

Bisphenol A (BPA) and food packaging

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What is BPA?

BPA is an industrial chemical commonly used in the lining of food and beverage packaging to protect the food from coming in contact with metal. Food packaging ensures foods are not contaminated and extends the shelf life of products. BPA may be found in items or containers that come into contact with food such as drinking vessels, polycarbonate plastic baby bottles, plastic tableware and the internal coating on tins for tinned food. In some circumstances, chemicals in food packaging can migrate into the food depending on the nature of the packaging and the food.

Has a safe level of BPA been established?

Yes. The internationally established safe level called the Tolerable Daily Intake (TDI) for BPA is 0.05 mg per kilogram of body weight per day. The TDI is an estimate of the amount of a substance in food that can be ingested daily over a lifetime without appreciable health risk. The TDI is based on animal studies and incorporates a safety factor which allows calculation of a safe level of consumption for humans to be undertaken.

Are very low levels of BPA in food of a concern?

FSANZ has evaluated the safety of BPA in food, including that consumed by infants and concluded that levels of intake of BPA are very low and do not pose a significant human health risk for any age group. For example, to reach the safe level (TDI) for BPA:

- a 9 month old baby weighing 9 kg would have to eat more than 1 kg of canned baby custard containing BPA every day, assuming that the custard contained the highest level of BPA found.

On 30 September 2010, the [European Food Safety Authority](#) updated its opinion on BPA based on recent scientific literature, including several studies which have claimed to indicate that low levels of exposure to BPA could produce adverse health effects. They concluded that no new study could be identified which would call for a revision of the current TDI and commented that the current TDI can be considered to be a conservative value based on all the information currently known on BPA toxicokinetics ^[1].

An international panel of experts established by the [World Health Organisation](#) and the Food and Agricultural Organisation of the United Nations was also recently able to model circulating levels of BPA in the human body, which are very low, indicating that BPA is not accumulated in the body and is rapidly eliminated through urine.

Haven't some studies suggested health effects from BPA?

BPA belongs to a group of substances that can act in a similar way to some hormones and, as such, are sometimes called 'endocrine disruptors'. Some studies in laboratory animals have suggested that low levels of BPA may have an effect on the reproductive system while other studies indicate no effect. However, similar consequences in consumers at these low concentrations are considered unlikely because BPA is rapidly inactivated and then excreted in the urine in humans.

BPA does not cause cancer.

But hasn't BPA been banned in some overseas countries because of health effects?

Yes. On 17 October 2008, the Canadian Government announced it would prohibit the importation, sale and advertising of polycarbonate baby bottles. This decision was based on applying the principle of ALARA (as low as reasonably achievable) in order to facilitate continuing efforts on limiting BPA exposure from food packaging applications for newborns and infants.

The decision was taken even though the Canadian Government agreed with Health Canada's risk assessment that levels of BPA were safe in infant foods. Health Canada remains of the opinion that the health risk for BPA is very low at levels of exposure it has found in polycarbonate plastic baby bottles and in infant formula. In particular,

Health Canada reported on its [research](#) which has shown that very low levels of BPA are found in cans of liquid infant formula, but no BPA is present in powdered infant formula.

The decision by the Canadian Government to respond to consumer concerns in this way has been mirrored by a small number of other countries. For example, some states, and counties in the USA and two European Union member states have also moved to ban BPA.

More recently, on 23 September 2010 Canada listed BPA as a toxic substance under the *Canadian Environmental Protection Act, 1999*. An assessment by Canada of the impact of human and environmental exposure to BPA has determined that BPA constitutes or may constitute a danger to human health and the environment as per criteria set out in the Act.

Governments around the world have also been working closely with industry to address consumer concerns.

What are Australia and New Zealand doing to reduce levels of BPA in food?

On 30 June 2010, the Australian Government [announced](#) the phase out by major Australian retailers of polycarbonate plastic baby bottles containing BPA. The voluntary phase out from 1 July 2010 is consistent with approaches taken by governments and industry in a number of other countries that have responded to consumer concerns about BPA.

The Australian Food and Grocery Council and the New Zealand Food & Grocery Council members are [voluntarily phasing out the use of BPA](#) in polycarbonate plastic baby bottles over the coming months and many companies currently have BPA-free options available. This is in response to consumer preference and demand and not an issue about product safety.

What research is still being done on BPA?

The US Food and Drug Administration (USFDA) announced in January 2010 that it would undertake further studies to address the safety of BPA. Some previous studies have employed non-oral routes of exposure to BPA (e.g. intravenous). The results of these studies have limited applicability to consideration of the exposure to BPA via food or beverages. Additional oral studies are being conducted in the USA, but before their completion the USFDA is not removing products from the market or recommending that families change the use of infant formula or foods, as the benefit of a stable source of good nutrition outweighs the potential risk from BPA exposure.

Given the continuing national and international interest in BPA, FSANZ is working with other regulators and the food industry to ensure we have access to the latest information.

Is there ongoing monitoring of BPA levels in foods?

In early 2010, the ACCC completed [a study](#) which shows no detectable amounts of BPA migrate from typical infant feeding bottles, infant sip cups and two leading brands of infant formula supplied in Australia. In terms of potential infant exposure to BPA, there is no noticeable difference in safety between the use of glass, non-polycarbonate plastic and polycarbonate plastic infant feeding vessels. BPA is also not detectable in Melbourne tap water.

In 2010, FSANZ conducted a targeted [analytical survey](#) of the levels of BPA in food and drinks available in Australia, including infant foods. Samples selected for the BPA survey included foods packaged in polycarbonate plastics, steel cans with epoxy lining and some glass jars with metal lids.

Results from this survey show that only a small number of samples had levels of BPA. Like the ACCC study, this survey found no detectable BPA in infant formula prepared in several typical infant feeding bottles. Estimated exposure to BPA from the diet shows that very large amounts of food and drinks would have to be eaten to reach the international safety levels. This survey provides reassurance that levels of BPA from the diet for the Australian population are low.

FSANZ will conduct further studies on levels of BPA in food in the future.

Is there anything I can do as a consumer?

When using baby bottles, always follow the instructions on the infant formula for preparation and use. The following advice applies to all baby bottles or cups, whatever type of plastic they are made from:

- Discard any scratched bottles or feeding cups as they may harbour germs

- Do not put boiling or very hot water, infant formula, or other liquids into bottles while preparing them for your child
- Before mixing water with powdered infant formula, boil the water and cool it to lukewarm
- Always remember: do not heat baby bottles of any kind in the microwave – the liquid may heat unevenly and burn your baby

Sterilize and clean bottles according to instructions on infant formula labels and they should be left to cool to room temperature before adding infant formula.

Who is responsible for regulating BPA?

In Australia, the regulation of chemicals in plastic articles for food use, including baby bottles, is a shared responsibility of several Australian Government regulatory agencies; Food Standards Australia New Zealand (FSANZ) for the food sold in plastic containers; the National Industrial Chemicals Notification and Assessment Scheme (NICNAS) for the safety of the industrial chemicals used; and the Australian Competition and Consumer Commission (ACCC) for the safety of the plastic articles themselves.

In New Zealand chemicals in plastics are regulated by Environmental Risk Management Authority (ERMA) and plastic consumer products by the New Zealand Ministry of Consumer Affairs. The New Zealand Food Safety Authority (NZFSA) also undertakes its own dietary surveys, safety assessments, management and enforcement of chemicals in domestic and imported food.

[1] Toxicokinetics is the description of what rate a chemical will enter the body and what happens to it once it is in the body.