

Chlorine dioxide engineering services  
and application know-how,  
helping make pulp bright and white!

## Bleached pulp



By MARTIN KOEPENICK

Numerous improvements including an upgraded chlorine dioxide facility has given the Iggesund mill the “wow” factor

## SUSTAINABLE EMOTION



Anna Mårtensson, environment manager at the Iggesund Mill

**C**AN ANYTHING REALLY be new at an integrated pulp and paperboard mill, where the leading position in Europe has been held for more than 40 years? First, let's take a look at the facts about this business.

Invercote from Iggesund has enhanced the messages and functionality of packaging for leading brands for many decades. Iconic perfume boutiques along the Champs-Élysées in Paris would not be the same without the mood established by elegantly printed and converted paperboard. Duty free shops at international airports rely even more on the impact of packaging for luxury goods, also including chocolate and spirits. Even pharmaceutical packages and a myriad of other products convey image.

“Emotion rules in luxury retail. When a consumer connects with a product – a brand, sales happen, and satisfaction follows, especially when the product itself delivers a promise,” says Jessica Tommila, Iggesund's marketing communications manager. “What's new in our business is the growing expectation of a sustainability commitment, including environmental as well as corporate and social responsibility. Many consumers will support brands, based upon evidence of actions taken for a better planet.”

In this new context, Iggesund is an even better fit for branders, because “emotional sustainability” goes from their forest nurseries to finished packages and graphical applications, as well as recycling and making use of all waste streams as value streams.

### INDUSTRY IN A NATURAL WONDERLAND

“At Iggesund, daily life of running a pulp and paperboard mill balances well with the joy of living in a natural wonderland. Around here we think long term, and we live long term, always with the next generations in mind,” says Anna Mårtensson, environmental manager at the Iggesund Mill. “As families, we cross country ski, jog and take walks, and hunt in the forests. We place a high value on the various ways that trees enhance our lives. We take full responsibil-



Iggesund's Hans Nilsson (left) and Morgan Arousell, process operator, at the retrofitted chlorine dioxide plant. Photo also includes Kimona Häggström and Helena Falgén with AkzoNobel.

ity for our handling of the forest, including constant dialog with customers about raw material reduction to full custody of every aspect of our products. With hundreds of customers from around the world coming to see our forests and our mill it adds up to a lot of visibility for our actions.”

Every modernization project crosses Mårtensson's desk, because continuous improvement for environmental practices are designed into everything. A recent retrofit of the chlorine dioxide facility improved safety and productivity. An ongoing effort to minimize the impact of effluent from the mill aims to reduce undesirable or toxic substances to immeasurable levels.

Fifth generation Mårtensson reluctantly settled down to live and work in her hometown. “I traveled the world for five years, teaching kids in Cambodia, milking cows in Israel, chopping fish in Norway and stuffing croutons into lunch packages in Scotland for Marks and Spencer. Actually, all of my life experiences prepared me well for my current job. We make products that touch lives in many obvious ways. What's not obvious is whether coated paperboard meets high sustainability levels or not.

“Every time we have a win for safety, efficiency and the environment, we are genuinely excited and motivated to find the next step ahead.”

Mårtensson is passionate about continuing Iggesund's stewardship of water and elimination of unwanted substances in wastewater. Since the early

1990s, there have been frequent and continuous environmental investments that included less water usage, or changing washing and after-treatment techniques to decrease emissions.

While some of these efforts may be small, Mårtensson believes they add up to making a big impact. “We may not see the effects immediately, but over time, all of these small efforts decrease our emissions,” she says.

And there are the big investments too, such as the 2009 purchase of a Euro 25-million chemical treatment plant to improve water quality. “In 2012 we had the highest production in the mill's history and also the lowest emissions to water in our history,” Mårtensson says. The new treatment plant has reduced phosphorus by nearly 80%, which is an important step in combating the growth of aquatic plant life (eutrophication) in the nearby Baltic Sea. “We are world-class when it comes to the quality of effluent water. We borrow water from the Iggesund River. First we clean it to use it in production and then we clean it in three additional steps. The last step is equivalent to how drinking water is processed, so the water is of a very high quality when it is returned to the sea.”

#### CHLORINE DIOXIDE SAFETY AND PRODUCTIVITY BOOST

Hans Nilsson, pulp supervisor with Iggesund, who first worked in the bleach plant and chlorine dioxide facility back in 1987, places a high value on safety.

**Karl Gunnar Karlsson, visitor guide, and 38 year veteran of Iggesund and Jessica Tommila, market communications manager at the Iggesund nursery.**



Says Nilsson, “Our decision to eliminate sulphur dioxide from our on-site chlorine dioxide production for bleaching made our entire mill safer, and was a plus for the community. A dangerous substance no longer crosses local highways on a regular basis. And for families living near the mill, we took away any possibility of a negative impact on them.”

Continues Nilsson, “Now, we deliver precise quality to the bleach plant. The process is easier to run and more stable. With a storage tank of only 1500

m<sup>3</sup>, which is a 12-hour supply, we need to run well all the time.”

Nilsson points out that the AkzoNobel team retrofitted Iggesund’s existing equipment, and helped steadily increase the efficiency of chlorine dioxide production from 85 to 96%. “Their training of our people, and their know-how is fundamental to our success. Safe, smart practices always produce the highest level of efficiency.” “Partnership is built on trust, which is earned on a daily basis by AkzoNobel,” says Christer Bengtsson, Iggesund director of purchasing. “We expect a lot of each other, and that’s why the relationship has been successful for decades.”

Sonny Nielsen, sales manager, AkzoNobel Bleaching Chemicals Europe, suggests, “Iggesund and AkzoNobel have common values. This is most evident through a passion for making pulp and paperboard in the most sustainable way possible. A continuous improvement practice and mentality of “attainability, not just sustaining the status quo, is our core value. The fact that AkzoNobel shares the honor with Holmen on the United Nations list of top sustainability companies speaks volumes (United Nations Global Compact (UN GC 100) stock index).”

Helena Falgén, sales engineer for AkzoNobel in Scandinavia, comments “Together we realized that a retrofitted generator was what Iggesund needed for higher efficiency and performance. This saved a lot of capital. Greater stability, higher yield, and increased safety all came with the change. We are told that pulp is bleached more precisely, too, which is another advantage. On a practical level, using hydrogen peroxide is easier because it’s employed as a liquid, not as a gas.”

## The gold reserve of more than three million seedlings

A visit to the Friggesund seedling nursery is more like a living laboratory for high-tech incubation, not just a place where seeds are planted and start to grow. A high-tech, but simple enclosed structure closely controls temperature and purity of the air, so that seeds have the best chance of one day becoming tall, healthy trees for harvest in 60 to 100 years.

“We are in the fiber design business,” says Karl-Gunnar Karlsson, visitor guide at Iggesund, who has 38 years invested in the company. “Planting for the next several generations, our R & D has already helped us find ways to produce a 25% greater yield than a decade ago. In addition, our fiber quality is consistently better.” Great care is taken for seedlings to get started right to achieve the highest possible yield. Flaws may not show up for 50 years, so we are meticulous about the early stages of tree growth.”

Kimona Häggström, technology specialist at AkzoNobel, who lives within an hour's drive of the mill, stays close via text messages. According to Häggström, "First, Iggesund runs smoothly, because of their commitment to training, and the dedication of their entire team. Our role is to minimize their focus on chlorine dioxide production, which enables them to concentrate on producing top quality solid bleached board. Iggesund continuously fine-tunes its operation; maximizing yield and optimizing parameters."

#### MAKING ENERGY A PRIORITY

In June 2012, a bio-driven recovery boiler replaced two old boilers at the mill at a cost of Euro 260 million. Only a year later, sulphur emissions were down 84%. Particles have been reduced by nearly 90% and nitrogen emissions have decreased by 10%. Most of all, Iggesund is 100% thermal energy self-sufficient and 90% for electricity needs. Iggesund even delivers energy for the local community's district heating

The new boiler has a strong environmental capability, incinerating weak, sulphur-containing gases to further reduce sulphur emissions to air. The investment is a key factor in being able to run the operation without using fossil fuels or purchased electricity over the long term.

#### WHAT ABOUT A PRICE PREMIUM?

Arvid Sundblad, Iggesund's head of sales and marketing comments, "When an end user or carton maker chooses Invercote, they do so knowing that they pay a premium." Sundblad is quick to point out that paying more for Iggesund board is often a wise economic



**Christer Bengtsson, Iggesund director of purchasing and Sonny Nielsen, AkzoNobel, sales manager, bleaching.**

decision. "Converters tell us that they have less waste with Invercote, and often they run their machines faster. Some choose our lighter weight grades and achieve equal results for their customers. Invercote's technical support, and understanding of how to optimize production runs, as well as creative appearance on the shelf, wins us a lot of repeat business."

Adds Sundblad, "Our recent marketing campaign called "The Black Box," was very popular with designers. They created showcase examples of what is possible when you combine original thinking and our

## It stays in the family

Sweden's Iggesund Paperboard, a member of the Holmen Group, leads Europe as a manufacturer of high quality, virgin fiber paperboard for use in the packaging and graphics sectors. Invercote produced at Iggesund, and Incada in Workington, England produce 340,000 and 200,000 tonnes/yr respectively. Invercote and Incada are available as FSC and PEFC certified.

For more than five generations, premium boardmaking at the Iggesund Mill has been a profession of choice by local people. Holmen owns more than 1 million hectares of forestland of which --70% is within 100 km of the mill. Since 1948, the timber yield on Holmen's land has increased by 77%.

Last fall, Holmen was cited as one of the top 100 companies on the United Nations list of most sustainable companies for achieving good returns through sustainable practices. AkzoNobel, their partner for chlorine dioxide production, shares this distinction.

products. Our current efforts are shifting more to support for converters and their customers; the owners of the branded consumer goods.”

Sundblad says that Iggesund’s business is becoming global, and reaching into markets and end use segments, where the company has not been very active in the past. He believes that packaging growth will continue to be strong in Asia over the next decade.

“We have learned that converters in Asia are being strongly challenged by international as well as local brand owners. They want the most out of every carton. So we are educating them about functionality, and planting sustainability ideas for their customers to harvest.”

#### SWEET SMELL OF SUCCESS

Torgny Ljungberg, Iggesund chemist has a sweet job. He’s in charge of testing whether chocolate has the flavor that most people crave, and not any Invercote “flavor” or aroma.

“Our taste and odor lab is important to our customers, who want a verifiable seal of approval for the lack of migration of paperboard flavor or odor in their products. We joke that pine and spruce could be considered a plus, but actually that’s not the reality.

Following strict criteria for taint and odor, we tabulate results according to the Robinson method. “Because chocolate contains a lot of fat, it absorbs. For this reason we place graded chocolate and strips of Iggesund products with it. Covered with aluminum foil, and waiting 48 hours, then the testers arrive. Using a series of objectives, their noses and minds determine a series of factors, which could taint the chocolate. We score very high, based on the scientific criteria.”

“What’s new at Iggesund is something small, and sometimes very big, every day,” says Mårtensson. “Often very small is what I like the best, because with my work, no measurable content of unwanted substances is always good.”

Concludes Tommila, “We tend to get very excited about sustainability progress all along the value chain. That’s why “emotional sustainability” well describes our approach to business, and way of satisfying customers and end users.”

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## Multi-faceted “wow” factor

The “wow” factor for leading brands of fragrances and cosmetics is all about emotional response-- at airports and airplane duty free shops, retail stores, and even the experience at home after a web purchase. Consumers are drawn to perfume, premium Scotch and liquors, or chocolates partly because of the visual power made possible by strong graphics and converting, which Invercote achieves.

The “wow” for converters is ease in running with Invercote, lack of waste, and high value/functionality performance. Invercote is a workhorse—not just the thoroughbred to cross the finish line first.

The “wow” for generations of workers at Iggesund is dedication to use and renewal of vast forests, high productivity at the integrated mill, and a strong commitment to sustainability.


The “wow” for the local communities is to enjoy leisure in the forests and the benefits of blue skies and clean water.

The “wow” for environmental groups is to showcase Iggesund as a model.

While both Invercote and Incada have a reputation for superior physical characteristics like strength and foldability, Iggesund management believes that brands must be more than just the paperboard products themselves. All aspects of the business relationship - from product and service development through manufacturing, distribution and commercial service, after-sales support, recycling and high environmental performance - is the broader expression of the product line.

The Invercote brand family consists of a range of products customized for different end-use applications and is manufactured at the integrated Iggesund mill in Sweden. Invercote is a multilayered Solid Bleached Board (SBB), made from chemical pulp produced by the sulphate pulping method.

The use of virgin fiber and the sulphate pulping method deliver hygienic and odor and taint neutral products. All materials used in the making of Invercote are approved for food contact.



We help  
make pulp  
white and  
bright!

We are the leading global supplier of bleaching chemicals and deliver customized solutions for bleaching pulp to our customers. Our world class technology, application know-how, optimized supply chain and global logistic solutions provide customers with a significant advantage for their operations.

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