

A PERFECT PRODUCT IN A FEEL-GOOD CONTAINER

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The toxic chemicals associated with food preparation have received considerable attention in recent years, and we're not talking about the pesticides sprayed on vegetables. We're pretty strict consumer of organic produce, so our concern here was not about what gets sprayed on our food. Our concern was about how food gets packaged.

So what do we say about the impact on people's health from the myriad products for sale in a big box store? Take, for example, cans of organic, fire-roasted crushed tomatoes from a company called Muir Glen. "Inside this can are the richest, sweetest tomatoes you've ever tasted," the label reads. A big green symbol on the label says the can is recyclable. Another one says that the tomatoes are "USDA Organic," and a third that the contents have been packed in "lead-free enamel." Yet something still nagged. In response to customer demand, General Mills, which owns Muir Glen, announced in April 2010 that it would be switching to metal cans made without BPA. The company, however, said it had not found BPA alternatives for many of its other products.

What were we to think about the fact that 95 percent of Americans tested by the CDC had traces of BPA in their bodies, and that the compound has been linked to infertility, genital tract malformations, and increasing cancer rates, especially breast cancer? Or that it was a common ingredient in all kinds of baby products—like baby bottles? And water bottles?

A couple of years ago, a group of researchers at the University of Cincinnati tasted the plastics that were used in Nalgene water bottles. What they found was startling. Nalgene bottles were traditionally manufactured with bisphenol A, which makes the polycarbonate bottles stiffer than bottles made with phthalates. This is why they're so durable, and so good for carrying hot tea. The trouble is, the bisphenol A leaks from the plastic into the liquid, and it leaks fifty-five times faster when the bottles are filled with hot liquid. The study found that nine-year-old bottles released the same amount of BPA as brand-new bottles. So it's not like your bottles get cleaner with age. They just keep leaching. Bisphenol A has long been known to be an endocrine disruptor, and has been shown to affect reproduction and brain development in animals.

Where else can you find BPA? As with phthalates, the answer is: pretty much everywhere. It's now one of the highest-volume chemicals produced worldwide: global BPA capacity in 2003 was 2,214,000 metric tons, or more than 4.9 billion pounds, and demand has been growing 6 to 10 percent a year. Between 1980 and 2000, industrial production of BPA jumped fivefold.

BPA is used to harden cell phones and laptop computer cases. It lines water pipes. It's even used in dental sealants. A chemical derivative of BPA called bisphenol A diglycidyl ether (BADGE) is used to make epoxy resins that are found widely in the linings of metal food and drink

cans. In 1995, researchers in Spain found that the BPA that lines food cans leaches not only into the liquid in the can but into the vegetables themselves. Peas, artichoke hearts, corn, mushrooms, green beans—they all pick up BPA.

And the effect of all this plastic in our lives? There is a large body of scientific evidence demonstrating the harmful effects of very small amounts of BPA in laboratory and animal studies, but little clinical evidence related to humans. There is very strong suspicion in the scientific community, however, that this chemical has harmful effects on humans.

As they had done so many times before, newspaper reporters set to work trying to untangle all the competing rhetoric. In 2007, the Milwaukee *Journal Sentinel* reviewed 258 scientific studies of BPA and found that “an overwhelming majority” showed that the compound has been linked to breast cancer, testicular cancer, diabetes, hyperactivity, low sperm counts, and “a host of other reproductive failures” in laboratory animals.

In a follow-up report a year later, the *Journal Sentinel* tested ten products marketed for infants or considered “microwave safe” and found bisphenol A leaching from all of them at levels that can cause neurological and developmental damage in laboratory animals. The newspaper found BPA not just in hard plastic bottles but in frozen-food trays, microwaveable soup cans, and plastic baby-food packaging. In May 2008, Toronto’s *Globe and Mail* reported that traces of BPA had been found in every one of fourteen samples of canned goods, with levels especially high in foods often consumed by children, including tomato sauce, chicken noodle soup, and apple juice. That same spring, Health Canada said it planned to add BPA to its list of toxic chemicals and would soon ban BPA from baby bottles. The decision was part of a larger, nationwide plan to review some 23,000 “legacy chemicals” and concentrate immediately on the health risks associated with 200 problem chemicals found in the environment and in consumer products.

More than a decade ago, the Japanese reduced the amount of bisphenol A in the lining of food cans by 95 percent. Until American companies do the same, Frederick vom Saal, a leading researcher on the effect of synthetic chemicals on human reproduction, has said, “I eat nothing out of cans.” Are you sure that food and water containers, which are used in Ukraine, are free from BPA? What is your decision about it?

References:

1. Jenkins, McKay What’s gotten into us?: staying healthy in a toxic world. Random House, Inc., New York: - 2011, - 632 p.
2. Nena Baker, *The Body Toxic: How the Hazardous Chemistry of Everyday Things Threatens Our Health and Well-Being* (New York: North Point Press, 2008), p. 25.
3. www.chemicalbodyburden.org

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