Instrumentation

for Paper & Pulp Applications

Oxygen Delignification and Bleaching

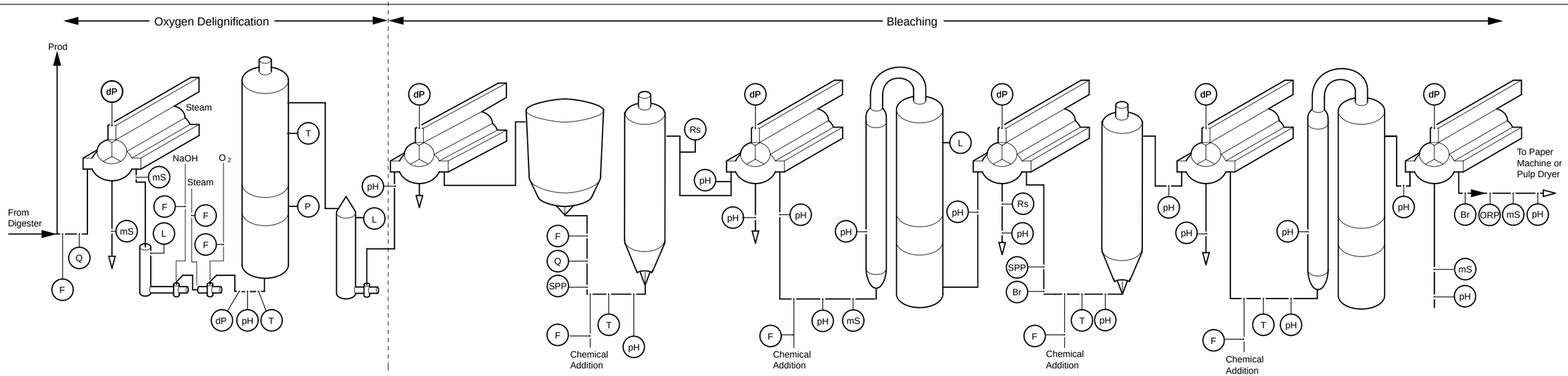
Delignification is the process by which the majority of lignin is removed from paper pulp. Oxygen is used to ensure a less damaging effect on the plant and surrounding environment than more aggressive chemical methods

In the bleach plant, the remaining lignin is removed by stronger chemical means, and any residual color is removed by chemical oxidation to attain the desired brightness.

Dedicated, robust instrumentation and advanced control are required to achieve this efficiently.

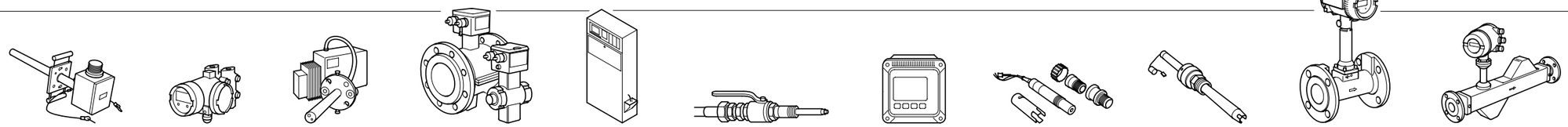
Skoghall, Sweden, O_2 plant

ABB Automation



Key

ORP	Redox (TB551, TB557, TB82pH)	P	Pressure (ASK 800)	T	Temperature (SensyTemp WTR)	Q	Consistency (TCA)	Rs	Residuals (Accu-Brite)
pH	pH (TB551, TB557, TB82pH)	dP	Differential Pressure (ASK 800)	mS	Conductivity (TB82EC, TB465)	SPP	Kappa, Fibre size, NIR, Dissolved Lignin (SPP)		
F	Flow (MAG SM, TrioWirl)	L	Level (ASK 800)	MF	MassFlow (TrioMass)	Br	Brightness (Accu-Brite)		



Accu-brite | ASK 800 | TCA Consistency Analyzer | MAG SM | Smart Pulp Platform (SPP) | TB465 | TB82 | TBX551 | TBX557 | TrioWirl | TrioMass

Parameter	Why measure this parameter ?	Why use ABB Instrumentation ?	Which ABB Product ?
Flow/Kappa/Q/Br	Optimized flow control of chemicals, additives and pulp minimizes variation in product brightness. Flow control of steam and gases.	Inherent noise-free signal ensures stable process control, thereby improving plant output and efficiency. Rugged design reduces maintenance and extends service life.	MAG SM Electromagnetic Flowmeter TrioMass Coriolis Mass Flowmeter TrioWirl SPP Smart Pulp Platform ACCU-BRITE sensors for brightness color and residuals
pH/ORP	Optimum pH and ORP levels maintain chemical reactions and extractions constant, thereby improving product quality and reducing chemical costs.	Flat surface, solid-state sensors ensure maximum process uptime. Hot-Tap retractors provide flexible installation with minimum investment. SMART-key instruments guide the user without the need for manuals.	TB(X)551 pH/ORP sensor TB(X)557 Hot-Tap pH/ORP sensor TB82PH pH/ORP Transmitter
Pressure	Chemical reactions depend on pressure and temperature. Optimum control minimizes large variations in product quality during pressurized delignification and hydrogen peroxide bleach stages.	Constant accuracy maintained regardless of temperature fluctuations thus improving plant performance. Multi-process connections and special diaphragm design reduces maintenance costs and extends service life.	ASD 800 Pressure transmitter
Level	Constant level in downflow towers and standpipes ensures optimum production rate. Constant tower residence time minimizes quality variations.	Process diaphragms with special design avoid critical deposits and meet the high temperature requirements.	ASK 800 Flange-mounted level transmitter
Conductivity	Measurement confirms optimum washing. Aids maintenance of optimum overall salt balance in the entire mill system.	Self-checking enables just-in-time maintenance. Coating immunity promotes maximum process uptime.	TB465 Conductivity Sensor TB82EC Conductivity Transmitter
Differential Pressure	Monitoring the performance of filter and filter media promotes long-term efficient filtration.	Multi-sensor technology saves on instrumentation and installation costs.	ASK 800 Differential Pressure transmitter
Temperature	Temperature influences the reaction rate. Optimum temperature control minimizes variation in product quality and reduces operating costs during delignification and bleach stages.	Designed for process optimization. High reliability, repeatable accuracy and long term stability reduce service costs to a minimum	SensyTemp WTR with head-mounted transmitter

ABB Instrumentation provides:

- Application Know-how
- Full-scope Supply
- Innovative Technology
- Rugged Devices
- Global Service Support

Kymmene mill, Finland, O_2 plant

All photos courtesy of Kværner Pulping, Sweden

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