

Analysis of Solids Content in Kraft Liquors

RAW GREEN LIQUOR

Measurements of solids content in Raw Green Liquor (RGL) provides valuable information of Recovery Boiler operations including smelt run-off, dregs filter issues, and boiler performance.

CLARIFIED GREEN LIQUOR

Solids content analysis of the Clarified Green Liquor (CGL) indicates the clarity and potential problems resulting from dregs carryover.

WHITE LIQUORS

Solids content data from causticizer samples provides information on settling and liquor inventory. Solids content of the White Liquor (WL) following the pressure filter, or the WL clarifier, offers key clues to the clarity of the WL and any potential issues resulting from mud carrying forward.

FITNIR

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- > **RGL clarity indicates dregs and possible smelt run-off**
- > **CGL solids reveal the efficiency of dregs removal**
- > **Measurement of solids content in causticizer liquors**
- > **Filtered WL clarity suggests pressure filter efficiency and possible mud carryover to the fibreline**

The measurement of true liquor properties in the Kraft liquor cycle has been a challenge for the pulp manufacturing industry. Much of the previous generation of analysis relies on techniques such as density, conductivity and manual titrations. Over the past decade, the advancement of optical analyzers using such techniques as spectroscopy, particularly Fourier-Transform Near Infrared (FT-NIR), have been successfully applied to provide complete liquor composition measurements. As the technology matures, more applications are being developed.

In this application note, we highlight the ability of FT-NIR to measure the total solids content in green liquor (GL) and white liquor (WL).

Measurement of solids content, either in the liquor cycle or the ClO_2 generator, has important implications on the efficient operation of mill processes.

For example, measurements of solids content in the RGL and the CGL impart crucial information about the performance of the dregs filter and the GL clarifier. Efficient removal of the dregs and char to provide clean GL to the slaker helps with reducing minerals entering the liquor cycle and onward to the kiln, digester and possibly bleach plant. Removal of these NPEs (non-process elements) reduces ringing in the kiln and improves bleaching efficiencies and pulp quality.

FITNIR Analyzers has successfully developed solids measurements using FT-NIR technology. Based on light attenuation, FT-NIR employs the same hardware used in our mainstay analyzer FITNIR Online, providing online measurements of solids content from the RGL to the final WL.

