

Pulp and Paper Industry



Dependable online, inline, and atline solutions for your papermaking needs.

Benefits of online monitoring in the pulping process

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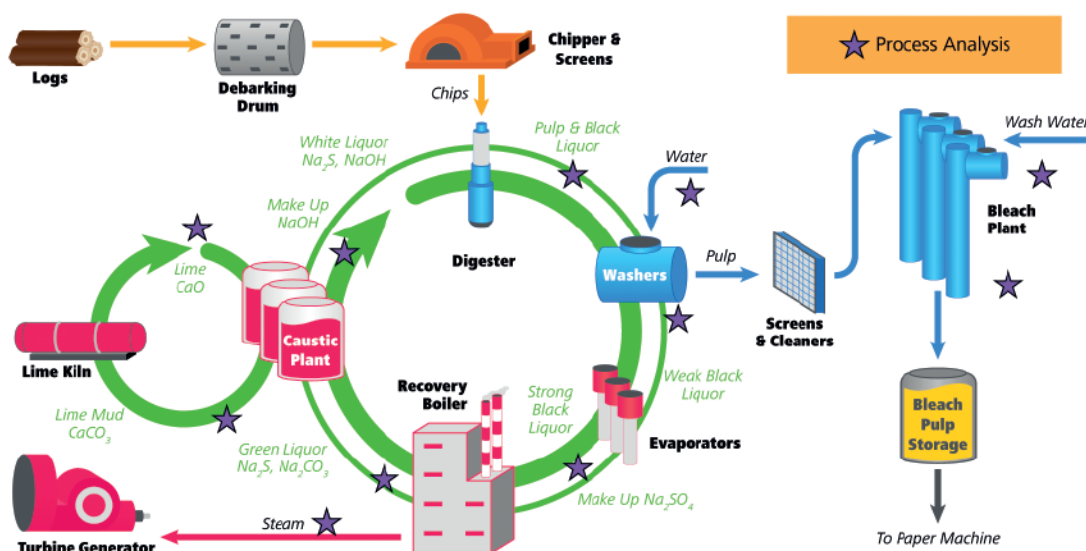
The pulp and paper industry is full of difficult processes and aggressive matrices. In order to run each part of the papermaking process optimally, constant quality checks and analyses should be performed. Analyzing crucial process parameters inline, atline, or online instead of manual offline laboratory analysis saves time and optimizes process efficiency while reducing operation cost. Real time analysis as an integrated part of process control and automation will help you increase yields and improve production quality.

Metrohm Process Analytics offers several analytical techniques in many different analyzer configurations for any need: titration, photometry, ion chromatography, NIR spectroscopy, and ion-selective measurements. Our online process analyzers and custom sample pre-conditioning systems are manufactured in the Netherlands and supported by our local service engineers worldwide.

Kraft Process

This is the dominant pulping process with the highest chemical recovery efficiency. Sodium hydroxide and sodium sulfide, the main chemicals used to pulp wood (also known as liquors) are monitored in several stages of the cooking process from the digester to the recovery

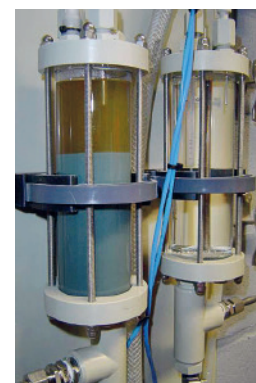
boiler to the causticizing plant. Frequent, reliable online measurements lead to a more effective process, better quality of the white liquors for reuse in pulp production and energy savings by efficient generation of high pressure steam.



Sample preconditioning

Online sample preconditioning systems lower maintenance costs and help analyses run more smoothly.

Metrohm Applikon can provide a complete and exact solution for almost any application due to more than 40 years of experience in process analytics. Projects range from one analyzer in combination with simple sample preparation to complete turnkey packages with shelters, piping, wiring and interfacing.



Settlers installed on-site for some of our process analyzers in pulp and paper mills.

Applications

Online or atline analysis of pulping liquors

The Process Analyzer ADI 2045TI is suitable to analyze White, Green, Black, & Wash liquor with multiple sample lines outputting results for closed loop control. For atline analyses, the ProcessLab ADI 2045PL is typically used for multiple sampling points and parameters that do not require fast response times or frequent analysis.

- Conformity to SCAN-N 30:85 – Effective, Active, and Total Alkali in pulping liquors
- Carbonate
- Hydroxide
- Sulfide
- CE% (causticizing degree)
- and many more



ProcessLab ADI 2045PL



Process Analyzer 2035 Thermometric

Sulfate Measurement by Thermometric Titration

Sulfate concentration can be easily measured with thermometric titration. Metrohm is currently the only manufacturer on the market offering online thermometric titration, and the 2035 Thermometric Process Analyzer is ideal for this application.

Combined with the ABC titration results from the 2045TI, this gives a perfect indication for the degree of reduction and information about the recovery boiler efficiency as a reactor.

- Enthalpy change of the reaction is monitored
- Robust probe is resistant to aggressive samples
- No sensor calibration or maintenance required
- Fast and accurate results: Thermoprobe response time of 0.3 s with a resolution of 10^{-5} K

Spectroscopic applications for papermaking

For fast, reagent-free, nondestructive analyses, near-infrared spectroscopy can be used. Metrohm Applikon offers two NIRS lines: XDS and PRO. The NIRS PRO can be configured for contact and noncontact measurements, while the XDS can handle up to 9 measuring points. These analyzers come with a wide portfolio of fiber optics and probes ready to handle any sample.

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|---|---------------------------|
| • Kappa number | • Moisture |
| • Lignin content | • Resin |
| • Kraft pulp yield | • Brightness |
| • Tall oil | • Wood species |
| • Coatings | • Hardwood/Softwood ratio |
| • Component analysis (clay, TiO_2 , fillers, ash, etc.) | |



NIRS XDS Process Analyzer



NIRS Analyzer PRO

Other important parameters

Metrohm Process Analytics offers much more than what can be outlined here. We also offer complete process solutions for other areas, such as analysis of Ca and Mg in brine in the production of Cl_2 for bleaching. The Process Ion Chromatograph is suitable for measuring either organic acids or sulfur species in process water or even trace impurities in steam in order to protect the turbines from excessive scaling, for example.

No matter what application, our turn-key process solutions from Metrohm Process Analytics are indispensable when it comes to increasing throughput and saving money in your plant.

www.metrohm.com

