



BPA Q&A

By Tamika Sims, Ph.D., IBWA Director of Science and Research

Scientists, legislators, and environmentalists have voiced various and often conflicting opinions on bisphenol-A (BPA) and its potential health effects. It can be hard—especially for consumers—to sift out the truth when so much controversy surrounds an issue.

As a bottled water professional, you need to be armed with the facts when speaking with your customers, local media, and legislators about BPA. To ensure you present factual answers when asked about BPA, we offer the following list of frequently asked questions—and their science-based answers. Feel free to share this Q&A with the media, local and federal legislators, and consumers to help dispel some of the erroneous messaging that surrounds BPA.

For more than 50 years, the FDA has deemed BPA safe.

Q: What is BPA?

A: BPA, the building block of polycarbonate plastic, is an organic compound used to make plastic and epoxy resins. Although the compound has been labeled a potential hormone-disrupting chemical, scientists across the globe have deemed BPA safe for use in various food contact products and everyday items (e.g., eyeglasses, paper store receipts, compact discs, cell phones, can liners, etc.) for more than 50 years. The bottled water industry uses BPA in the production of some of its sturdy, polycarbonate home and office delivery (HOD) containers. BPA is not used to make single-serve, polyethylene terephthalate (PET) beverage containers.

Q: How long has BPA been regulated?

A: In 1905, Thomas Zincke of Germany's University of Marburg wrote the first scientific paper on BPA, but it took scientists almost 50 years after that date to develop the commercial production of BPA and polycarbonate plastic. In 1953, Hermann Schnell, Ph.D., of Bayer in Germany, and Dan Fox, Ph.D., of General Electric in the United States, independently developed manufacturing processes for a new plastic material—polycarbonate—using BPA as the starting material. Commercial production

of polycarbonate began in 1957 in the United States and in 1958 in Europe.

Q: Have regulatory agencies examined BPA in depth?

A: Polycarbonate plastic has been the material of choice for food and beverage product containers for more than 50 years because it is lightweight, highly shatter-resistant, and transparent. During that time, many international studies have been conducted to assess the potential of BPA migration at trace levels from lined cans or polycarbonate bottles into foods and beverages. The conclusion from those studies and comprehensive safety evaluations by government bodies worldwide is that polycarbonate bottles are safe for consumer use. Below is a list of the regulatory agencies that recently have ruled BPA safe for consumer use:

- U.S. Food and Drug Administration (FDA)
- European Food Safety Authority (EFSA)
- German Federal Institute for Risk Assessment (BfR)
- Health Canada
- Food Standards Australia New Zealand (FSANZ)
- Japanese National Institute of Advanced Industrial Science and Technology (NIAIST).

Q: Why can't scientists agree on whether BPA is harmful or not?

A: A recent report released by the European Commission's Joint Research Centre (JRC) noted that—despite the numerous assessments carried out by regulatory agencies, institutions, and experts—a consensus on the risks posed by BPA to human health did not exist.

To date, several BPA research studies have been completed and more are expected in the near future. While numerous studies find no adverse effects associated with BPA, others suggest the opposite. But it is the quality of the studies—not the quantity—that matter most when examining scientific value. Some studies are conducted according to internationally recognized standards that ensure methodological and statistical reliability; others



are not. Government regulators are responsible for reviewing all studies, determining the quality of the study design, and ensuring the result of any particular study is repeated in other studies.

The U.S. Food and Drug Administration (FDA) supports studies that are robust and follow specific internationally recognized standards. In January 2010, FDA stated that “studies employing standardized toxicity tests have thus far supported the safety of current low levels of human exposure to BPA.” As a result, the FDA did not take regulatory action against BPA.

Q: What are the FDA and EPA doing right now to investigate BPA?

A: Based on all available scientific evidence, the present consensus among regulatory agencies in the United States, Canada, Japan, New Zealand, and some European countries is that the current levels of exposure to BPA through food packaging do not pose an immediate health risk to the general population, including infants and children. That said, the FDA announced in January 2010 that due to studies “using novel approaches to test for subtle effects” it had “some concerns” about the potential human health impacts of BPA. The Agency stated it would study the potential effects of BPA, along with ways to reduce BPA exposure through food packaging. The FDA is continuing to conduct in-depth studies to determine whether BPA poses a health risk to consumers.

In May 2009, the U.S. Environmental Protection Agency (EPA) released its “EPA BPA action plan,” which focuses on the potential impact of BPA on the environment, specifically on aquatic species. Simultaneously, the EPA will continue to work with the FDA, the Centers for Disease Control and Prevention (CDC), and the National Institute of Environmental Health Sciences (NIEHS) to better determine and evaluate the human health consequences of BPA exposure. Based on the results of those efforts, the EPA will consider whether additional action is needed to tackle human health threats resulting from non-food-packaging uses of BPA.

Q: Has the FDA published any recent data on the safety of BPA?

A: Since its January 2010 announcement, the FDA has been conducting a series of studies

in FDA-supported laboratories to address key questions and clarify uncertainties about BPA. Results from two key pharmacokinetic studies focused on better understand how BPA is processed in the body and its relative toxicity were released in June and July 2010. The studies—“Pharmacokinetics of bisphenol-A in neonatal and adult Sprague-Dawley rats” and “Pharmacokinetics of bisphenol-A in neonatal and adult rhesus monkeys”—by EPA Science Advisory Board member Daniel R. Doerge, Ph.D., et al. present the following conclusions:

- Studies performed with monkeys (primates) are a good model for humans and can better predict potential health effects in adults and postnatal offspring.
- BPA is efficiently metabolized by adult monkeys and adult rats after oral exposure and neonatal monkeys and rats have the capability to efficiently metabolize BPA.
- As a result of efficient metabolism, estrogenic effects from BPA are unlikely due to the very low levels of unmetabolized BPA in the body after oral exposure and BPA does not accumulate in the body.
- Because BPA is efficiently metabolized after oral exposure by rats and primates, studies that expose animals by subcutaneous (underneath the outer layer of skin) injection are of limited relevance to human health concerns that primarily involve oral exposure.
- Reports of high levels of BPA in human blood are likely due to sample contamination rather than indicative of high human exposure levels.

Q: What is the best way to communicate the safety of BPA while credible research studies are being conducted?

A: This article is a good place to start. Feel free to share it with anyone who has questions or concerns about BPA and bottled water. In addition, you can always reach out to IBWA or the American Chemistry Council (ACC) for more information. (For more on BPA, visit ACC’s website: www.factsaboutbpa.org.)

It is important to remember and communicate to others this fact: No regulatory body has found BPA to be harmful to humans. Until the science shows us we should think otherwise, IBWA remains supportive of BPA.

No regulatory body has found BPA to be harmful to humans.