
Tired of downgrading your pulp because
of reversion and yellowness?
Or using too much ClO_2 to counteract it?



Now, bleached Kraft has a brighter future.

Who wants to spend the time, money and effort to rework or dispose of pulp that doesn't meet customer expectations? But the common remedy of overfeeding chlorine dioxide to account for reversion comes at a cost—well beyond the price of the chemical itself. ClO_2 , the most selective of the conventional bleaching chemistries, is not perfect. While it's oxidizing the chromophores, it's also oxidizing—and thus damaging—the wood fiber itself.

For every additional pound of chlorine dioxide used, much energy is spent cooling and heating water, and it results in more AOX being discharged in your effluent. It also means more hazardous rail cars to

unload and more residual threatening your people.

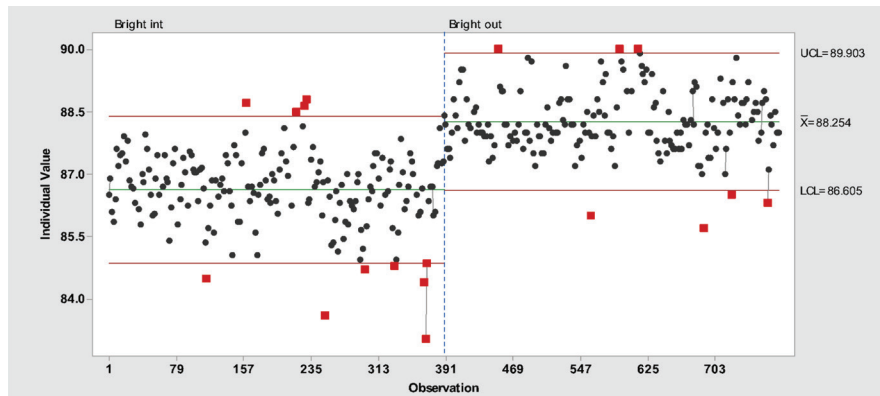
The **Vybrant 900** series of enzymatic post-bleach technologies from Buckman uses specially selected enzymes to safely remove chromophores in bleached pulp. With Vybrant 900 products you can achieve your brightness targets and significantly reduce reversion while reducing or even eliminating the expense of optical brighteners and other bleaching chemicals – saving you money.

Try a Vybrant 900 product in your mill and get improved brightness that helps meet the test of time.

Make it brighter. Keep it brighter.

Your Kraft pulp may be fully bleached. But is it fully brightened? Now it can be with Vybrant® enzymatic post-bleach technology.

How it works. Even fully bleached pulp contains chromophores. These substances prevent optimum brightening and cause brightness reversion. The unique formulation of the Vybrant 900 products includes enzymes that specifically focus on and eliminate these chromophores, so brightness is enhanced, and the reversion and yellowness that often occurs in storage or in the papermaking process is dramatically reduced.



Brightness to paper machines before and after Vybrant addition.

Benefits beyond the brightness.

Save money. Now you can reduce bleaching chemical costs and cut the use of dyes and optical brightening agents on the paper machine. Vybrant has been shown to make the final bleached pulp more blue in color (less yellow) which is a big benefit to your papermaker. You can also reduce and sometimes eliminate the carryover of oxidants or reducing agents, depending upon your bleaching sequence, which interfere with wet end chemistry on the paper machine.

Improve production. With Vybrant, production bottlenecks due to chlorine dioxide limits can be a thing of the past. And with less off-spec pulp, you

can increase throughput in the bleach plant and increase mill production.

Improve effluent. With Vybrant, less chlorine dioxide means you can reduce adsorbable organic halides (AOX) and chemical oxygen demand in effluent. Less AOX in your mill's discharge is a tangible Return on Environment.

Make it food-safe. The Vybrant 900 series of products is allowed under the regulations of U.S. FDA (21 CFR § 176.170 and 176.180) and is listed in BfR recommendations (XXXVI).

Build peace of mind. There's no major capital investment required. No lab tests. This proven technology can go

to work for you right away. And the liquid application is simple, using a diaphragm pump and tubing.

Make your mill safer. By giving your operators confidence in maintaining their brightness targets, they will use less ClO_2 and reduce the potential for excessive residuals which can become problematic. Lower residuals mean lower chances for exposures to ClO_2 gas.

Learn more. Gain—and retain—Kraft pulp brightness with Vybrant post-bleach enzymatic technologies. Contact your Buckman representative or visit buckman.com for more information.

CASE STUDIES

A bleached Kraft pulp mill producing 450 ADMT per day needed to help meet its 85 brightness target. Buckman applied Vybrant and increased brightness by 1.3 ISO; reduced ClO_2 usage by 1 kg/ADMT and H_2O_2 by 1.65 kg/ADMT; and eliminated the need for a chelating agent. COD in effluent also decreased.

Reversion kept a bleached eucalyptus Kraft mill from reaching its 88 brightness target. Vybrant helped the mill obtain a 1.0 ISO final brightness gain after a reversion test. The mill saved 1.5 kg/ADMT of peroxide and reduced chlorine dioxide use by 6%.

A bleached eucalyptus Kraft mill producing 600 ADMT per day had a target brightness of 87. Buckman helped them reach it and save 3.1 kg/ADMT of peroxide and 1 kg/ADMT of NaOH. Pulp production reached a record high with a pulp kappa number 2 points higher than before.

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Seller warrants that this product conforms to its chemical description and is reasonably fit for the purpose referred to in the directions for use when used in accordance with the directions under normal conditions. Buyer assumes the risk of any use contrary to such directions. Seller makes no other warranty or representation of any kind, express or implied, concerning the product, including **NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS OF THE GOODS FOR ANY OTHER PARTICULAR PURPOSE**. No such warranties shall be implied by law and no agent of seller is authorized to alter this warranty in any way except in writing with a specific reference to this warranty.

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