Industry: Pulp & Paper  
Product: pH

Introduction
Paper is used in a broad array of products essential for everyday life, from newspapers, books, magazines, printing, writing papers to cardboard boxes and bags, paper napkins, sanitary tissues etc. We are daily surrounded by paper products.

The most important use of paper is writing. The quality of paper used for printing or writing should be good and it depends on many parameters. One of the parameters is Cobb, which needs to be controlled.

What is Cobb Control?
Cobb control is nothing but the control of quality and binding of pulp in such a fashion that whatever is written by any source such as ink, etc on paper it should not spread as well as leave its impression on back side of the paper.

How is Cobb variation minimized?
Cobb variation is minimized by maintaining pH of the pulp in the range of 5-6 pH. Before processing, the raw pulp pH is in the range of 7-8. This should be controlled and brought down to acidic range i.e. 5 to 6 pH. This is very essential for following reasons.

a) This ensures proper binding of the fiber
b) Cobb is controlled

c) Further it also helps in maintaining paper machine run ability at head box.

How is Cobb control done?
Cobb control is done by addition of Alum (which is in the range of 2-3 pH) and rosin to pulp. When alum and rosin are mixed with pulp after a certain distance pH of the mixture is measured and if it is not in the desired range the transmitter will control the Alum dosing via controller so that pH of the pulp is maintained. Rosin on the other side has no such controlled action. It will be getting dosed to the pulp continuously in a specific quantity. It is the Alum whose dosing is controlled depending upon pH variations.

Application Overview
By installing pH loop in paper industry not only the Cobb control is done but also customer can achieve the following:

a) 20% saving in Alum consumption
b) Eliminate corrosion problem in approach flow pipelines, pumps and other equipment. This is because if alum dosing is not controlled, there are chances that more Alum is dosed and it can lead to corrosion of pipes and components.
Summary

Measurement points:

After Rosin tank:

Typical problems: Cleaning of sensor in such installations

Remedies: Using retractable fitting this optimum level of pH can be achieved by using Yokogawa’s 4-wire pH Analyser with suitable retractable fitting and sensor. Our manual retractable fitting PR10 with Titanium ball valve is designed for use in pulp industry where frequent cleaning of the sensor is required. For cleaning one has to take out pH sensor, close the ball valve so that the sample will not come out, clean the sensor, open the ball valve and then put back the cleaned sensor. The pH sensor will be a combination electrode having double junction electrodes, which provide long time stability and a prolonged lifetime. In our 4-wire pH analyser on 2nd mA output we have PI control facility. The speed of the alum dosing pumps can be controlled as per pH variations with the help of this feature.

Solutions:

pH Retractable fitting with Sensor: SC21-ALP26 pH sensor in retractable fitting model PR10 series with ball valve.

pH Combination Sensor: SC21 Series

Features:
- SC21-ALP26 sensor:
  Chemical resistant, steam-sterilisable pH-glass.

pH Converter: PH450 series

Features:
- Easy touchscreen operation
- Trending display up to 2 weeks
- Advanced Process Temperature Compensation

Tangible benefit: Customer can save the money, which he has to spend for buying the separate controller for controlling the dosing pump.