Title (en)

Process and apparatus for controlling and optimizing the process of chemical recovery during cellulose production

Title (de)

Verfahren und Vorrichtung zur Prozessführung und zur Prozessoptimierung der Chemikalienrückgewinnung bei der Herstellung von Zellstoff

Title (fr)

Procédé et appareil pour le contrôle et l'optimisation du procédé de la récupération des substances chimiques pendant la production de cellulose

Publication

EP 0947625 B1 20140813 (DE)

Application

EP 99105545 A 19990318

Priority

DE 19814385 A 19980331

Abstract (en)

[origin: EP0947625A1] A digestion chemicals recovery process for a sulfite or sulphate pulp mill a) measures at least one continuous electromagnetic radiation spectrum (100nm - 400micron), for the process, b) evaluates indices PC1...PCn for the principle components of the liquor, and c) sets up a control model using the calculated values PC1...PCn , plus laboratory / plant measurements. A digestion chemicals recovery process for a sulfite or sulphate pulp mill uses a process control logic system or a control model. The continuous electromagnetic radiation spectrum is measured by either absorption, emission, or Raman spectroscopy. The laboratory / plant measurements comprise: Liquor temperature, concentration, pH, conductivity and flow rate. Preferably data from a number of spectrometers sampling at different stages of the wet process is analyzed e.g. via Fourier and Kubelka Munk techniques. The control system is able to assess the validity of individual measurements before inputting them to the control model; it may use neural networks or fuzzy logic. In the Sulphate Process, the recovery system uses concentration data for active alkali, total sulfide, sulphate, sodium sulfide, sodium carbonate and sodium hydroxide. The Sulfite Process, recovery requires concentration data for sulfur dioxide, bisulfite, sulfite, thiosulfate, sulfate, dead-burnt magnesia and active magnesium oxide. A CLAIM for the equipment required to operate the process includes: At least one spectrometer, a computer for evaluation of PC1...PCn from the continuous spectra and for inserting reference variables PC1...PCn , and optionally the discrete physical and / or chemical properties as process parameters into the process control logic or the control model.

IPC 8 full level

D21C 7/12 (2006.01); **D21C 11/00** (2006.01)

CPC (source: EP)

D21C 7/12 (2013.01); **D21C 11/00** (2013.01)

Cited by

CN116859830A; US6774992B1; WO0159437A1; WO2009139714A1; US8584540B2; WO2024094925A1; WO2010128354A1; WO2024094923A1; WO2020234511A1

Designated contracting state (EPC)

DE FI SE

DOCDB simple family (publication)

EP 0947625 A1 19991006; **EP 0947625 B1 20140813**; DE 19814385 C1 19991007

DOCDB simple family (application)

EP 99105545 A 19990318; DE 19814385 A 19980331