

Industry: Pulp and Paper

- Headbox Entrained Air Measurement and Control

SONARtrac[®] SOLUTIONS

Paper and Board Producers Improve Papermaking Process By Controlling Air Content at Headbox

Benefits

- Reduction in the number of breaks and reduced amount of produced broke
- Improved paper quality:
 - fewer pinholes and dirt spots
 - improved formation
 - stabilized paper caliper
- Improved runnability
 - improved retention controls
 - improved water removal at former
 - stabilized pumping
 - improved operations of vacuums
- Reduced defoamer chemical consumption
- Reduced retention chemical consumption
- Enhanced machine runnability and product quality
- Defoamer savings range from 10-40%

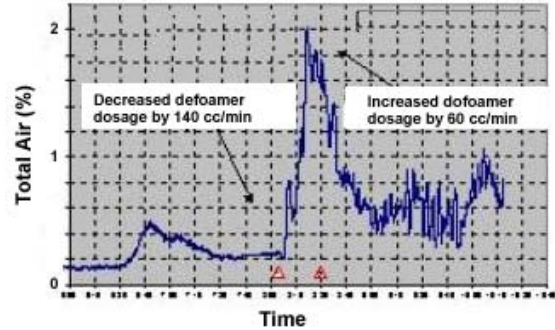
The SONARtrac Total Air Monitor measures in real-time the amount of entrained air present in the headbox and enables optimized chemical dosing

Process Concern

Entrained air and CO₂ in the headbox stock will cause paper quality losses in the form of pinholes, dirt spots, vane and uneven water removal from the web at the former section. Increased air content hampers efficient water removal from the web and thus can cause wet web breaks and limit the machine speed. Air also increases activity of bacteria that can cause further quality losses (wire and felt blockages, web attachments etc.) and unplanned process downtime when the machinery has to be washed.

De-aeration chemicals added to the stock help to remove air at the headbox. When the dosage of these chemicals is based on visual inspections, it is impossible to react in time to process variations and maintain the appropriate level of de-foaming chemical. This leads to incorrect dosing.

SONARtrac Total Air Monitor



Application Solution

The SONARtrac Total Air Monitor (TAM) provides an accurate real-time measurement of the total air content (both entrained and dissolved gas) in the headbox stock. It can be installed to a small sample tap on either the recirculation or supply line of the headbox.

The SONARtrac Total Air Monitor exposes the stock to ambient pressure which allows the dissolved gases to out-gas from the stock. The stock flows vertically through the SONARtrac Total Air Monitor, which measures the entrained gas at ambient pressure to provide a total air measurement. This real-time, total air measurement enables accurate monitoring of the air content at the headbox and optimized control of the chemical.

SONARtrac Value Proposition

The SONARtrac Total Air Monitor is extremely well suited for the headbox application. This passive sonar listening approach provides an in-situ real-time measurement of the total air present in the process flow with a high degree of accuracy and repeatability. The accurate, continuous, real-time measurement enables automated headbox stock air content control that can significantly reduce the consumption of deaeration chemicals at the mills and simultaneously improve end product quality and machine runnability.