



Patent: Procedure for kraft cooking of lignocellulosic material with low sulphidity alkaline bleaches in the manufacture of paste with direct addition of dihydroxyanthracene disodium salt to the digester.

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Description

The present invention relates to a **novel paper manufacturing process using forestal or agricultural lignocellulosic materials or those obtained from wastes or by-products of agricultural or forestal processes, resulting in less contamination.** Specifically, it involves a process of extended delignification of such materials in which, parallel to digestion, in an auxiliary reactor, anthraquinone is reduced in order to obtain a special salt, as an additive, by means of bleaches and a reducing agent, so as to reduce the contamination caused by the process.

Need or problem solved

- One disadvantage of the process by which cellulose is produced (*kraft cooking*) is that it must be discontinued if there is a high lignin content in order to avoid parallel degradation of the carbohydrates and consequent losses in yield and paste quality. Later on, the remaining lignin is eliminated in a further bleaching stage using costly and contaminating chemicals. This **contamination burden is reduced by decreasing the lignin content in the paste by means of this patent proposing a lengthy delignification treatment (extended delignification) during the cooking process, under conditions guaranteeing the quality of the paste.**
- It is a procedure for **extended delignification** in which **the additive is obtained as part of the cooking process** and is **added to the lignocellulosic matter digester in its most active soluble form** and during a **period prior to the critical conditions of cellulose degradation** allowing, at the same time, **reduced sulphidity** and, therefore, the **environmental effects** of sulphur during both the cooking process and the recovery of the black bleach.
- Furthermore, the protective effect of the additive upon the cellulose has an associated effect: the **improvement of the variables by which the degree of polymerisation of the cellulose is measured**, such as viscosity.
- This procedure leads to **lower emissions of water contaminants**, especially when a comparison is made of the contamination loads of the waste products generated throughout all the stages involved in the production of cellulose paste, including the cooking, paste washing, refining and bleaching processes.

Innovations

- The delignified forestal or agricultural lignocellulosic matter is created by the waste products or by-products of agricultural or forestal processes; consequently, this method of operation implies an environmental advantage.
- **Pastes with a low lignin content** are obtained, as well as **good mechanical properties** (low degradation of the cellulosic polymer).

Types of interested companies

Paper industry