

Precipitator Dust Purification™

The Precipitator Dust Purification™ (PDP™) is the most cost-effective system available for chloride and potassium purging. The compact, skid-mounted technology is easy to install and operate and provides the highest chemical savings. To date, there are eleven PDPTM systems installed in pulp mills worldwide.

The problem

Chloride and potassium enter Kraft mill chemical recovery cycles in wood chips, water, and chemicals. Natural losses of chloride and potassium are low, causing them to accumulate to high concentrations in the recovery boiler cycle. High chloride and potassium concentrations cause recovery boiler plugging and corrosion, reducing steam generation and causing expensive shutdowns. Chloride and potassium are traditionally removed from the system by disposing a portion of the Recovery Boiler precipitator catch, leading to costly sodium and sulfur make-up.

The solution

A new system, developed by FPIInnovations is available to remove chloride contamination from the recovery boiler precipitator catch. By lowering the chloride content in Kraft liquors, recovery boiler deposits can be significantly decreased, reducing boiler plugging and down-time.

How it works

The PDP system utilizes EcoTec's patented Recoflo® ion-exchange resin bed to achieve the selective removal of chloride and/or potassium from the precipitator catch. Electrostatic precipitator dust is dissolved in water, filtered in a special pulse filter, and directed to the Recoflo® unit. For chloride removal only water is required for resin bed generation and potassium removal requires sodium hydroxide.



Figure 1 Recoflo® separation unit

The benefits

Due to the PDP system's highly selective removal of chloride, losses of sodium, potassium, sulfate and carbonate are considerably lower than for competing systems as shown in Figure 2. At low chloride concentrations, potassium has little effect on deposit behavior. However, if purged, potassium must be replaced by additional sodium makeup. The lower chemical losses for the PDP system correspond directly to lower make-up requirement, which is one of the most significant operating expense for a chloride purging or removal system.

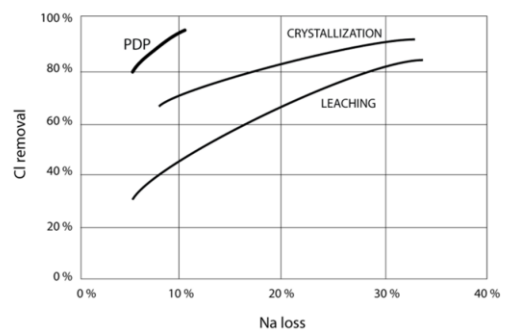


Figure 2 Typical system losses

Case study

In Figure 3, from a third party comparison, the economic benefit of PDP compared to other methods of Chloride control is shown. Lower chemical makeup costs give PDP an economic advantage over other chloride removal methods.

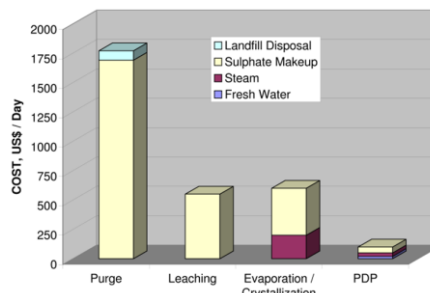


Figure 3 Daily costs of chloride removal (From TAPPI 2(4): 21 (2003))

