



## Alfa Laval helps ITC live up to zero liquid discharge statutory directive – and make even better paper

ITC Ltd, Bhadrachalam, Andhra Pradesh, India

Case story

*India's leading pulp, paper and paperboard manufacturing company ITC Ltd wanted to start in-house production of Bleached Chemi Thermo Mechanical Pulp (BCTMP). They turned to Alfa Laval to help them implement an evaporator system for the new BCTMP black liquor evaporator process – and to make sure they could do it in a way that was in keeping with the zero liquid discharge statutory directive.*

“This will be the first plant of its kind in India, and it's clearly the way to go for manufacturing quality packaging board,” says Mr. A.V. Rao, Executive Vice President, ITC Ltd. “After finalizing the required specifications for the new evaporator plant with the BCTMP plant vendor, we discussed the technical details of the plant with Alfa Laval.” ITC explained clearly how they wanted to integrate the new evaporator with the new BCTMP pulp mill and their vision of zero liquid discharge. After the discussions, Alfa Laval came up with a new system of an evaporator with an integrated stripper.

### **A better way to produce specialty paper**

BCTMP is mechanical pulp produced through a chemi-mechanical pulping process where wood chips are first treated thermally and refined mechanically in a refiner, followed by bleaching and washing stages. BCTMP pulp results in strong, high-bulk board.



ITC Ltd turned to Alfa Laval as a trusted solution provider to implement a new evaporation system.

### **Alfa Laval – a trusted supplier**

When ITC turned to Alfa Laval to help them meet their challenge, Alfa Laval was already a trusted supplier. The company had supplied ITC with a black liquor evaporator plant for the first time back in 2001 and by 2012 one more new plant was commissioned. Subsequently, ITC added further capacity to these evaporators through two expansion projects. So it was natural for ITC to turn to Alfa Laval again in 2015 for the new plant. Because BCTMP was a new process for ITC, they took extra care in choosing the supplier.

“We did a lot of research,” says Mr. A.V. Rao, Executive Vice President, ITC Ltd. “Our team travelled to plants outside of India that used similar processes and talked to a number of suppliers. In the end, we chose Alfa Laval again because we were convinced by their analysis and because we know them and we trust them.”

### Zero liquid discharge

Not only did ITC want to build the first BCTMP mill in India, they were also determined to make it a zero liquid discharge plant. The process is designed in such a way that all the water used for chip washing is treated internally and then re-circulated, creating a closed loop.

For the balance of spent liquor, Alfa Laval is supplying ITC with a seven-effect falling film evaporator along with an integrated stripping system. The stripping system allows the condensate from the evaporator to be reused in order to reduce the consumption of fresh water and help create a zero liquid discharge process. Prasanna Upadhyay, Alfa Laval's Business Manager for Dryers and Evaporators, explains:

"During the evaporation process, some of the volatile organics present in the liquor are carried over to the condensate resulting in an increased Chemical Oxygen Demand (COD). The condensate stripper section reduces the COD level. The stripped gases are removed and burned."

The design enables reuse of 2800 m<sup>3</sup> per day of treated condensate in the pulping process. The concentrated liquor from the evaporator will be fed to a boiler in order to recover chemicals and generate steam.

### A confident customer

"We're confident that this plant will achieve the results we're looking for," says Mr. A.V. Rao, Executive Vice President, ITC Ltd. "Alfa Laval's past experience and technical support showed us that we can achieve the proposed project objective – and we know we can count on them."

### Fast Facts:

#### The customer

ITC – Paperboards and Specialty Papers Division (ITC-PSPD) has the largest single location Paper & Paperboards mill in India (550,000 tons per annum) at Bhadrachalam, Telangana. The company is the leading supplier of paperboard for value-added packaging applications. ITC is the first mill in India to produce Elemental Chlorine Free (ECF) Papers & Paperboards.

#### The challenge

To design, install and commission India's first Bleached Chemi Thermo Mechanical Pulping (BCTMP) plant with zero liquid discharge process.

#### The results

Maximized reuse of water within the BCTMP process and treatment of the balance of spent liquor in a seven-effect falling film evaporator plant with an integrated stripping system for process condensate.

#### The benefits

- Strong, high-bulk board
- Lower fresh water consumption
- Zero liquid discharge
- High steam efficiency

The seven-effect evaporation system based on falling film at ITC Ltd.



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### How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at [www.alfalaval.com](http://www.alfalaval.com)