

On Paper

BY CONSTANCE J. SIDLES



The Bleach Wars

THERE'S ONE ESSENTIAL FACT ABOUT paper manufacture that both suppliers and paper buyers must deal with: we like our paper white, but trees are brown.

Because of this fact, paper mills use chlorine bleach to whiten the paper pulp. Chlorine works like this: when chlorine and water are mixed into paper pulp, the chlorine atoms grab onto hydrogen atoms, leaving a lot of free oxygen radicals to oxidize and thus whiten the pulp.

Unfortunately, elemental chlorine grabs onto other chemicals besides hydrogen, thus creating toxic chlorinated hydrocarbons, which get released into the environment with the wastewater from mills. One of the most toxic is dioxin, which is thought to cause cancer, birth defects, and metabolic abnormalities in humans and wildlife.

I say "thought to cause" because science still finds it difficult to assign a specific degree of blame to a toxic chemical (witness Joe Camel's longevity). If we get cancer, who's to say that dioxin was the cause?

In many states, juries are answering this question. In the early 1990s, hundreds of plaintiffs sought redress for harm they claimed was caused by dioxin. Environmental groups also brought heavy pressure to bear. Wildlife studies implicated dioxin as the culprit in fish die-offs, bird birth defects, and other problems. Governments began to move to ban elemental chlorine.

In response, mills have begun to

use a different bleach: chlorine dioxide, which reduces dioxin to minuscule levels and doesn't cost a lot. Paper bleached with chlorine dioxide is called ECF (elemental-chlorine free). Its popularity is growing at an immense rate. Worldwide, ECF pulp production has grown 2,000 percent since 1990. It's predicted that by the end of this year, 50 percent of all pulp will be ECF.

But many environmental groups are not happy with this progress. They claim (rightly) that even when mills use chlorine dioxide, their wastewater is still polluted with other potentially harmful hydrocarbons. They would prefer that mills use no bleach at all. Back we go to brown papers, which are not popular among consumers. (Even Greenpeace, one of the most vociferous anti-bleach activists, uses bleached papers—just take a look at their petitions.) Since white papers are necessary to serve the market, environmentalists would like mills at least to use a chlorine-free bleach such as hydrogen peroxide or ozone. Paper made in this way is called TCF (totally chlorine free).

The mills want proof that TCF is better for us than ECF. That proof does not exist—at least not yet. They also say that TCF paper hasn't proven itself in the marketplace—it commands only 7 percent of the worldwide market now, and there's no real growth in sight.

For large manufacturers, this is all the proof they need that ECF is

the way to go. Environmentalists argue that if more people asked for TCF papers, the supply would go up and the prices would come down, just as they did for recycled stocks.

What kind of paper should *you* buy? You have to balance costs against benefits, based on your own finances and your customers' demands. I try to buy TCF paper whenever I can afford it and the quality of the stock meets the needs of my job. That pretty much restricts my purchases to laser-printed jobs, for which the supply is good and the papers are beautiful.

I was happy with my position until I went on a press okay last week. The printer specializes in very long-run jobs (mine was 2.5 million). I walked past seven presses all going at full speed. The signatures shooting off the presses were loaded onto pallets of 25,000 to 40,000 sheets apiece. The pallets were stacked onto giant shelves that stretched for more than a football field in length. Row upon row of shelves. Pallets in the thousands. The scene reminded me of the conclusion to *Raiders of the Lost Ark*.

Idly I asked the press foreman how many sheets of paper were stored there. "I never thought about it," he said. He hauled out a calculator and punched in numbers, but his LED didn't go high enough. Finally he threw up his hands. "That's a helluva lot of paper."

And all of it was bleached. ♦

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