

OPTIMIZATION OF BLEACHING PROCESS

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ABSTRACT

In Kraft Process, after the Cooking, Washing and Delignification, there is the Bleaching Process which is an important method to reach a whiter and brighter pulp. It is a process based on chemical reactions mainly with Chlorine Dioxide, Hydrogen Peroxide and Oxygen to assist in the removal of lignin according to the Kappa Number (that indicates the lignin residual in pulp) and other components related to the Wood species.

At Celbi, the Bleaching Process has four alternating stages (two acid and two alkaline) and a washing system with presses between each one. On each stage there is a specific chemical process with related conditions such as pH and temperature: D0 with Chlorine Dioxide, PO with Hydrogen Peroxide and Oxygen, D with Chlorine Dioxide and P with Hydrogen Peroxide. The objective is to gradually increase the brightness of the pulp among the stages before sending it to the Drying Machine with 90% ISO Brightness.

Advanced controls considering area production, process reaction time and chemicals concentration have been implemented at each stage to improve bleaching, chemical reaction efficiency and to optimize chemical consumption. The focus is on Bleaching and pH Control for each step totaling eight developed Advanced Process Controls.

Interesting results can be expressed with a more stable brightness at the end of each stage and with an overall reduction in chemical consumption ensuring 90% ISO Brightness at the end of the Bleaching Process.

Keywords: OPP, Andritz, Celbi, Bleaching, Process Optimization, Chemical Consumption.