

KAUKAS MILLS BENEFIT FROM RENOVATIONS

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UPM-KYMMENE'S MILL COMPLEX IMPROVES PRODUCT QUALITY AND INCREASES CAPACITY

FINNISH INDEPENDENCE DAY — DECEMBER 6 — served as the start-up date for the softwood pulping line at UPM-Kymmene's Kaukas pulp mill in 1996. The start-up marked the completion of a full renovation of the mill. The first stage of the project, completed in 1992, included the soda recovery boiler, evaporation plant, steam turbine, gas odor treatment plant and biological effluent treatment plant.

The most recent improvements included wood processing and bark boiler renovations, a new causticizing plant and lime kiln, a new hardwood cooking plant, a new softwood pulping line, a new drying machine, and a new pulp warehouse as part of the mill's "Fiber 90" program.

The project increased the pulp mill's production capacity by 200,000 tons/year. The rebuilt pulp mill has an annual production capacity of 275,000 metric tons of hardwood pulp and 350,000 metric tons of softwood reinforcement pulp. Total cost of the project cost was FIM 1825 million (about US\$ 350 million).

UPM-KYMMENE

UPM-Kymmene is said to be the world's leading producer of LWC, with an annual capacity of 2 million metric tons. It is also the biggest manufacturer of magazine papers, with total capacity exceeding 3 million metric tons per year.

Kaukas is one of UPM-Kymmene's largest integrated mill complexes. It includes the Kaukas pulp mill,

Lappeenranta paper mill and Voikkaa paper mill. The Kaukas saw mill of United Saw Mills Ltd. and the plywood mill of Schauman Wood (part of the UPM-Kymmene Group) operate at the Lappeenranta mill site, also.

The Lappeenranta and Voikkaa paper mills have a combined annual production capacity of 990,000 metric tons of paper for 1997. The two machines at Lappeenranta account for 490,000 tons of that, the rest is produced by the four machines at the Voikkaa mill. The Lappeenranta mill also had the capacity to produce 625,000 metric tons of bleached sulfate pulp from pine and birch.

In 1996, 66.5% of the paper Kaukas shipped went to Western Europe. Germany and the United Kingdom accounted for a third of those deliveries. Just over 9% of the production was delivered to North America that year.



UPM-Kymmene's Kaukas mills — inside and out

FINLAND



The Camura GentleSlice™ chipper (top) and SuperBatch™ cooking plant at the Kaukas mill (photos: Sunds Defibrator)



The TwinRoll™ A-1555 displacement press

QUALITY COUNTS

In producing the paper, quality is a prime concern, said Paavo Arppo, production manager for the Lappeenranta paper mill. The qualities of most importance to its customers are runnability, followed by brightness, gloss and smoothness, he said. Consequently, the mill wants to start of using high quality pulp with good wet strength. The paper is produced on a Valmet gap former—the top and



Ross stock cleaners at the Kaukas pulp mill



The PressFormer™ pulp machine at Kaukas (photo: Sunds Defibrator)



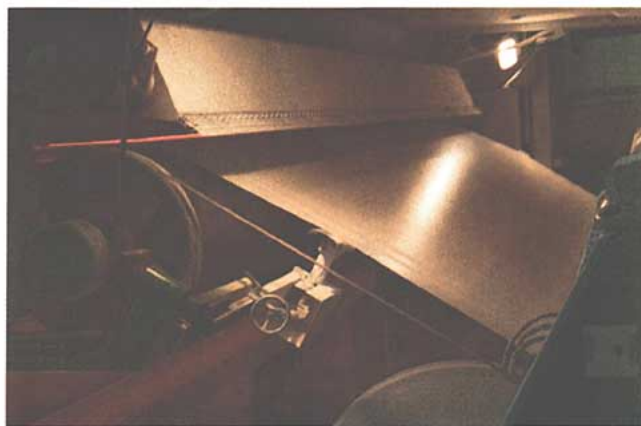
Manning the controls for the pulp dryer section at Kaukas

bottom wire combination gives better evenness—and then double-coated.

The company's 60g/m² LWC paper is made up of mechanical pulp from spruce (32%), bleached sulphate pine pulp (27%), fillers (6%) and coatings (35%).



The beginning of the pulp finishing line



A closer look at the paper sheet



One of the paper machines at Kaukas



The paper finishing area at Kaukas

UPM's "SaimaCote" LWC papers for heatset web offset fall into the 51-80 g/m² basis weight range. Brightness for those papers varies from 70%-76%, with opacity ranging from 89%-95% and a Hunter gloss of 52%-62%.

As part of the project, Sunds Defibrator supplied a chipper, pulp cooking system, and displacement press, along with drying and baling equipment.

During 1995, an oxygen delignification plant was completed at Kaukas and the PM 1 machine was rebuilt at the Kaukas Lappeenranta paper mill. A new recovery boiler was added in 1991 and a new pressure ground-wood plant was started up that same year at the Kaukas Voikka paper mill.

The SuperBatch™ cooking plant includes a dozen 400 m³ digesters built with ss 2273 duplex steel. The plant began producing softwood and hardwood pulp in December of 1996.

The TwinRoll™ A-1555 displacement press installed at Kaukas has a design capacity of 1700 a.d. tons/day. It is positioned between the second EOP-stage and the D/Q stage of the bleaching line.

One objective of the improvement program was to meet the European EcoLabel and U.S. "Cluster Rule" environmental criteria. In doing that, Kaukas was able to increase production while decreasing water consumption for its pulp lines from 75 m³/metric ton of production to 35 m³/ton, with further reductions expected.

The Kaukas mill had reported AOX emissions of 0.35 kg/metric ton of pulp produced and BOD emissions of 40 kg/metric ton of pulp for 1996.

UPM-Kymmene contracted with Valmet Automation to supply an extensive automation control system for the pulp mill. The system is one of the largest ever delivered by Valmet. It includes Dramatic XD systems for the debarking and fiber lines, the bark boilers, the dryer and the chemical recovery line. The package also includes an XIS information management system and Paper IQ quality control and baling line management system.

According to Valmet, the pulp mill uses HTML documentation of process events, allowing operators to access control loop information via an intranet system. **TJ**

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