



# Polycarbonate Products

Lightweight, Shatter-resistant, and Safe for Use

Polycarbonate products have been safely used by consumers for decades. Recently, you may have received inquiries about polycarbonate plastic and a substance called bisphenol A or BPA, which is used to make polycarbonate. The manufacturers of BPA and polycarbonate have prepared this information sheet so that you can be better informed about the safety of polycarbonate products. Because it is lightweight and shatter-resistant, polycarbonate is used to make a wide variety of products ranging from CDs, cell phones and safety glasses to food contact products such as baby bottles, water bottles and food storage containers.

Extensive research conducted over almost 50 years of safe use provides strong reassurance that there is no basis for human health concerns from exposure to low doses of BPA.

## Q: Is polycarbonate plastic safe?

Polycarbonate plastic has been authorized for use in food contact applications by government agencies worldwide and safely used for more than 50 years. During that time, polycarbonate and BPA have been extensively studied and tested for health and safety by both manufacturers and government agencies. Such tests have demonstrated that **consumer exposure to BPA does not pose a risk to human health.**

## Q: Does BPA leach from polycarbonate food containers?

During polycarbonate production, BPA is incorporated into the polymeric structure of the plastic. While there is some potential for trace amounts of BPA to migrate from polycarbonate, the level is far below safety-based standards set by government bodies such as the European Union's Scientific Committee on Food (EU SCF). In fact, the human body rapidly metabolizes and excretes BPA, and exposure to such low levels of BPA poses

no known health risk. **The U.S. Food and Drug Administration (USFDA) and other regulatory agencies worldwide authorize the use of polycarbonate in food contact applications.**

## Q: Why would I have heard about BPA?

There has been an ongoing debate in the last decade about the hypothesis that some substances may disrupt natural hormonal systems and cause adverse health effects ("endocrine disruption"). For BPA, this debate originated with small, exploratory studies conducted with a limited number of laboratory animals that reported reproductive and developmental effects from low doses of BPA. However, the effects were not found when the experiments were repeated by other researchers. Reproducibility of experimental results by other scientists is absolutely critical in determining whether a study's findings can be accepted as valid, and is an accepted practice in the scientific community.

Large-scale well-conducted research sponsored by both industry and government agencies, and specifically designed to look for low-dose reproductive and developmental effects, also found no evidence of such effects. These comprehensive studies were conducted in accordance with Good Laboratory Practices (GLP, the accepted quality standard for scientific research) and published in peer-reviewed scientific journals.

In 2004, an expert scientific panel was convened by the Harvard Center for Risk Analysis at the request of the plastics industry. This panel of independent experts concluded, after a comprehensive review, that the weight of the evidence does not support claims of low-dose effects from BPA. An updated evaluation reached a similar conclusion after reviewing studies published through February 2006.

These scientific panel conclusions confirm what government and scientific bodies worldwide – including the EU SCF and Scientific Committee on Toxicity,



Ecotoxicity and the Environment (EU CSTEE); the US FDA and Environmental Protection Agency (US EPA); and the Japanese Ministry of Economy, Trade and Industry (METI) – have concluded upon review of the evidence: the “low-dose hypothesis” for BPA is unproven.

The endocrine disruption debate has led to many scare stories, urban myths and Internet-spread rumors about avoiding products made with polycarbonate for fear of adverse health effects, including birth defects, sterility, premature puberty, genetic damage, and cancer. None of these adverse health claims have been proven, and extensive research conducted over almost 50 years of

safe use provides strong reassurance that there is no scientific basis for human health concerns from exposure to low doses of BPA (see below). Polycarbonate plastic is safe for use in consumer products.

### **Q: Where can I find more information?**

Additional information about polycarbonate plastic and BPA is available at [www.bisphenol-a.org](http://www.bisphenol-a.org), including information sheets and a summary of key published research.

For further inquiries, please contact Dr. Steven Hentges of the American Plastics Council at 703.741.5588 or [steve\\_hentges@plastics.org](mailto:steve_hentges@plastics.org).

## **Significant Studies Supporting the Safety of Polycarbonate Plastic**

### **2001**

Study conducted at the Safety Research Institute for Chemical Compounds and sponsored by the Japanese Ministry of Health and Welfare – Rats exposed to low doses of BPA over three generations showed no adverse health effects.

Report released by the National Toxicology Program (NTP) on its scientific peer review of low-dose effects – The panel noted “the inability of other credible studies in several different laboratories to observe low dose effects of BPA, and the consistency of these negative studies [showing no reproductive or developmental effects from low-dose exposure].”

### **2002**

Review of the NTP report by the US EPA confirmed the panel’s conclusions that the “low-dose hypothesis” has not been proven.

Study conducted at Research Triangle Institute and sponsored by a plastics industry consortium – Rats exposed to low doses of BPA over four generations showed no adverse health effects.

Detailed review by EU SCF confirms that BPA is safe in food contact applications.

### **2003**

Comprehensive risk assessment of BPA by the European Commission and reviewed by EU CSTEE – “The CSTEE agrees with the conclusion of the RAR [Risk Assessment Report] that there is no convincing evidence that low doses of bisphenol A have effects on developmental parameters in offspring.”

### **2004**

Scientific evaluation by an expert panel convened by the Harvard Center for Risk Analysis – “[T]he panel found no consistent affirmative evidence of low-dose BPA effects for any endpoint.”

### **2005**

Comprehensive risk assessment on BPA by the Japanese National Institute of Advanced Industrial Science and Technology, affiliated with METI– “[C]urrent exposure levels of BPA will not pose any unacceptable risk to human health.”

Statement from US FDA affirms that current uses of polycarbonate plastic and epoxy resins in food contact are safe – “[B]ased on all the evidence available at this time, FDA sees no reason to change its long-held position that current uses with food are safe.”

### **2006**

Update of the 2004 Harvard panel evaluation – “[T]he weight of evidence does not support the hypothesis that low oral doses of BPA adversely affect human reproductive and developmental health.”

Safety of polycarbonate baby bottles affirmed by the German Federal Institute for Risk Assessment – “The BfR does not recognize any health risk for babies that are fed from baby bottles made of polycarbonate.”