

## Bisphenol-A (Q&A)

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### What is Bisphenol A (BPA) and how is it used?

Bisphenol A (BPA, chemical name: 2,2-bis(4-hydroxyphenyl) propane) is a chemical used in the manufacturing of polycarbonate plastic or epoxy resins, to confer a unique balance of rigidity, transparency and high heat resistance.

Polycarbonate and epoxy resins are used in some food packaging materials, which include reusable plastic containers for food and beverages, tableware, microwave oven ware, and the linings of cans used for food products. They are also used in other everyday consumer products such as cell phones, computers, household appliances, bicycle helmets, flooring, medicinal products and certain papers (e.g. thermal paper) and can be present in the environment such as through dust and air.

### Is BPA found in foods?

BPA has been used in the manufacturing of consumer products for over 40 years and is permitted for use in food contact materials in the European Union, USA, Japan and in a few other countries. Small amounts of BPA can migrate from polycarbonate plastics or epoxy resin linings into foods and beverages. BPA can also migrate into foods if the plastic or resin is damaged or breaks down.

### How is BPA regulated?

BPA is permitted for use in food contact materials in the European Union under Regulation 10/2011/EU. In recent years, efforts have been made to reduce exposure to BPA for vulnerable population groups such as infants, children and pregnant women. In January 2011, the European Commission adopted Directive 2011/8/EU, prohibiting the use of BPA for the manufacture of polycarbonate infant feeding bottles.

In France, since 2010 the sales of baby bottles containing BPA are banned. In December 2012 the French authorities extended this prohibition by suspending the production and trade of any food containers produced using BPA, which will become effective from January 2015.

### Is BPA in food harmful?

BPA belongs to a group of substances which have hormone-like (e.g. estrogenic) effects. In principle, such substances can have effects on any hormone-dependent process and therefore, have been associated with health effects such as cancer and developmental defects. However, current research indicates that BPA does not accumulate in the body and the small amounts from daily exposure are rapidly excreted from humans and are not a health concern.

While some studies claim to show that BPA causes hormonal changes even at very low levels of exposure (a so-called 'low-dose effect'), there is a lot of controversy surrounding this low-dose effect because when these studies were repeated in different laboratories, the same changes were not seen. This is important because it is a principle of scientific research that findings should be reproducible to ensure they have not arisen by chance.

Recognised experts and regulatory authorities, such as the European Food Safety Authority (EFSA), are of the opinion that the low level of BPA that consumers are exposed to means that these effects will not occur with the current human exposure.

## What are authorities doing to review the safety of BPA?

In the light of these uncertainties about the possibility of adverse human health effects at low doses of BPA, the FAO and WHO organised a joint Expert Meeting to review the toxicological and health aspects of BPA in 2010.

The Expert Meeting identified gaps in knowledge and provided recommendations for generating further information and designing new studies to better understand the effect of BPA on human health. One of the recommendations was to carry out additional research on low-dose exposure studies.

In February 2012, EFSA decided to undertake a full re-evaluation of the risk assessment of BPA, to review all the available data and scientific studies on dietary exposure published since EFSA's last full assessment on BPA in 2006. This re-evaluation assesses consumer exposure to BPA, covering both dietary and non-dietary sources (including thermal paper and environmental sources) and investigates human health risks posed by exposure to BPA. EFSA's scientific experts provisionally concluded that for all population groups diet is the major source of exposure to BPA and that exposure is lower than previously estimated by EFSA. EFSA identified likely adverse effects in experimental animals exposed to high doses on the liver and kidney and effects on the mammary gland. EFSA concluded in their draft opinion, which was published in January 2014 for public consultation, that BPA poses a low health risk to consumers as exposure to the chemical even for the highest exposed groups in the population is well below the temporary Tolerable Daily Intake (TDI). The final EFSA scientific opinion on BPA is due at the end of 2014.

## What is a Tolerable Daily Intake of BPA?

A Tolerable Daily Intake (TDI) is an estimate of the amount of a substance, expressed on a body weight basis that can be ingested daily over a lifetime without appreciable health risk. In January 2014, EFSA published its draft opinion relating to the human health risks posed by exposure to BPA. In this draft opinion, EFSA recommended that, in light of new scientific evidence, the TDI for BPA should be lowered from its current value of 50 µg/kg bw/ day (or 0.05 mg/kg/bw/day) to 5 µg/kg bw/day (0.005 mg/kg/bw/day). This will be reconsidered once the current long-term study is completed and its results become available.

## Related Information:

- [NTP Report of the Endocrine Disruptor Low Dose Peer Review](#), August 1, 2001
- [European Food Safety Authority Scientific Opinion on Bisphenol A](#), September 30, 2010
- [European Food Safety Authority FAQs on BPA](#).
- [Meeting Summary, National Toxicology Program, Center for the Evaluation of Risks to Human Reproduction, Expert Panel Evaluation of Bisphenol A](#).
- [Ausgewählte Fragen und Antworten zu Bisphenol A in Babyfläschchen. Aktualisierte FAQ](#). January 29, 2007
- [Toxicological and Health Aspects of Bisphenol A. Report of Joint FAO/WHO Expert meeting \(2010\)](#).
- [European Food Safety Authority, Draft Scientific Opinion on the risks to public health related to the presence of bisphenol A \(BPA\) in foodstuffs](#). (Published for public consultation in 2014).
- [Commission Regulation No. 10/2011/EU on plastic materials and articles intended to come into contact with food](#). January 14, 2011
- [Commission Directive No. 2011/8/EU as regards the restriction of use of Bisphenol A in plastic infant feeding bottle](#). January 28, 2011.