

Polycarbonate and BPA

There's been a lot of discussion in the media lately about the estrogenic chemical bisphenol A, or BPA, and its connection with polycarbonate plastic. In sum, a growing number of scientists believe that BPA—the building block of polycarbonate—may be harmful to human health at levels far lower than previously thought. Unfortunately, many press reports have given this complicated problem an oversimplified—and almost assuredly ineffective—solution: stop using polycarbonate water bottles. In truth, BPA from polycarbonate (“PC” or #7) water bottles is but a drop in a very large ocean of exposure to this ubiquitous chemical. Worse, this simple “answer” runs the risk of giving consumers a false sense of security with respect to reducing their exposure to BPA.

So What Is BPA And How Widespread Is It?

BPA is one of the highest-volume chemicals produced in the world, with over 6 million pounds produced each year.¹ It is used in the production of both polycarbonate plastics and epoxy resins that are used widely in the food packaging industry. In addition to plastic water drinking bottles, BPA is found in almost all canned foods—including soft drinks—as well as most cardboard packages containing a plastic liner (particularly in frozen foods), microwavable food containers (whether made of polycarbonate or made of cardboard and finished with a resin containing BPA), aseptic packages, bottle tops and many plastic containers for beverages. BPA is also used in the production of water pipes, baby bottles, sippy cups, toys, eyeglass lenses, sports equipment, dental sealants, medical equipment, and consumer electronics. In short, it is everywhere.

The pervasiveness of BPA in our environment is borne out by a study conducted a few years back by the Centers for Disease Control. The CDC found that 93% of the American population contains a measurable amount of BPA in their blood.² The fact that almost everyone in our society is walking around with BPA in their body, combined with the widespread sources of its production, suggest that BPA exposure is far more extensive than from polycarbonate water bottles. Put another way, ***polycarbonate bottles are but the tip of the iceberg in the BPA issue.***

How Dangerous Is BPA?

BPA is a known xenoestrogen, which means it mimics the effects of the hormone estrogen in the human body. At certain “high-dose” levels of exposure, it causes definite problems in the development of laboratory animals, especially pregnant or lactating ones, in which it can reduce survival, birth weight, and growth of offspring early in life, and it can delay the onset of puberty in males and females.³ This much is old—and uncontested—news, and the levels presently regarded by the FDA as safe are based on these “high-dose” amounts.

In recent years, a slew of studies have indicated that BPA may be harmful at amounts considerably less than the established safety levels. While the U.S. National Toxicology Program has described many of these “low-dose” studies as having “technical or design shortcomings,” the NTP concedes that overall the studies provide “limited evidence that

bisphenol A has adverse effects on development” and that “the possibility that human development may be altered by bisphenol A *at current exposure levels* cannot be dismissed.” Finally, the NTP concludes, “more research is needed” to assess the potential danger of BPA to human health, adding that those most at risk are pregnant women, fetuses, infants, and children.⁴

What Are the Most Effective Ways To Reduce BPA Exposure?

While BPA is present in the packaging of foods many people consume on a regular basis, not all foods interact with the packaging the same. Certain foods, such as those that are fatty or acidic, tend to leach more BPA than others. (Other factors that increase BPA leaching are high temperatures, microwaving, long standing time, and harsh detergents.) Note that cold and room-temperature water are not on that list. In fact, ***in all likelihood the amount of BPA that leaches into water in polycarbonate drinking bottles is minimal compared with the amounts coming from food packaged in BPA-containing plastics and linings.*** On that note, Natural Grocers is working with our manufacturers to remove BPA plastics and resins from the packaging of the foods we sell. And for those customers who wish to switch from polycarbonate water containers in any case, we are investigating alternatives to such containers.

In the meantime, here are some measures you can take to reduce the amount of BPA you ingest:

- Avoid canned foods (except Eden brand, which uses a non-BPA lining).
- Do not microwave foods in plastic, especially liquid and/or fatty foods.
- Don’t wash polycarbonate bottles of any type in the dishwasher.
- If you do use a polycarbonate drinking bottle, don’t let the water in it get hot and don’t leave it in the bottle for an extended period of time.
- Eat more fresh food and fewer packaged items!

A Final Word About Plastics

One of the problems with the way the BPA story has been reported is that it suggests some plastics (#1, 4, and 5, specifically) are safe. But the truth is that all plastics give off chemicals of unknown safety. (In fact, the bulleted points above are sound advice for *any* plastic.) Ironically, when polycarbonate water bottles first came on the market, our industry switched to them because they were considered “safe” by consumers who claimed non-PC bottles were unsafe. We tried to explain at that time, as we are trying to explain now, that there is no such thing as a “safe” or “safer” plastic. They all have unknown safety issues. So while the media promotes switching from “bad” plastic to “good” plastic water bottles to “solve” the BPA problem, you are better served by finding and promoting ways to eliminate plastic food packaging outright from your life.

¹ Vandenberg LN et al. Human exposure to bisphenol A (BPA). *Reprod Toxicol.*, 2007; 24(2):139-177.

² Calafat AM et al. Exposure of the U.S. population to bisphenol A and 4-*tertiary*-octylphenol: 2003-2004. *Environ Health Perspect* 2008 Jan;116(1):39-44.

³ Draft: NTP Brief on Bisphenol A [CAS NO. 80-05-07], April 14, 2008.

⁴ Ibid.