

Researchers discuss aims of Japanese pulp and paper companies

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Biotechnology and process control are among top interests for research in Japan.

A recent meeting with senior researchers and officials from Japan's major pulp and paper producers revealed more similarities than differences in business and research concerns.

As elsewhere, quality and environmental pressures are drawing a great deal of attention. Quality becomes a competitive issue as companies try to maintain low cost and market specialty papers. Alternatives to chlorine bleaching are available and being developed, but the decision to switch is seen as political. The Japanese are trying to push an already high recycle rate of 55% to 60%. With that, as with dioxin, the basic technology to deal with the problems exists, the question is how to improve on it.

Oji Paper spent less than 10% of its research money on newsprint and conventional papers, concentrating instead on specialty grades, noted Shunsuke Okushima, deputy general manager in Oji Paper's Tokyo product research lab. Daishowa's focus has been on mass paper production, switching from smaller to larger machines, said Tetsuo Otaki of Daishowa's Saitoh Research Center.

Mitsubishi specializes more in photo papers than do the other Japanese paper companies, said Toshimasa Ogura, general manager of Mitsubishi Paper Mills' central research laboratory in Tokyo. It's also placed a lot of emphasis on thermal papers. In the last five years, the company has also favored art and coated papers, particularly ultra lightweight coated. Its emphasis on coated and information papers is likely to continue over the next five years.

A significant problem facing all of the companies is how to manufacture paper with a minimum number of employees. The solution in part depends on further advances in process control.

Juho mainly produces printing and information papers, explained Kiyoaki Iida, general manager at Juho Paper's central research laboratory in Tokyo. The main emphasis of its research has been on increasing productivity and product reliability. Future study will likely include deinking and nonchlorine bleaching, in an effort to advance significantly beyond current solutions.

As with Mitsubishi, Juho has placed a lot of emphasis on information papers. The challenge is to anticipate coming needs and trends, and to correctly respond to them. Biotechnology is another area of interest, including the development of disease-resistant trees.

In the next 5-10 years, a lot of attention at Honshu Paper will be devoted to flexo printing and elemental chlorine free pulping, said

Hiroaki Otsuka, senior engineer at the company's R&D laboratory in Tokyo. Depending on the demand from customers, ECF might even become unacceptable, requiring a switch to all chlorine free technology.

With the merger of Juho Paper and Sanyo-Kokusaku Pulp, Akira Yamaguchi, deputy general manager at the pulp company's R&D headquarters



in Tokyo, was uncertain what direction research might take through the end of this century. The pulp manufacturer has been, and is likely to continue, focusing on dissolving and sulfite pulp, he said. A lot of emphasis has also been placed on construction and compressed wood products.

Of particular interest to Sanyo-Kokusaku might be finding ways to completely use the wood, including the lignin and spent liquor, without any waste. That may in part involve the production of yeast and cellulose powder.

A related area of interest is biotechnology, including research into electrolysis of nucleic acid in yeast to develop an AIDS medicine, Yamaguchi said.

In summarizing, Kunio Hata, managing director of Juho Paper's R&D division in Tokyo, noted that all the companies represented have specific goals of their own, but also share interests in areas such as biotechnology and process control. Research in biotechnology is focusing on enzyme and nonchlorine bleaching and the development of new wood types. Research in process control includes the development of sensor technology.

For the most part, Japanese paper companies fund their own research. Daishowa has actually increased the amount it's spending on research. In rare cases, the government helps out. Some projects are also coordinated with universities, as in the case of some enzyme research. Enzymes are already being used by some companies, so the quest is now to find the best use.

Above: Senior Japanese researchers meet with Tappi Journal editor Don Meadows during Pan-Pacific Conference.