

Hit your brightness targets  
using less chlorine dioxide.

## Improve Kraft bleachability and mill sustainability with **Vybrant 700** series enzymatic technologies.

When it's time to make a decision, operators will always choose brightness over other objectives. It's a reasonable position. But the common remedy of overfeeding comes at a cost—well beyond the price of the chemical itself.

Every additional pound of chlorine dioxide used means additional energy is spent cooling and heating water and more AOX being discharged to your effluent. It also means more hazardous rail cars to unload and more residual threatening your people.

Additionally,  $\text{ClO}_2$ , while the most selective conventional bleaching agent in use, is not perfect. While it's oxidizing the chromophores, it's also oxidizing—and thus damaging—the wood fiber itself. This leads to lower viscosity/less fiber strength. When  $\text{ClO}_2$  is the only tool you have for achieving brightness, you end up making compromises that hurt your business.

The Vybrant 700 series of enzymatic pre-bleaching technologies reduces the amount of chlorine dioxide used to reach brightness targets, so it also reduces all of these negative consequences of  $\text{ClO}_2$ .

## A brilliant addition to your bleach plant.

Vybrant® 700 products can help mills reduce  $\text{ClO}_2$  by as much as 20%.

In Kraft, HexA, xylan and lignin complexes and other factors keep bleach from fully doing its job. But the specialized enzymatic formulation of Vybrant pre bleach technologies, applied after brownstock washing, disrupts the fiber surface to break down these barriers and improve bleachability. Extended trials have shown chlorine dioxide reductions of as much as 20%.

Look to Vybrant 700 products to:

- Help remove fragmented lignin from the surface of the fiber.
- Remove HexA (hexanueronic acid) to reduce wasteful consumption of bleaching chemicals.
- Break the xylan chains between lignin and cellulose.
- Work effectively in pH up to 10.2 and temperatures up to 90°C.

Vybrant improves bleaching chemical penetration into the surface of the fiber and makes your entire bleach plant more effective and efficient.

### Speed up your production.

- Hit brightness targets more easily without worrying about  $\text{ClO}_2$  generation limits.
- Eliminate bottlenecks caused by a stressed  $\text{ClO}_2$  generator chiller system in summer months.
- Increase production by raising the Kappa number in the digester while reducing load at the recovery boilers.
- Add incremental tons to your output.

### Improve your product.

Rely on Vybrant 700 series products to:

- Target hemicelluloses, allowing your  $\text{ClO}_2$  to bleach to a higher final brightness with less reversion.
- Add stability to the process, reducing chances of off grade pulp.
- Reduce usage of optical brightener and dyes on the paper machine.

### Reduce your costs and environmental impact.

With Vybrant, your mill can:

- Reduce  $\text{ClO}_2$  to save money, stay in compliance and protect the environment.
- Cut the volume of water processed through the bleach plant.
- Reduce usage of other bleaching chemicals such as caustic and hydrogen peroxide.
- Lower energy use (less chilling and reheating of  $\text{ClO}_2$ ).
- Minimize AOX discharge.

Vybrant can also reduce the tendency to maintain excessive  $\text{ClO}_2$  residuals, reducing potential exposure of your plant personnel to  $\text{ClO}_2$  gas. Less chance for exposures makes your plant just a little safer.

## Learn more.

Ready to make your bleach program more effective and efficient? To get more information about how Vybrant 700 series enzymatic technologies can improve the bleachability

and sustainability of your Kraft pulp, contact your Buckman representative or visit [buckman.com](http://buckman.com).

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