

### ***The Industry Adapts: Dissolving Pulp***

An article in the August issue of this newsletter described one of the pulp and paper industry's responses to the double-digit decline in the demand for communications papers that has resulted from increased reliance on electronic media. Exploiting the unique absorbency characteristics of southern pine fiber, companies have repurposed mills by converting them from printing and writing paper production to the production of fluff pulp, the stuff of diapers and similar disposable personal hygiene products.

But not all mills are well positioned, either geographically or otherwise, to go the fluff pulp route. Instead, some have chosen to adapt to the changing commercial environment by converting their paper pulp production facilities to the production of highly purified grades that are nearly pure cellulose, so-called "dissolving" pulps. These pulps are in demand as feedstocks for the production of textile fibers such as rayon and cellulose acetate, as well as other products made by dissolving the pulp and then precipitating ("regenerating") its cellulose in the form of fibers or films. In a kraft mill formerly dedicated to making pulp for paper, the production of dissolving pulp requires one or more extra purification steps. The reason is that wood contains materials called hemicelluloses that are desirable in paper pulps but undesirable in dissolving pulps. Removing them requires an acid treatment ("prehydrolysis") of the wood prior to the pulping step and, for the more demanding (acetate) grades, a strong alkaline treatment of the pulp. (Conversion of an existing paper pulp mill is not cheap – Internet news sites have mentioned figures ranging from \$91 million to \$210 million as the cost of converting Fortress Paper's Thurso, Quebec mill and \$250 million for Aditya Birla's Terrace bay, Ontario mill.)

The demand for dissolving pulp is driven largely by growth in the market for textiles, principally rayon. Rayon is made by the viscose process, in which the pulp is converted to an alkali-soluble derivative (cellulose xanthate). The xanthate is dissolved in a solution of caustic soda, giving a viscous solution that is extruded through small holes into an acid bath where the cellulose is regenerated in the form of man-made textile fibers. Rayon is a versatile fiber that can be used in place of cotton for the manufacture of clothing. In fact, the price and availability of cotton are major factors governing investment in pulp mill conversions. Early in 2009, the price of cotton was slightly more than fifty cents per pound. It then underwent a steep increase, peaking at \$2.30 per pound in March of 2011 before steadily decreasing to its current price of about \$0.84. (See the "Statistics Corner" at the end of this newsletter.) Since the price of dissolving pulp is tied to that of cotton, it was no coincidence that more than a million metric tons of dissolving pulp capacity came online in 2011.

In dissolving pulp, as in so many other arenas, the remarkable expansion of the Chinese economy emerges as a dominant factor. China, with limited fiber resources of its own, is seeing textile demand and production grow in lockstep with the growth in its economy as a whole. It is no surprise, then, that Chinese imports are expected to drive the dissolving pulp market.

As the demand for paper pulp decreases, the anticipated increase in dissolving pulp demand has caused many mills to convert their paper pulp lines to dissolving pulp. In a continuation of this trend, other mills are following suit. In spite of recent downward trends in the prices of both cotton and dissolving pulp, more than a half million tonnes of new capacity is expected to have come online during 2012, and more than a million tonnes is planned to start up during the years 2013 – 2016.

Whether the capacity increases will continue is an open question. It seems likely that decreasing prices and margins, together with the looming specter of oversupply, will soon close this particular window of opportunity for paper producers seeking alternatives to traditional business models.

### **Harman Defends Textbooks**

In remarks to the National Press Club on October 2, Education Secretary Arne Duncan declared that "Over the next few years, textbooks should be obsolete," American Forest and Paper Association CEO Donna Harman was quick to come to the defense of traditional textbooks. In her response (<http://www.afandpa.org/pressreleases.aspx?id=2910>), she made the following points:

- In a recent experiment at the University of Virginia in which students were given an e-reader as an alternative to printed business cases, articles and textbooks, 75-80% of students preferred paper.
- Paper and electronic formats work together to attract, engage and inform, providing a deeper and more compelling experience than either one alone.
- Studies have found that computers and digital access have a negative impact on achievement scores in reading and math and that laptop use posed a significant distraction to both users and fellow students.
- The resource requirements to purchase computers and tablets are significant; the additional cost to provide the broadband capacity and the infrastructure required to keep them operational is beyond the economic reach of many schools. In contrast, the Association of American Publishers reported that, on average, states and local schools spent \$54.51 per student on instructional materials in 2011, which represents just one half of one percent of the \$750 billion spent on all K-12 education.
- Unlike computers, laptops and other digital devices that create considerable waste issues, textbooks can be collected easily and recycled at the end of their useful lives.

### **AF&PA News**

Last week, the American Forest and Paper Association released its September 2012 Kraft Paper,

Containerboard and Boxboard Statistics Reports. Below are the key findings:

- Total kraft paper shipments were approximately 130,100 tons, a decrease of 2.2 percent compared to the prior month.
- Total inventory was approximately 77,900 tons in September.
- Unbleached kraft shipments decreased, but bleached kraft shipments increased year over year for the eighth month in 2012.
- Containerboard production fell 4.8 percent over August 2012 and 2.2 percent compared to the same month last year.
- The month-over-month average daily production decreased 1.6 percent.
- The containerboard operating rate for September 2012 lost 1.5 points over August 2012, decreasing from 97.5 percent to 96 percent.
- Total boxboard production decreased by 2.1 percent compared to September 2011 and decreased 6.9 percent from last month.
- Unbleached kraft boxboard production increased over the same month last year but decreased compared to last month.
- Total solid bleached boxboard & liner production decreased compared to September 2011 and decreased compared to last month.
- The production of recycled boxboard increased compared to September 2011 but decreased when compared to last month.

The complete reports with detailed tables can be purchased by contacting Dina Menton at [dina\\_menton@afandpa.org](mailto:dina_menton@afandpa.org) or 202-463-2710.

### **Recent Industry Intelligence Inc. Headlines**

[Industry Intelligence Inc.](http://www.industryintel.com) has provided market intelligence to more than 600 companies worldwide since it began as Forestweb in 1999. Industry Intelligence delivers a daily report featuring news of the paper and forest products industries. For your subscription visit: <http://www.industryintel.com>

Below is a selection of particularly relevant recent headlines, together with brief synopses.

## **October 16 - 22**

*Fibria inaugurates new technology center laboratory in Jacareí, Brazil, to conduct modern research, development in the field, including biotechnology and biorefining, says investment amounts to 8M reais over last couple of years*

The Jacareí laboratory is installed near one of the company's mills and has an area of roughly 700 m<sup>2</sup>.

*MeadWestvaco to acquire corrugated packaging materials producer Ruby Macons to accelerate India growth strategy; deal includes offices and two mills with three paper machines around city of Vapi in Gujarat*

Ruby Macons is the market leader in corrugated packaging materials in India, producing greater than 150,000 tons annually with significant capacity expansion underway.

*Global paper, board production reaches record level of 399 million tonnes in 2011 thanks to positive growth in Asia, Latin America, Oceania, Middle East, report finds; China took top spot at 24% of world demand, 25% of global production, followed by US*

These and other statistics were published in the 2012 Annual Review of Global Pulp & Paper Statistics, by RISI.

*Clemson researchers awarded US\$179,864 to study impact of grocery bag materials on environment; study to analyze manufacture, use, disposal of grocery bags, will look at GHG emissions, energy use, other impacts from product sourcing to final disposal*

The environmental impact study (life-cycle analysis) is being funded by Hilex Poly, LLC, a manufacturer of plastic bag and film products.

## **October 9 - 15**

*Fibria expanding into biofuels as expected global oversupply of paper raw material threatens to depress prices, CEO says; company aims to reduce reliance on pulp, which made up 94% of sales last year, get up to 25% of its revenue from biofuels by 2025*

The fuel plant is the result of a joint venture Fibria announced Oct. 3 with Wilmington, Delaware-based Ensyn Corp., which has developed technology to convert wood into transportation fuel.

*Rayonier eyeing growth in cellulose specialties market; US\$300M conversion of Jesup, Georgia, fluff pulp line, to be completed in mid-2013, will add 190,000 tonnes/year to company's specialty cellulose capacity*

When the \$300 million, two-year expansion is complete next summer, it will add 190,000 metric tons of dissolving pulp capacity, at the expense of fluff capacity.

*Nippon Paper completes construction of 2.2B yen diverting existing continuous digester for producing*

*dissolving pulp at its Kushiro, Japan, mill, as company seeks to expand this business on rising demand for dissolving pulp in recent years*

The production of dissolving pulp using an existing continuous kraft pulp digester is the first of its kind in Japan.

## **October 1 - 8**

*Analysts mull benefits of merger of UPM and Stora Enso as Europe's paper industry faces 10%-15% overcapacity, prospect of further mill closures*

A merger of UPM and Stora Enso would create the world's number one paper company. \

*China's packaging industry forecast to grow at CAGR of 8% to US\$110.1B in 2016, driven by growth in domestic consumption, GDP, report says; paper, board packaging accounts for largest share of market with value of US\$33.91B*

China has replaced Japan in terms of market size and is expected to surpass the US by 2020.

*US to investigate Nova Scotia C\$124.5M aid package that helped Port Hawkesbury paper mill reopen, prompted by 'troubling questions about potential injurious and/or WTO-inconsistent subsidies,' says US trade representative*

Some say the Nova Scotia mill, with the help of government assistance, will have a negative effect on Maine mills that produce similar types of paper.

## **September 24 -30**

*Pacific West announces completion of sale of Port Hawkesbury mill in Nova Scotia, mill to restart under new name Port Hawkesbury Paper; 250 employees to be back to work weekend of Sept. 29-30*

With the support of the Government of Nova Scotia, the mill aims to be the most competitive producer of supercalendered paper in North America.

*Weyerhaeuser launches thermoplastic composite that uses cellulose fiber as reinforcement additive, to be produced on its pulp-making facilities; product can improve molding cycle times up to 40%, will initially be used in household goods, auto parts*

According to Dr. Ellen Lee, plastics research technical expert of Ford Motor Company, using the cellulose composite will allow Ford to significantly reduce the environmental footprint of its products.

## **September 17 -23**

*Weyerhaeuser named to Dow Jones Sustainability World Index for second year, CEO says listing recognizes position among top 10% of world's sustainability performers*

The Dow Jones Sustainability Index is widely considered one of the most desirable and credible recognitions for

sustainability performance. Weyerhaeuser is one of only three forest products companies included in the World Index.

*IP to purchase Sabanci Holdings' stake in their Olmuksa corrugated packaging JV in Turkey, comprising two recycled containerboard mills and six box plants; transaction worth US\$56M, with IP taking majority control of Olmuksa*

The joint venture, headquartered in Istanbul, was formed in 1998 and has grown to become a market leader in corrugated packaging in Turkey; it operates two recycled containerboard mills and six box plants.

*Catalyst Paper begins sale process for Snowflake, Arizona, paper mill and associated assets, including about 19,000 acres of land and The Apache Railway Co.*

The facility is located in the foothills of the White Mountains in northeastern Arizona. The assets for sale

include the equipment and other assets associated with the paper mill, approximately 19,000 acres of land and The Apache Railway Company.

## Statistics Corner: Cotton Prices

Figure 1 below shows how monthly cotton prices have changed since January 2009. The rapid rise in late 2010 and early 2011 was a major factor in decisions by several companies to convert their paper pulp facilities to dissolving pulp, the raw material for the manufacture of rayon, a cotton substitute. (See article above.) ■

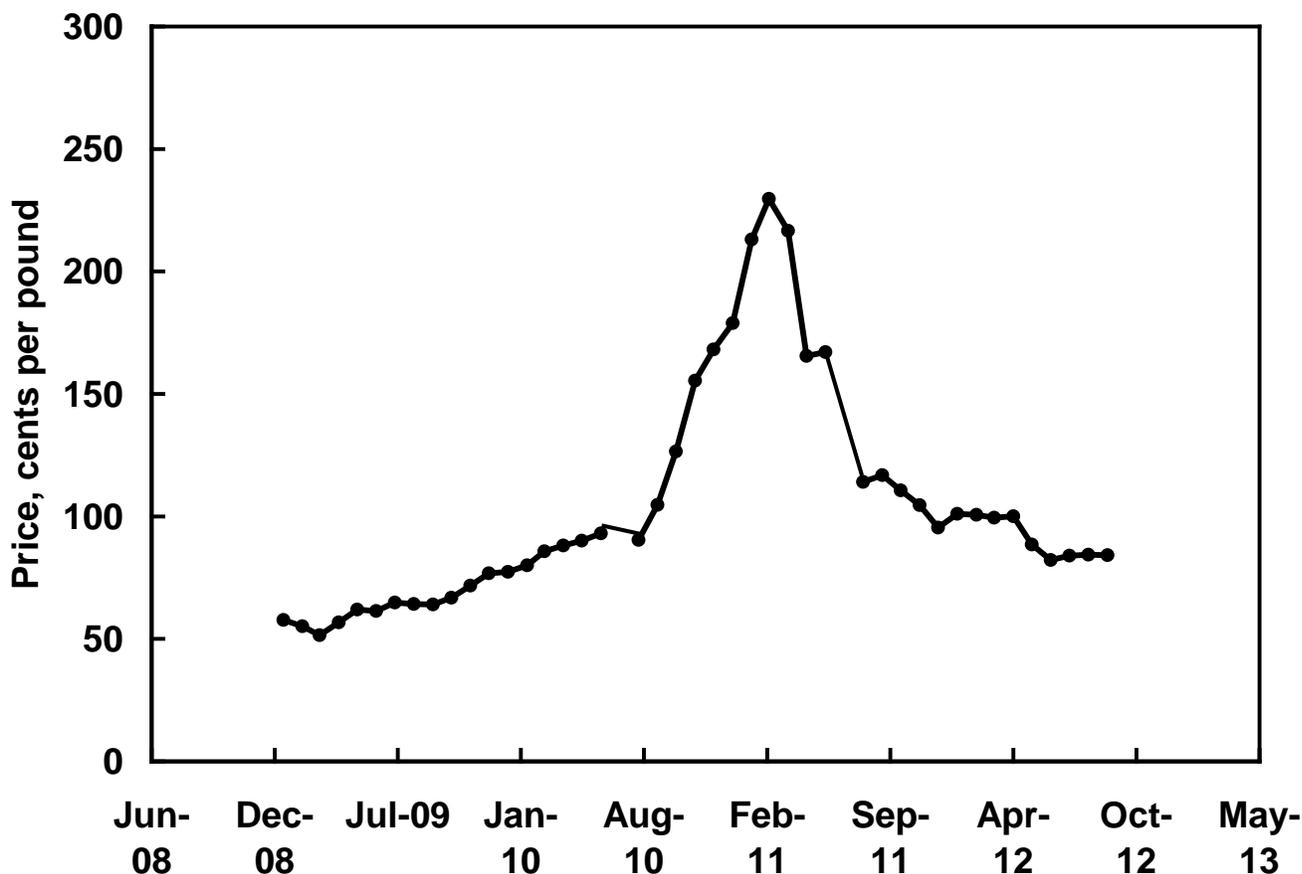


Figure 1. Cotton Prices, January 2009 – September 2012

Source: <http://www.cotton.org/econ/prices/monthly.cfm>