One of the world's best sack papers has its roots in an Austrian valley

Client: Mondi Packaging, Frantschach mill
Location: Lavanthal valley, Austria
Scope of delivery: Production Planning, Production Tracking and Quality Management systems, covering the production scheduling of the flash dryer, paper machines, winders and rewinders as well as warehousing and logistics for a total of 70 concurrent users.

“The new corporate structure – Frantschach mill became a member of the global Mondi Packaging Group – has created new requirements. A new automation system was therefore needed.”

Mr. Franz Maischberger Head of the Project Department responsible for Electrical, Process Control and Process IT

Amidst the breathtaking southern Austrian Alps, in the Lavant Valley, there is the Mondi Packaging Frantschach mill with a long history but ultra-modern technology. The R&D Innovation Center for Mondi Packaging’s paper business is also located in the mill’s environs.

"We work alongside customers worldwide to achieve world grade quality," states Mr. Franz Maischberger, Head of the Project Department responsible for Electrical, Process Control and Process IT. “We want to be our customers’ preferred, long-term partner.” The same attitude emerges when Mr. Maischberger refers to suppliers. He prefers major, global suppliers which provide high quality over the long haul.

Quality is the key factor when discussing the Frantschach mill. It embraces the end products, paper production process, pulp mill process, wood yard process and the staff’s know-how.
Three paper machines, the PM 6, 7 and 8, produce approximately 250,000 tons of sack and kraft paper per year. The wire width of the PM 6 is 490 mm and the sack paper produced covers 60-125 grams per m². With a speed of 920 meters per minute, the PM 6 is one of the world’s fastest sack paper machines. The PM 8 also produces sack paper and has a wire width of 510 mm and a speed of 830 meters per minute, while PM 7 produces kraft paper of 30-150 grams per m² with a speed of 350 meters per minute.

The Frantschach mill also produces approximately 50,000 tons per year of unbleached market pulp.

The overall export rate is more than 80% of production. The raw material concerned is spruce and pine wood.

In recognition of its high standing approach in sack paper production, the Frantschach paper mill has R&D responsibility within the Mondi Packaging Paper Division. Many other Mondi sack paper mills follow the guiding principles elaborated in Frantschach.

**Sack paper, special filter papers and luxury shopping bags**

Frantschach’s high quality paper and pulp are used for very special needs by end producers.

Frantschach’s sack paper goes under the brand name of ‘ADVANTAGE’, a high quality sack and kraft paper. Sack paper has very high quality requirements, which entails paying special attention to printability, strength, energy absorption and porosity. Converting customers of Frantschach produce 10 sacks every second, to be filled with 50 or 25 kilos of cement at a rate of 4,000 sacks per hour. Very few sack paper producers are able to meet such quality requirements.

The world-renowned coffee filter brand, Melitta, acquires Frantschach’s unbleached pulp – notoriously, the food industry has very high quality requirements. Other special pulp grades produced by Mondi Packaging Frantschach can be seen as isolation material for transformers. Meanwhile, in luxury shops you can get luxury paper bags based on Mondi Packaging Frantschach’s kraft paper.
Basis for high quality
The company’s strategy is to modernize continuously in order to ensure that it has the most up-to-date technology. Major pulp and paper industry machine, equipment and system suppliers have always formed its reliable partners and the latest investment is the reconstruction of its wood yard and raw material mixing in 2006/7, amounting to approximately Euros 20 million.

“The mill’s strengths lie in quality, research and development, skill, two balanced high efficient sack paper machines, and just-in-time delivery,” explains Mr. Maischberger. In recent years, the mill has won several awards in the abovementioned areas, for example countrywide environmental improvement and innovation awards.

Mondi Packaging Frantschach has developed a continuous learning system, “Knowledge for Production,” referring to learning from production processes. Each shift worker logs information on any incidents, problems, and the related actions and solutions, into her/his PC. In this way, the best practices are identified and experience accumulated. “This enables the 24h/7day online availability of everything we have experienced,” Mr. Maischberger affirms.

“Safety, health, environmental friendliness and a zero rate of accidents are our working environment goals,” states Mr. Maischberger. “This is a question of attitudes rather than techniques,” he continues. As the result of this ambitious program, the safety performance develops significantly over the last few years.

More than 500 persons are working at Frantschach location. In October 2006, the Frantschach pulp and paper mill will celebrate its 125th anniversary as a mill with a long history but the modern technology.

ABB a long-term partner
Walking around the mill, you will see equipment and PCs bearing ABB logos. The second generation of Manufacturing Execution Systems MES (the equivalent of Collaborative Production Management (CPM)) solutions has been deployed in production planning and optimization, production tracking and quality management. Three Quality Control systems delivered by ABB perform online quality control on PM 6, 7, 8 and the flash dryer, while ABB’s Automation System has just been upgraded and extended to cover the wood yard, in addition to the paper machines, the pulp mill and the power plant.
Around 10 years ago, ABB delivered an MES system to the Frantschach paper mill.

“It was working well, but was nearing the end of its lifecycle,” Mr. Maischberger relates. “The new corporate structure - Frantschach mill became a member of the global Mondi Packaging Group - has also created new requirements. A new system was therefore desirable.”

For this reason, the Mondi Packaging Frantschach decided to acquire new Production Planning, Production Tracking and Quality Management Systems from ABB in 2002. “Our experience of ABB’s earlier systems was decisive in our decision to purchase another CPM solution from them, as well as the financial aspect. The applications were designed as multi-mill solutions, possibly covering similar mills belonging to Mondi Packaging in the future.”

A template solution, a proto system based on ABB’s Industrial IT CPM solution, was created as a first step. Mondi Packaging Frantschach’s and ABB’s IT specialists worked on this together and, since it was important that the system fitted in the mill’s processes perfectly, it incorporated many customized features while being based on a standard CPM solution. A challenging additional aspect was the link of the ABB-CPM solution to a centralized SAP system being built simultaneously.

The scope of ABB’s delivery included Production Planning, Production Tracking and Quality Management systems, covering the production scheduling of the flash dryer, paper machines, winders and rewinders as well as warehousing and logistics. The system supports 70 concurrent users.

A fundamental, new feature of the template/proto solution is the Capability to Promise (CTP) feature, which gives online 100% assurance that Mondi Packaging Frantschach is able to deliver the right quality at the right time to its customers. Another unique feature lies in its integrated planning functionality which enables paper producers to forecast the amount of pulp needed for paper and market pulp production and to balance this with the planned production of bulk pulp.

The project, entitled SPARK 2, lasted three years. “We are pleased with ABB’s work,” confirms Mr. Maischberger. “We received application support from Helsinki when needed, while the reasons underlying our investment decisions – improved processes, quality and better customer service – have all been borne out.”

A similar system, based on this Frantschach template, was successfully installed at the Mondi Packaging Dynäs mill in May 2006.
**Enterprise integration the key to success**

“This is a fully integrated mill,” confirms Mr. Maischberger. “Every aspect of the mill can be controlled.” As the newest investment, the wood yard was modernized and is also controlled using the control system delivered by ABB.

The control system of the pulp mill was delivered in 1996-2000 and was upgraded this year, including the latest advanced features of the current system. The system includes 12 ADVANT AC 450 controllers and 16,000 input/output points gathering information on processes, with about 20 operator workstations. The paper mill system is based on ADVANT AC 450 technology operating all three paper machines on one Distributed Control Network.

Sitting in a conference room, Mr. Maischberger made a direct connection to the pulp and paper mill processes simultaneously, displaying the continuous cooking process, paper machine operation and QCS in real time and online. This is one benefit of the distributed control system. Access rights are set up so that each user gets the information he/she needs for timely and informed decision-making. In the same way, online history data is made available immediately. This fully integrated solution will help to improve the productivity of the entire mill.

**QCS**

Printability, strength, total energy absorption and porosity are the most important quality features in sack paper. For the quality control of these, Frantschach has a Quality Control System for every paper machine; these ADVANT 1190 systems have been controlling the basic paper properties for years. “They are reliable and working well,” said the mill staff.

Mr. Maischberger is head of the project department for Electrical, Process-Control and Process IT at Mondi Packaging Frantschach. He has been working at the mill for 29 years; his passion for stable state-of-the-art technology perhaps provides one of the reasons for Frantschach mill’s position as a technological forerunner.

**A good neighbor**

Taking care of the environment At Mondi Packaging Frantschach a great deal of attention has been paid to environmental issues. Due to its solid improvement in technology, waste water figures has dropped to an 1,500 Inhabitants Equal Value, while SO2 emissions have tumbled from 1,800 to 40 mg/m³. In 1998 the mill was certificated according to the Environmental Management System ISO 14001.

**Mondi Packaging**

The Mondi Packaging Frantschach is member of the Mondi Packaging Group, a leading European paper and packaging company. It is active in the bag and flexibles business and has more than 100 production facilities worldwide.

The Mondi Group is owned by the Anglo American Group. Mondi operates worldwide and is principally involved in producing paper, packaging solutions, coating and business paper. In 2005, sales totaled USD 4.02 billion and it employed 16,278 people.

Mondi Packaging Frantschach GmbH is located in Austria, at the heart of Europe. Mondi Packaging Frantschach was founded in 1881 and nestles in the Lavant Valley, surrounded by tree-clad mountains. The nearby town of Frantschach-St. Gertraud has 3,000 inhabitants, and the area is renowned for skiing during the winter and its hiking and biking routes in the summer.