

Norske Skog Korea gets the gas out

One of the world's largest newsprint mills with a production capacity of one million tons per year, Norske Skog Korea Jeonju solved its excess white water gas problems with a BTG Mütek™ analyzer, reducing its total energy bill and improving output quality.

For South Korea's paper producers, excess white water gas can be a nagging problem. The local raw materials used in recycling tend to have a high gas content, making life difficult for mills such as Norske Skog Korea Jeonju, a huge facility running three paper machines producing 800,000 tpy of quality newsprint, and two machines producing 200,000 tpy of groundwood magazine paper.

To solve the recycled stock gas problem in its No. 4 DIP plant, Norske Skog Korea Jeonju chose a gas analysis solution from BTG's Mütek instrumentation range. The result: increased runnability, lower energy and additive costs, and improved overall output quality on the mill's PM7 270,000 tpy newsprint machine.

Ki-Jin An, assistant manager in the instrument department of the maintenance section at Jeonju, says the company's goal was to try to stabilize the wet-end by better controlling gas in the system.

To that end, the mill installed a Mütek GAS-60 Gas Analyzer to measure free and dissolved gas. As well as helping better control the use of deaerator chemicals and improving machine runnability, Mr An was confident that getting the gas out more effectively would yield significant product quality improvements.

Control strategy

The Gas Analyzer's sensors were placed in the headbox circulation and white water tank (see figure 1). On PM 7, the flow of deaerator chemicals is normally automatically adjusted as the amount of free gas in the white water varies. The setpoint of the flow controller for the deaerator was thus cascaded from the Mütek GAS-60, optimizing additive levels and preventing over dosage.

Minimum, maximum, safety and start-up parameters also help optimize performance. As a result, the control loop minimizes deaerator consumption while maximizing process stability.



Preliminary results with the Mütek™ GAS-60 Gas Analyzer showed improved wet-end stability, PM runnability and paper quality. "A big improvement all round," says Ki-Jin An. Photo: David Wold

Founded in Norway in 1962, Norske Skog has grown to become the world's largest manufacturer of newsprint and magazine paper, with 18 mills worldwide.

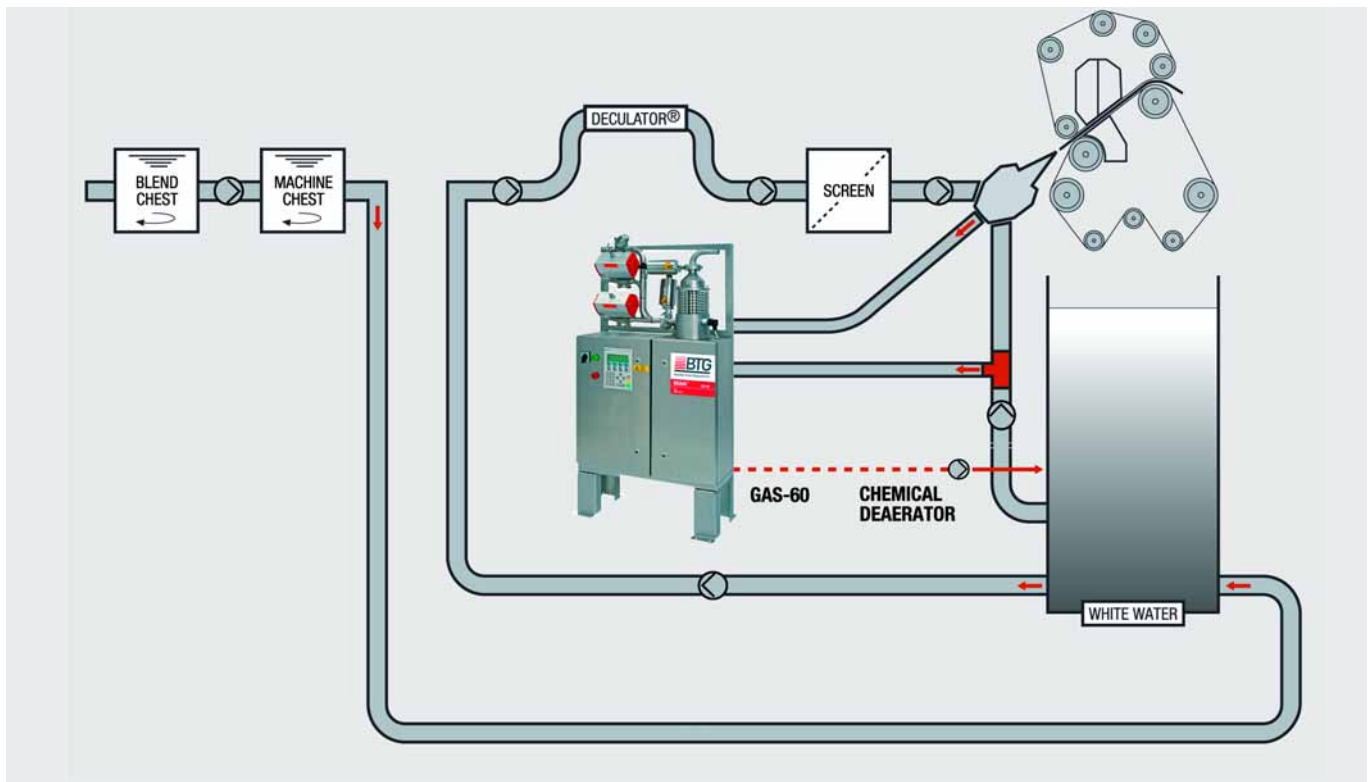


Figure 1. The Mutek™ GAS-60 Gas Analyzer in operation at Norske Skog Korea Jeonju.

Effective analysis boosts results

After about ten months of manual operation, the Mutek™ GAS-60 was put on closed-loop control. Preliminary results after two months of closed-loop operation showed greater wet-end stability, better PM runnability and improved paper quality. "In fact, everything is better than before," smiles Mr An.

On closed-loop control, the Mutek™ GAS-60 unit reduces and stabilizes the free and dissolved gas (see figure 2). Stabilizing the amount of free gas in the white water tank also stabilizes and improves the retention rate (see figure 3). And a more stable silo-tank level helps stabilize PM7 basis weight (see figure 4).

Figure 5 shows the correlation between gas content, the Nash pump's power load and the vacuum pressure of the deculator without closed-loop control. BTG's Mutek™ GAS-60 significantly improved the efficiency of deculator and stabilized vacuum pressure and pump power load, resulting in reduced energy costs.

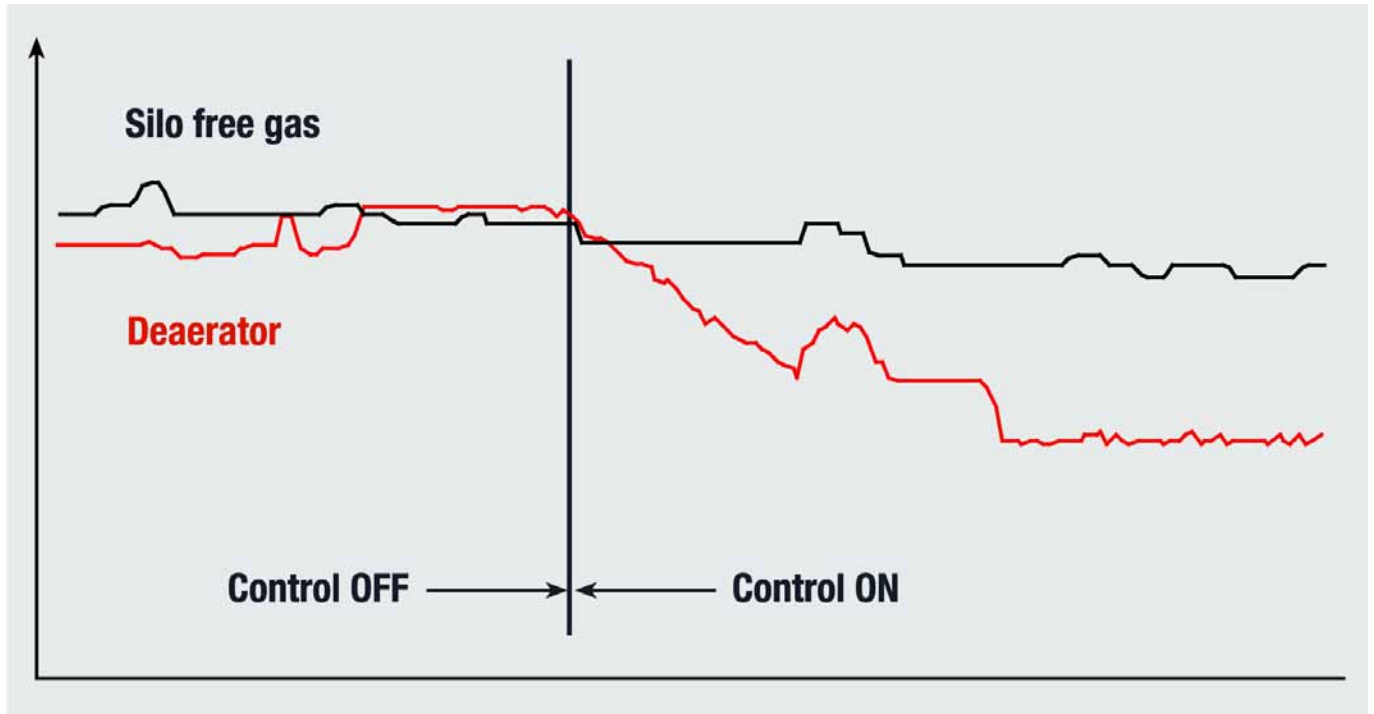


Figure 2: Reduced need for deaerator chemicals after closed-loop control

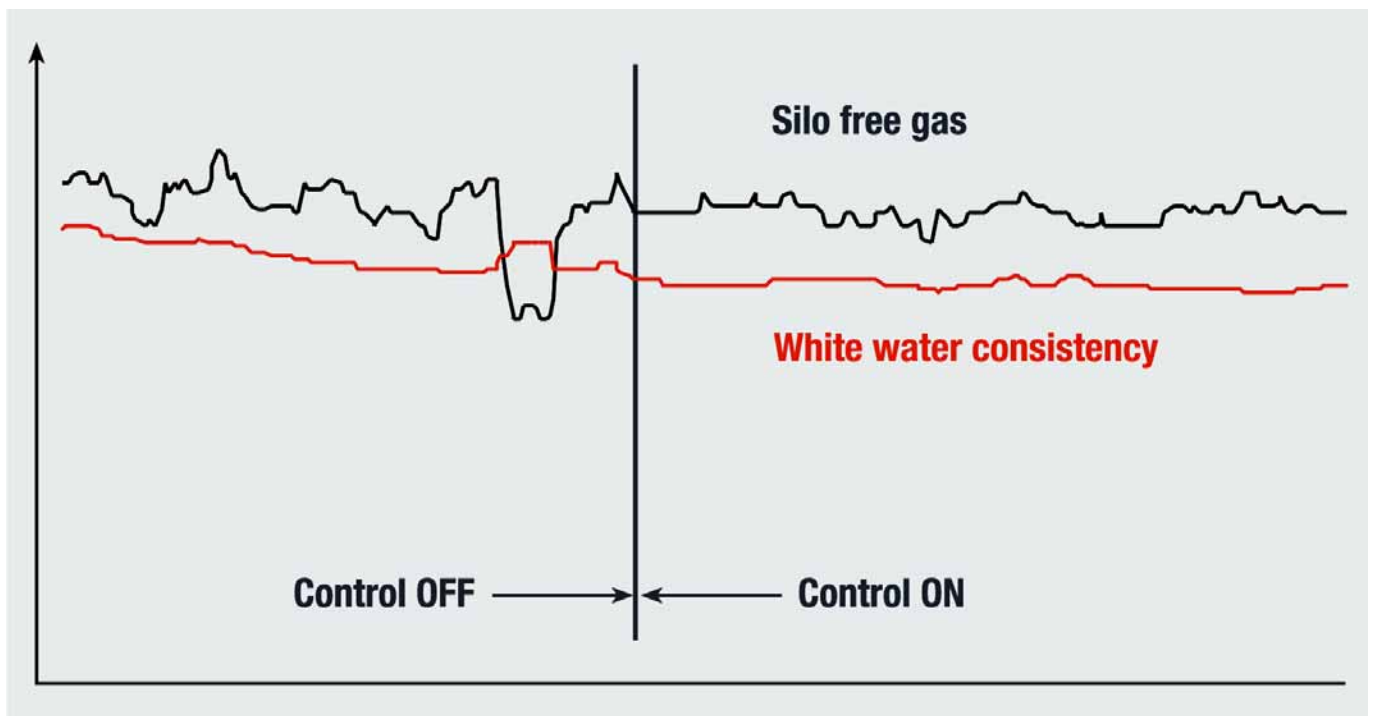


Figure 3: Stable and lower white water consistency after closed-loop control

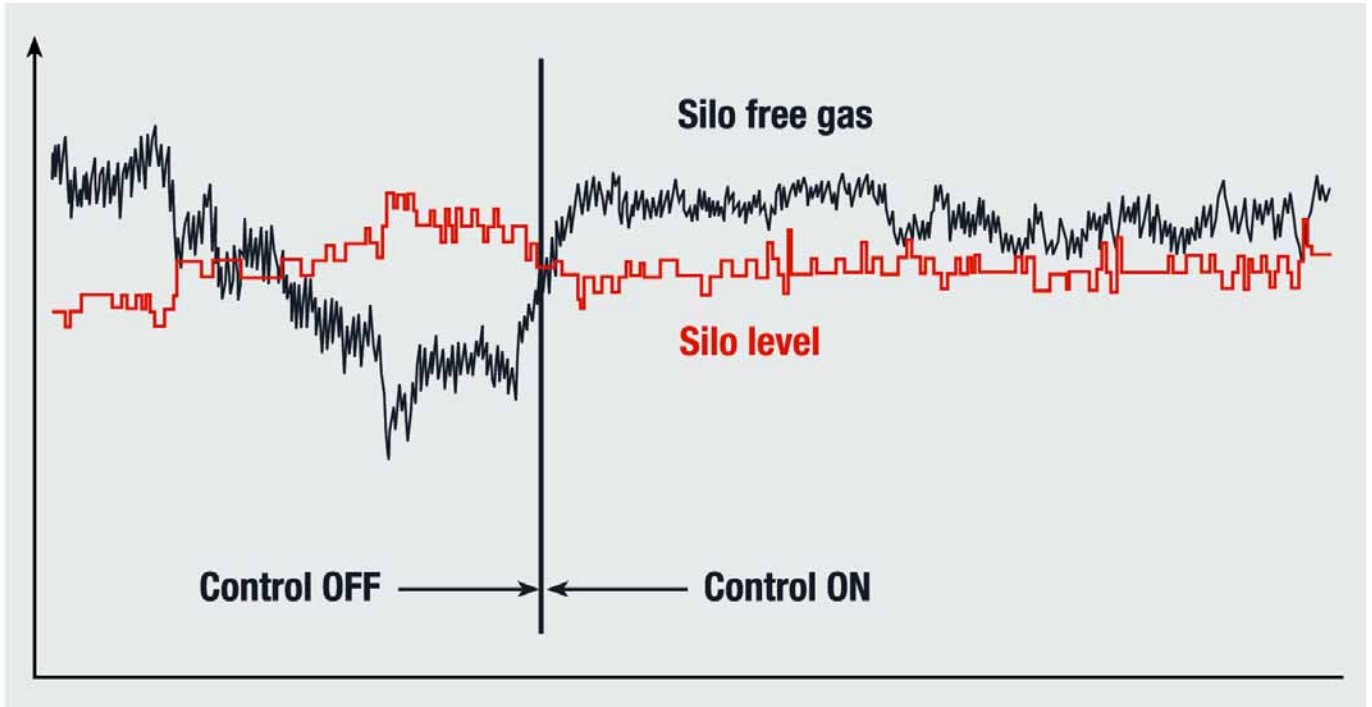


Figure 4: Stable silo-tank levels after closed-loop control

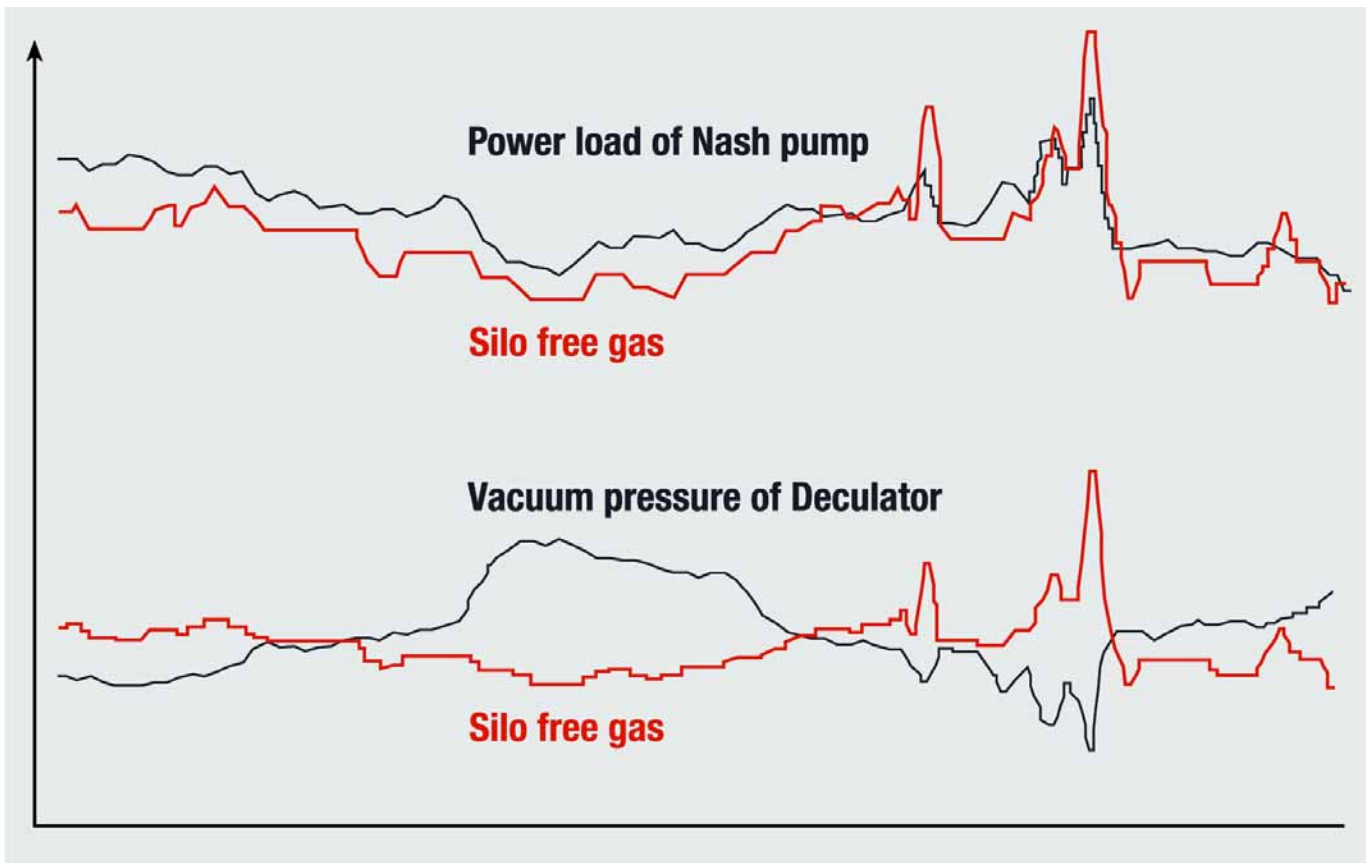


Figure 5: White-water-free gas vs power load and vacuum pressure

Improved performance, better quality

After two months of closed-loop operation, the Müték™ GAS-60 delivered reduced deaerator consumption and reduced gas volume, delivering better PM runnability, drainage and retention. For his part, Mr An is very satisfied. Gas is finally under control, energy costs are down – and overall product quality is better than ever.

To find out more about Norske Skog, visit the company's website at www.norskeskog.com. To learn how BTG's Müték instruments can boost your mill's productivity, go to www.btg.com.

Norske Skog Pan Asia

Headquartered in Singapore, Norske Skog Pan Asia is the leading Asian supplier of newsprint and groundwood paper, with mills in Jeonju and Cheongwon, South Korea; in Singburi, Thailand; and in Shanghai and Hebei in China.

Together, the mills boast a combined capacity of 1,800,000 tpy of newsprint and 200,000 tpy of other publication papers. The company has around 30% market share in Asia, excluding Japan.