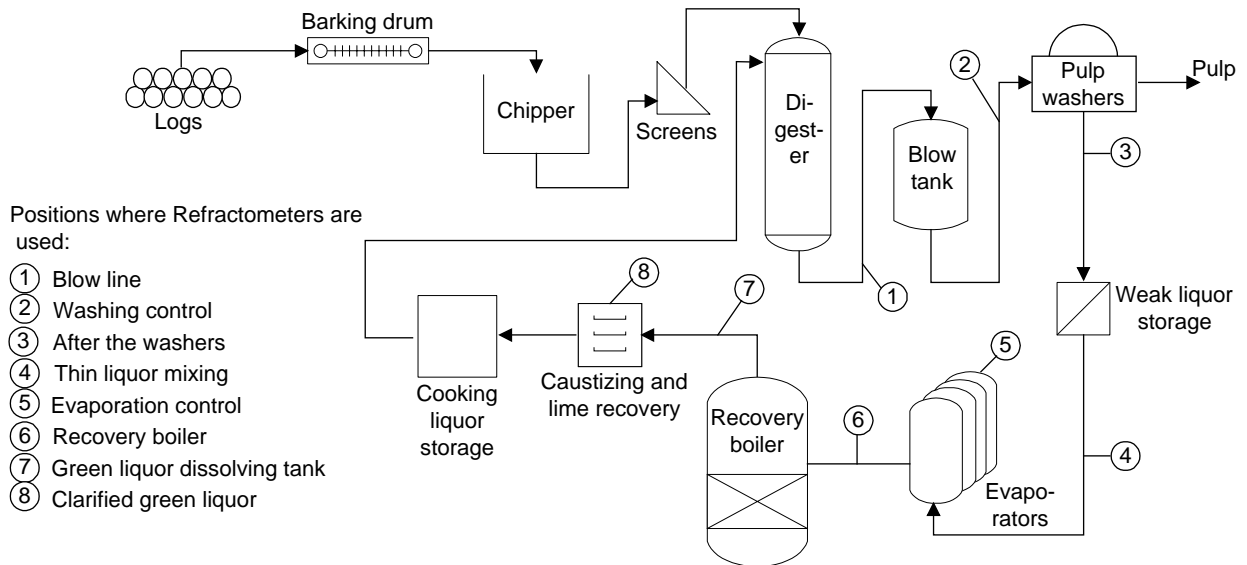


APPLICATION NOTE

Sulphate Pulp Process



Sulphate Pulp

See also

Sulphate Pulp: Washing Control 3.01.01
Sulphate Pulp: Evaporation 3.01.02
Sulphate Pulp: Recovery Boiler 3.01.03
Sulphate Pulp: Green Liquor 3.01.04

Introduction

Several different methods are used to produce wood pulp for paper and board manufacturing. Wood pulps can be divided into chemical pulps, semichemical or chemimechanical (NSSC and CTMP), and thermomechanical pulp (TMP). The refractometer applications are found in the chemical pulp production processes.

Sulphate pulp

In alkaline cooking conditions wood lignin, which binds wood fibers together, is dissolved so that the wood fibers can be separated as undamaged as possible. Process Refractometer is used in various black liquor concentration measurements in sulphate pulp production.

Fiber line

Incoming wood is debarked and chipped to optimal sized chips to minimize the fiber damage and maximize the impregnation of the cooking liquor. The chips and the cooking liquor are fed into the cooker(s). The cooking is done in high temperature and under pressure.

The cooked sulphate pulp is then pushed through the blow line to the wash tank and further to the washing department. At pulp washers spent cooking liquor (black liquor) is washed from the fibers. The washed pulp is then screened and taken further to the bleaching departments, pulp dryers and paper machines etc.

Chemical circulation

From the washing department the weak black liquor is pumped to the chemical circulation area. First it goes to the evaporation plant where the water is evaporated to such an extent that after the concentrators the black liquor can be burned in the recovery boiler. Evaporation plants usually have several evaporators

(multistage) and normally steam is used as the energy source. There are both vacuum type and back pressure type evaporation plants.

The incoming concentration at the evaporation plant is usually between 10 to 20%. Typical concentration after the concentrator phase is from 55 to 75%. In the recovery boiler concentrated black liquor is burned. The recovered chemicals are used for cooking liquor again. More than half of the incoming wood, mainly lignin, is thus burned. A sulphate pulp mill produces more energy than it uses.