

Author Keywords: Klason lignin; Soluble lignin; Wet chemistry; Pyrolysis; Eucalyptus globulus

KeywordPlus: Thermal-Degradation Products; chemical-Composition; Analytical Pyrolysis; Residual Lignins; Klason Lignin; Kraft Pulps; Hardwood; Collection; Kinetics; Growth

Reprint Address: Lourenco, A (reprint author) - Univ Tecn Lisboa, Inst Super Agron, Ctr Estudos Florestais, P-1349017 Lisbon, Portugal

Funding:

Funding Agency	Grant Number
Portuguese Science Foundation (FCT)	SFRH/BD/40060/2007
R&D project under the FEDER/POCI	PTDC/AGR-CFL/110419/2009
	PEst-OE/AGR/UI0239/2011

Publisher: North Carolina State Univ Dept Wood & Paper SCI
Address Publisher: Campus Box 8005, Raleigh, NC 27695-8005 USA

ISSN: 1930-2126

Citation: LOURENÇO, Ana; GOMINHO, Jorge; MARQUES, António Velez; PEREIRA, Helena - Comparison of Py-GC/FID and Wet Chemistry Analysis for Lignin Determination in Wood and Pulps from Eucalyptus globules. Bioresources. ISSN 1930-2126. Vol. 8, nr 6 (2013), p. 2967-2980.