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*Working globally for a toxic free future*

## NTN Brief 2010 - Bisphenol A, BPA

BPA used extensively in plastic food and beverage containers, including plastic food containers and shatter-proof baby bottles. It is found in cans containing food and soft drinks and in a wide range of other products, like compact discs, sunglasses and dental fillings. Traces of it leach from polycarbonate, which is hard, clear plastic, and the epoxy linings of canned foods and beverages.

In August 2007, 38 international scientists funded by the National Institutes of Health and the Environmental Protection Agency, reviewed 700 studies on BPA. They concluded that people are exposed to levels of BPA exceeding those that harm lab animals and noted infants and fetuses are most vulnerable. The review linked exposure to BPA with an increased risk of cancer of the hematopoietic system (e.g. marrow, spleen, tonsils, and lymph nodes), a significant increase in cell tumours of the testes and an alteration of the number of chromosomes in some cells and tissues (potentially leading to mutations and ultimately cancer).

In the scientists' consensus statement,<sup>i</sup> published in the Journal of Reproductive Toxicology, they stated that "Low doses of BPA during pregnancy can have profound effects on fetal prostate, breast, testicle, mammary glands and brain development in animals."

This finding has been supported by a new study from the National Institutes of Health that found uterine damage in newborn animals exposed to BPA. The damage was a possible predictor of reproductive diseases in women, including fibroids, endometriosis, cystic ovaries and cancers. Other studies had found early-stage prostate and breast cancer and decreased sperm counts in animals exposed to low doses.

Prenatal exposure to bisphenol A can also lead to a predisposition to obesity. Bisphenol A interacts with the nuclear hormone receptors that prompt fat cell development. Bisphenol A apparently accelerates this process, causing exposed animals to develop more fat cells as well as fat cells that store more fat, leading to a lifetime tendency to obesity.

Memory and anxiety behavior were also affected in mice that were exposed to low levels of BPA as youngsters, adding more concrete evidence that early life exposure to the synthetic estrogen can alter brain function.<sup>ii</sup>

British research <sup>iii</sup> released this year demonstrated that in the 1,455 U.S. adults tested, the more BPA in their urine, the higher their rates of heart disease and diabetes. They also found a link between abnormal liver enzymes in people and BPA, suggesting that the chemical alters how the liver functions.

BPA is now found in the blood of virtually all people living in developed countries at levels that can cause cancer, genital abnormalities, diabetes and behavioral disorders in laboratory animals.

BPA has been detected in the effluent of wastewater treatment plants flowing into Australia waterways.

## **Regulatory Responses**

Canada<sup>iv</sup> and three US states, Connecticut, Minnesota and Wisconsin, have banned BPA in baby bottles.

In January 2010, the US Food and Drug Administration (FDA) revised its assessment of BPA based on new testing methods, which can detect subtle effects of chemicals. Along with the National Institutes of Health, the FDA now acknowledges there are serious concerns with respect to developmental and reproductive impacts in infants and children exposed to BPA. The FDA supports its removal from infant-feeding products.<sup>v</sup>

Denmark <sup>vi</sup> has also banned the use of BPA in infant feeding bottles and cups, packaging for baby food, toys and other products for infants.

The German environmental group BUND<sup>vii</sup> tested 11 canned drink products, and found bisphenol A in all the can linings, but not in all the drinks themselves. Levels per tin ranged from 0.3 to 8.3 micrograms. The highest level in a liquid was 3.9 micrograms per litre in beer.

Many manufacturers and retailers worldwide including UK Boots, Mothercare, Disney are removing BPA in products in response to mounting consumer concerns.

The Australian government has not responded to BPA use in products in Australia.

Read more : Friends of the Earth Australia consumer guide: [Bisphenol A in plastic: does it make us sick?](#)

## **Endnotes**

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i vom Saal, FS, SM Belcher, LJ Guillette, R Hauser, JP Myers, GS Prins, WV Welshons, JJ Heindel et al. 2007. Chapel Hill Bisphenol A Expert Panel Consensus Statement: Integration of mechanisms, effects in animals and potential impact to human health at current exposure levels. *Reproductive Toxicology* 24:131-138.

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ii Tian, YH, JH Baek, SY Lee and CG Jang. 2010. Prenatal and postnatal exposure to bisphenol A induces anxiolytic behaviors and cognitive deficits in mice. *Synapse* 64: 432-439

iii Iain A. Lang; Tamara S. Galloway; Alan Scarlett; William E. Henley; Michael Depledge; Robert B. Wallace; David Melzer, Association of Urinary Bisphenol A Concentration With Medical Disorders and Laboratory Abnormalities in Adults, *JAMA*, September 17, 2008; 300: 1303 - 1310.

iv Health Canada 'Government of Canada Protects Families With Bisphenol A Regulations', News Release 2008-167 October 17, 2008 [http://www.hc-sc.gc.ca/ahc-asc/media/nr-cp/\\_2008/2008\\_167-eng.php](http://www.hc-sc.gc.ca/ahc-asc/media/nr-cp/_2008/2008_167-eng.php)

v US FDA Update on Bisphenol A (BPA) for Use in Food: January 2010  
<http://www.fda.gov/NewsEvents/PublicHealthFocus/ucm064437.htm>

vi Denmark: Ban on Bisphenol A in Food for Young Children  
<http://www.flex-news-food.com/pages/29244/Denmark/Food-Safety/Infant/denmark-ban-bisphenol-food-young-children.html> Source: Danish Government 29/03/2010

vii German NGO finds bisphenol A in drinks cans 25-Feb-2010  
<http://chemicalwatch.com/3354>