

## **What Industry Doesn't Want You to Know about DIOXIN**

During the last decade, the word “dioxin” has appeared in the headlines of countless newspapers and magazines, and those headlines haven't been favorable. What are dioxins, and do residents of southeast Georgia have cause for concern?

Dioxin does not refer to one single chemical. Rather, it is a generic term referring to an entire family of 75 different chemicals. All have the same basic structure: a nucleus of two benzene rings connected by a ring of oxygen atoms. Chlorine attaches, in different amounts and in different positions, to the outside edges of the rings, accounting for a dioxin's toxicity. According to the scientists, 2,3, 7, 8- tetrachlorodibenzo-p-dioxin (TCDD) is the deadliest chemical ever produced by man. Procedures for handling it resemble those for plutonium.

Even the minutest amounts of dioxin can be extremely toxic. As reported in Greenpeace literature and newsletters, scientists think that dioxin imitates naturally occurring steroid hormones, like estrogen, in humans. Just like those natural hormones, dioxin fits into a protein “receptor,” which then triggers a range of basic biochemical reactions. Dioxin is like a key opening a lock to many parts of the body, making all those parts susceptible to dioxin's effects.

What are those effects? Lab animals exposed to TCDD showed weight loss, liver damage, hair loss, abnormal retention of body fluids, and suppression of the immune system. Results of exposure in humans range from strong headaches, insomnia, irritability, and aching joints to more severe problems like cancer, chloracne, reproductive failure, birth defects, and immune system disorders. The suppression of the immune system can itself be the root of a variety of problems, including a greater susceptibility to the AIDS virus.

Not only is dioxin enormously toxic, but it is also highly bioaccumulative because it is fat-soluble. Dioxins are showing up everywhere in the food chain, and as they are passed up the food chain, they are stored in the fat cells of each organism. One statistic illustrates how frightening this is. TCDD concentrations of only 38 parts per 1,000,000,000,000,000 produce toxic effects in rainbow trout, who store dioxin in their tissues at a level 86,000 times that found in the water they inhabit. What are the implications for nursing infants, for example, whose mothers may have stored the dioxin in their fat cells?

Evidence of the danger seems irrefutable, despite the Environmental Protection Agency's contention that dioxins pose no real health hazard and that the problem is one of “public perception.” One woman living in an area where herbicides containing dioxins were regularly used suffered 14 miscarriages. Another's son was born with defective lungs and liver, after she had already experienced two miscarriages. Another couple bore a baby girl who was perfect from her toes right up to her eyebrows—but she had no brain, just a sort of bowl where the top of her head should have been.

What does this mean to a person living in southeast Georgia? The answer becomes obvious when one learns about the connection between dioxins and pulp and paper mills. Chlorine is used in 104 mills throughout the U.S. (including Brunswick Pulp) in the process of bleaching brown paper pulp to turn it white. Scientists have identified over 300 different chlorinated compounds in the wastes from this process, many of them toxic and carcinogenic and including dioxins. These wastes are regularly released into the

air and water. An average-sized pulp mill might discharge 35 to 50 tons of chlorinated compounds into the environment daily.

Not only do pulp mills emit dioxin, but trace amounts can also be found in the bleached paper items produced by the mills. Last fall, the Food and Drug Administration found traces of dioxin or furan (a group of chemicals closely related to dioxins) in 7 of 15 samples of milk from the half-pint plastic-coated cardboard cartons used in school cafeterias across the nation. Coffee filters, paper towels, paper plates, disposable diapers, and toilet paper are just a few of the items potentially contaminated by dioxins.

Yet it does not have to be this way. The whitewashing of pulp is not necessary. Already Sweden and other European countries have adopted strong measures to promote a market for unbleached or low-bleached products and to end the use of chlorine in bleaching by the year 2000. Grocers rank various brands of products by the amount of chlorine used in their making. In West Germany, polluters pay heavy taxes for every pound of chlorinated material discharged into the country's waters. Recycling paper, because the paper needs no further bleaching, also is an environmentally sound practice.

The evidence concerning dioxin's toxicity is fearsome. The evidence concerning its widespread presence in the environment is undeniable. The need for consumer demand to force industry and government to deal with the problem is immediate.

Do you really care if your toilet paper is brown or white?