

Editor's note: With this issue, we begin the fifteenth year of publication of the CPBIS Newsletter. The first issue appeared in April of 2001, a few months after the founding of the Center at the Institute of Paper Science and Technology (recently renamed the Renewable Bioproducts Institute) in partnership with the Alfred P. Sloan Foundation, the US Pulp and Paper Industry and the Georgia Institute of Technology.

Success Story: Eliminating Dioxin Concerns

By Aselia Urmanbetova

Environmental success stories are not common in the mainstream media. One of the most salient success stories in the pulp and paper sector is how quickly and effectively pulp mills responded to findings of potentially harmful effects of certain chlorinated organic compounds in mill effluents. Chief among these were 2,3,7,8-tetrachlorodibenzodioxin (2378-TCDD) and the corresponding furan, 2378-TCDF, collectively referred to as “dioxins.” Both compounds were inadvertent by-products of the then prevailing (but now rarely used) chlorine-based bleaching process and both were found in mill effluents discharged to bodies of water on which the mills were located.

In response to the 1981 EPA finding that dioxins are potent carcinogens, litigious concerns arose around pulp mills’ discharges of these compounds. In the 1990s, after publication of the EPA- and industry-commissioned report, “104 Mill Study,” the EPA and the pulp and paper industry announced a voluntary agreement. It targeted dioxin-tainted effluents and sludge by formalizing best management practices, such as substituting chlorine dioxide for chlorine [Powell, Mark R. 1997. *Control of Dioxins from the Pulp and Paper Industry Under the Clean Water Act and Lead in Soil at Superfund Mining Sites: Two Case Studies in EPA's Use of Science. Discussion Paper 97-08*]. The substitution of chlorine dioxide for chlorine

enabled a dramatic decrease in effluent chlorinated compounds, with the result that bleached pulp mill effluents no longer present serious environmental or health risks.

By 2004, according to the National Council for Air and Stream Improvement (NCASI), there had been a 90% decrease in the amount of dioxins and furans released by pulp and paper mills. Further, the Alliance for Environmental Technology points out that in 2004 only 8 waterbodies, representing less than 0.2 percent of total 3,221 U.S waterbodies subject to any type of advisory, have a dioxin advisory downstream of bleached chemical pulp mills (Figure 1). [See “Effects of Decreased Release of Chlorinated Compounds on Discharge to Water, Wastewater and Water Quality Impacts Associated with Pulp Bleaching,” <http://www.paperenvironment.org/index.html>.]

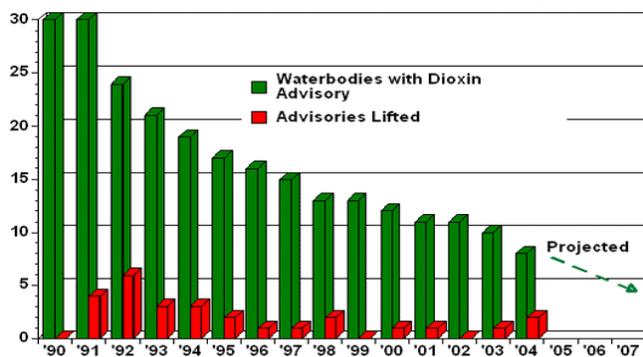


Figure 1. Dioxin Advisories Downstream Of Pulp and Paper Mills (Source: Alliance for Environmental Technology)

A measure of the combined concentrations of chlorine-containing compounds in mill effluents is “AOX,” which stands for adsorbable organically bound halogens. Dioxins and toxic phenolic compounds are responsible for a very small fraction of the chlorine in AOX; the vast majority of the chlorine-containing compounds that contribute to AOX are harmless,

nontoxic ones. Nevertheless, the EPA has chosen to regulate AOX discharges. Figure 2 shows the dramatic decrease in pulp mill AOX discharges that the industry achieved between 1975 and 2010.

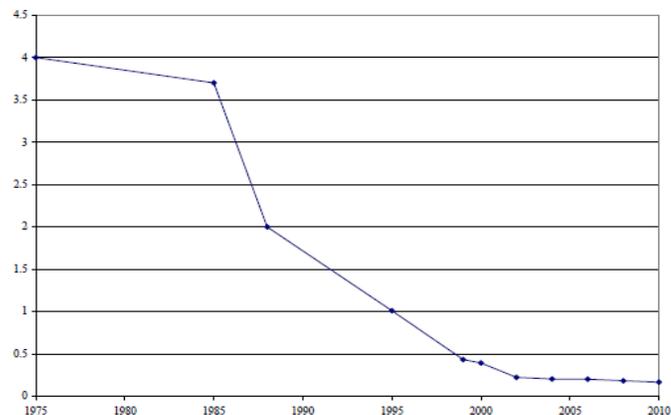


Figure 2. Effluent AOX, kg/tonne pulp. (Source: NCASI)

Trend Indicators from Industry Intelligence Inc.

[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 sampling of recent Industry Intelligence headlines, chosen to mirror significant trends and other interesting developments in and around the paper and forest products industries.

Global recycled-paper packaging market to grow at 7.73% CAGR from 2015-2019 due to consumers increasingly choosing eco-friendly packaging products over conventional packaging, report finds; factors include growing middle class, government initiatives

The new Technavio report also emphasizes the growing demand for paper packaging products in China.

Orchids Paper to build fully integrated tissue paper mill in Barnwell, South Carolina, commences proposed offering of 1.5 million shares of its common stock, option on another 225,000 shares, to help fund project, along with bank financing, cash on hand

The project will include a facility to house a paper machine, equipment to convert the parent rolls into

finished product and warehouse space for finished product and raw materials.

Vertical Research Partners: Smurfit Kappa is good acquisition target for IP; merger would make IP largest containerboard producer in Europe, help grow footprint in Latin America, and bring up to US\$1.26 additional EPS to IP in 2018

International Paper may be interested in getting larger in containerboard.

Global adult diapers market to grow at CAGR of 8.6% over 2014-2019 period, as acceptance and availability of adult diapers have provided better convenience, comfort, skin-care benefits for people affected by incontinence, according to recent report

An adult diaper is a disposable diaper that consists of an absorbent pad sandwiched between two non-woven fabric sheets.

Pratt Industries breaks ground on new US\$52M corrugated box factory in Beloit, Wisconsin, due for start-up in early 2016; facility will have capacity to produce 600 tonnes of recycled boxes/day

Aside from using 100% recycled paper in its box-making process, the plant will also use the latest in water reclamation technology, and will eventually reduce discharge into the local sewer system to zero.

China to ban water-polluting paper mills, oil refineries, other industrial plants by end of 2016, as it moves to solve serious pollution of country's water supply, with one-third of its major river basins and 60% of its underground water contaminated

Impact on water will become a key consideration in future industrial expansion.

US International Trade Commission determines there is reasonable indication US industry is materially injured by SC paper imports from Canada allegedly subsidized by Canadian government; US Dept. of Commerce will proceed with countervailing duty probe

The Commission's public report Supercalendered Paper from Canada (Investigation No. 701-TA-530 (Preliminary), USITC Publication 4529, April 2015) will contain the views of the Commission and information developed during the investigation. The report will be available after May 11, 2015. It may be accessed on the USITC website at: http://pubapps.usitc.gov/applications/publogs/qry_publication_loglist.asp.

Port Hawkesbury Paper plans to vigorously defend itself in US Dept. of Commerce's countervailing duty

probe involving imports of SC paper from Canada, states it will be able to establish no injury to US market occurred and there were no material subsidies

In the interim, PHP will continue to focus on increasing the efficiency of its mill and operations.

Mondi proposes permanently shutting down its specialty papers mill in Lohja, Finland, with production to stop this summer and mill to close in late 2015; cooperation negotiations between company and union have begun

The mill employs about 150 persons.

Paper production in Finland expected to decline sharply over next two years, dropping 6%-7% in 2015 and 4%-5% in 2016, as some paper machines will likely be shut down; world paper demand forecast to decline 32.5% by 2020: report

The Stationers' and Newspaper Makers, a London-based company, conducted the report. The pulp and paper sector is one of the most important industries of Finland, accounting for about 2 percent of its GDP and half of its exports.

Finnish production of paperboard forecast to rise in 2015 and 2016, and pulp capacity will grow, as will pulp exports, but paper output in Finland is expected to decline 6%-7% this year and 4%-5% next year, with further capacity cuts possible: report

This according to a report by Pellervo Economic Research Institute.

Metsä Fibre decides to build €1.2B bio-product mill in Äänekoski, Finland, that will produce 1.3 million tonnes/year pulp, with side streams to be formed by companies around mill; construction starting now, to be completed in Q3 2017

The mill's annual pulp production will be approximately 1.3 million tonnes. It will produce much more electricity than it will need, as well as tall oil and turpentine, among other bioproducts. It is planned to use all side streams from the bioproduct mill in the ecosystem that will be formed by various companies around the mill. The new mill will increase the consumption of pulpwood in Finland by approximately 10 per cent.

Two towns in Wisconsin considering options as they face possibly assuming debt of town of Brokaw, which might dissolve due to financial problems since Wausau Paper mill closed in 2011; Brokaw's water utility's costs now far exceed revenue generated

Neighboring towns could take on the village of Brokaw's assets and debt if it decides to dissolve.

Global caustic soda market expected to reach US\$38.48B by 2019, growing at 6.7% CAGR from 2014 to 2019, driven by high demand in end-user market and high production capacity of industries in emerging economies, report finds

The food, pulp & paper segment contributed a share of 22.0% to this market in 2014. It is projected to grow at a CAGR of 6.7% from 2014 to 2019.

Evergreen Packaging mill in Canton, North Carolina, benefiting from Americans' love of fancy coffee and the green movement away from polystyrene foam cups, with mill's production now greater for cup stock than for cartonboard; mill is no longer for sale

According to the report, carton demand for milk and juice has declined slowly over decades, edged out by plastic bottles, while demand for paper coffee cups is growing rapidly.

European graphic paper shipments in January tumble 8.1% from a year ago, to 2.801 million tonnes, with all sectors showing declines: Euro-Graph

In January 2015, the shipments of all six paper sectors covered by Euro-Graph were lower than those of January 2014. The sectors include uncoated woodfree (UWF), coated woodfree (CWF), uncoated mechanical (improved and others), coated mechanical reels, newsprint, and SC-Magazine papers.

Metsä Board gives notice that it will terminate 200 employees at its Husum mill in Örnsköldsvik, Sweden, citing its plan to stop making paper by late 2017 and switch entirely to paperboard production

Paper production will be discontinued in late 2017, at the latest.

World market for coated paper to grow at CAGR of 3.9% between 2014 and 2020, reaching US\$48.21B in 2020, as rise in Internet trade is boosting demand for coated paper in industrial packaging segment and in food industry: report

This according to a new report by Transparency Market Research: "Coated Paper Market - Global Industry Analysis, Size, Share, Growth, Trends and Forecast 2014 - 2020."

US paper and paperboard output declines 2.0% year-over-year in February, on a 91.9% operating rate, with output of paper falling 4.3% and production of paperboard down 0.5%: AF&PA

The output of paper fell 4.3% while production of paperboard slipped 0.5% from February 2014. Newsprint production continued its stark decline, falling 18.4% in February 2015 over that of February 2014.

IP to expand fluff pulp capacity by 400,000 tons/year with US\$135M conversion of its Riegelwood, North Carolina, mill to produce only fluff and softwood pulps, thereby removing 350,000 tons/year of coated paperboard capacity; startup expected in mid-2016

The investment will convert the mill to 100 percent fluff and softwood pulp production, with ongoing flexibility to shift between the two products.

Berkshire Hathaway Media acquires two newspapers, The Martinsville Bulletin in Martinsville, Virginia, and the Franklin News-Post in Rocky Mount, from Haskell Newspapers; The Martinsville Bulletin has daily circulation of 12,250 copies

Buffett has said he thinks newspapers will continue earning a decent return as long as they remain the primary source of information about their communities.

AF&PA Statistics

Since our last reporting of American Forest and Paper Association statistics releases, the Association has issued its March printing and writing, paperboard, containerboard and kraft paper reports.

Printing and Writing

Total shipments decreased 4 percent in March compared to March 2014, with inventory levels essentially unchanged from February. Uncoated free sheet (UFS) paper shipments in March decreased 1 percent compared to March 2014. Imports of UFS increased 6 percent year-over-year in February but are down 2 percent year-to-date. March coated free sheet (CFS) paper shipments decreased 3 percent compared to March 2014. Imports of CFS papers also decreased 3 percent in February, the first year-over-year decrease in the last 10 months. Uncoated mechanical (UM) paper shipments decreased 9 percent when compared with March 2014. Imports of UM papers were down 12 percent in February, the eighth consecutive monthly decline. Coated mechanical (CM) shipments in March decreased 14 percent relative to March 2014. Imports of CM were up 16 percent in February and exports increased by 17 percent, the second consecutive increase.

Paperboard

Total boxboard production decreased 2.6 percent when compared to March 2014 but increased 8.3 percent from February. Unbleached kraft boxboard production increased over the same month last year and increased compared to February. Total solid bleached boxboard & liner production decreased when compared to March 2014 but increased compared to last February. The production of recycled boxboard decreased compared to March 2014 but increased when compared to February.

Containerboard

Production rose 1.1 percent compared to March of last year. The month-over-month average daily production compared to February 2015 was 0.8 percent lower. The containerboard operating rate for March increased to 95.5 percent from February's 94.7 percent.

Kraft Paper

Total shipments were 130.4 thousand short tons, 1.9 percent higher than March 2014. Bleached Kraft paper shipments increased from 8.3 thousand tons in February 2015 to 8.9, while unbleached Kraft paper shipments increased from 108.6 thousand tons to 121.4. Overall, shipments for the first three months of 2015 were 3.8 percent lower than the same period in 2014. Total month-end inventories increased to 85.8 thousand tons.

Purchase the full reports by contacting Caroline Nealon, Statistics_Publications@afandpa.org or 202-463-2448.

Paper Quotes

"To say farewell to paper, today, would be rather like deciding one fine day to stop speaking because you had learned to write. Or to stop looking in the rearview mirror because the road is in front of us." – *Jacques Derrida, philosopher, in "Paper Machine," originally published in French under the title Papier machine © 2001, Editions Galilee. English translation © 2005 by the Board of Trustees of the Leland Stanford Junior University.*

Statistics Corner: Pulp and Paper Mill Effluent Discharges

Figure 3 shows effluent discharge parameters for the pulp and paper mills of American Forest and Paper Association member companies (believed to encompass nearly all US mills). The figure is taken from the Association's 2014 Sustainability Report,

which may be accessed at <http://www.afandpa.org/sustainability>. The report states that, “After water is used inside the mill, it is treated in a wastewater system and then returned to the environment. The forest products industry directly returns to the environment about 88 percent of the water it withdraws and uses in its manufacturing processes. Another 11 percent evaporates, once again

becoming part of the water cycle. The remaining one percent is incorporated into our products.”

Volume is expressed in thousands of gallons per ton of product. TSS is total suspended solids and BOD is biochemical oxygen demand, a measure of the effluent’s propensity to consume oxygen dissolved in the receiving lake or stream.■

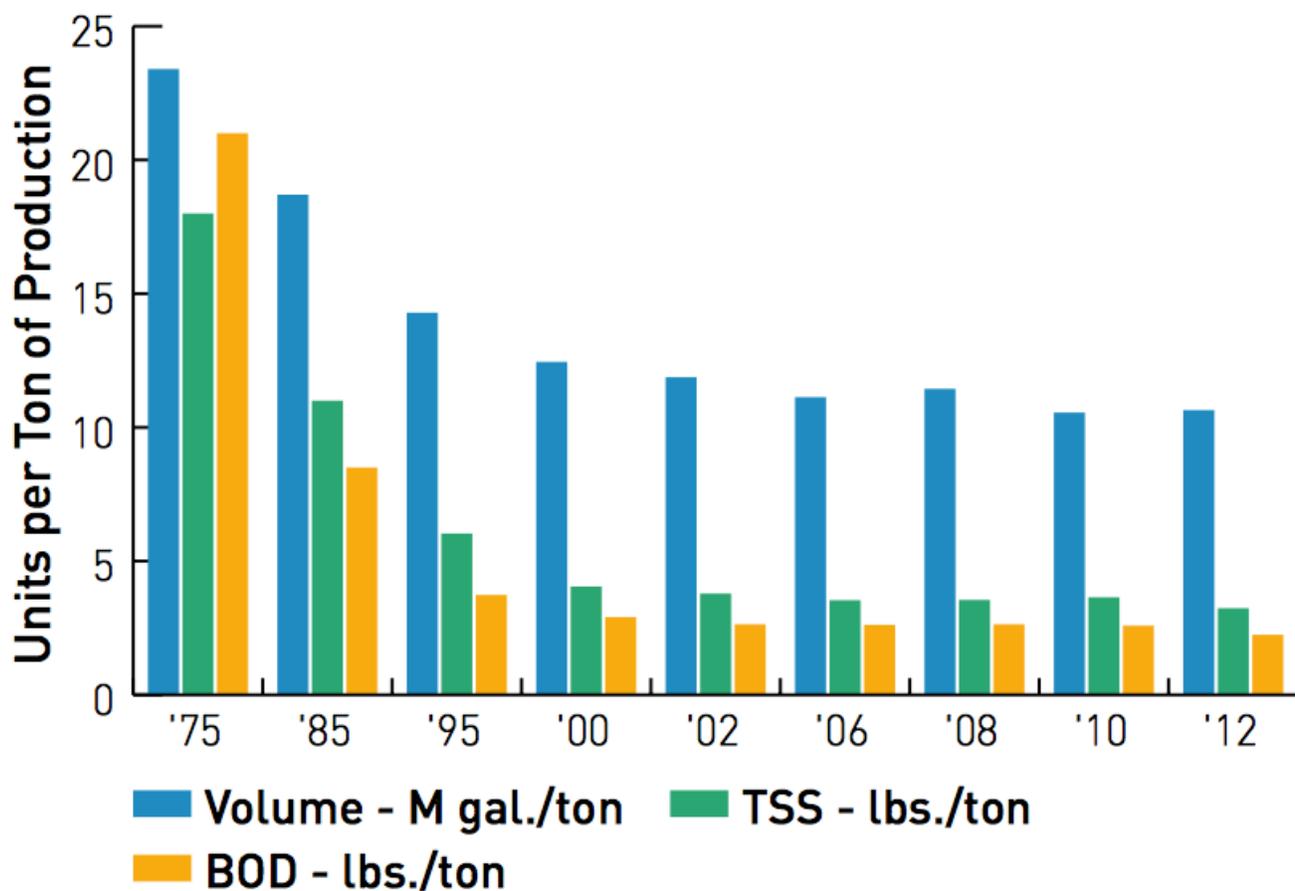


Figure 3. Pulp and Paper Mill Effluent Discharges (Source: AF&PA ‘s 2014 Sustainability Report: <http://www.afandpa.org/sustainability>)