EFSA’s opinion on bisphenol A: No health risk to consumers

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On 21 January 2015, the European Food Safety Authority (EFSA) released its scientific opinion on the risks to public health related to the presence of bisphenol A (BPA) in foodstuffs. The conclusion was that BPA poses no health risk to consumers of any age group at current exposure levels.

BPA is a compound used in the manufacture of polycarbonate plastic materials that make contact with food, e.g. re-usable plastic tableware and the protective lining of cans. Another widespread application of BPA is in thermal paper commonly used for cash register receipts. BPA is regulated at a European level for use in plastic materials that make contact with food.

Evidence shows BPA can migrate in small amounts into food and beverages, stored in plastic materials containing the substance. As a precautionary measure, the use of BPA in the manufacture of plastic feeding bottles for infants is restricted in Europe (EU regulation N0. 321/2011). For other plastic food contact applications there is a specific migration limit of 0.6 milligrams (mg)/kilogram (kg) food; plastic packaging for food must comply with this limit.

In 2006, the EFSA Food Contact Materials, Enzymes, Flavourings and Processing Aids (CEF) Panel carried out a full risk assessment of BPA and established a Tolerable Daily Intake (TDI) of 0.05 mg per kg of body weight (bw) per day for the substance. A TDI is an estimated amount that can be consumed daily over a lifetime without being harmful to health - it includes a very large margin of safety. The CEF Panel issued scientific opinions on BPA in 2008 and 2010 and reaffirmed the TDI established in 2006.

In 2011, the CEF Panel provided a statement addressing reports on BPA published by the French Agency for Food, Environmental and Occupational Health and Safety (ANSES). In its statement, the CEF Panel said that the approach of the ANSES report was a hazard identification, rather than a full risk assessment and concluded that overall the ANSES report on health effects of BPA did not change the views that the CEF Panel expressed in 2010. But, the CEF Panel decided that the publication of new scientific research on BPA in recent years meant a full re-evaluation of the scientific evidence on BPA since 2006 was necessary.

This current scientific opinion is a risk assessment following a comprehensive re-evaluation of human exposure to BPA and the possible adverse health effects. Draft EFSA reports on both human exposure and possible adverse health effects were subject to separate public consultations.

Communicating the uncertainty of risks to humans

Due to more recent data and new methods for taking account of the uncertainties (e.g. regarding potential health effects, exposure estimates and evaluation of risks for humans), EFSA has lowered the TDI from its previous level of 50 micrograms (µg)/kg of bw/day (equivalent to 0.05 mg/kg of bw/day) to 4 µg/kg of bw/day.

In the assessment of health risks, the CEF Panel found that based on animal studies, BPA at high doses (more than 100 times the TDI) is likely to cause adverse effects in the kidney and liver. It is also likely to have effects on the female mammary gland, although the mechanism is not clear. Possible health effects on the reproductive, metabolic, neurobehavioural, cardiovascular and immune systems, as well as in the development of cancer, were not considered likely; but, due to uncertainty they were taken into account in the evaluation. The revised TDI is temporary pending the results of a long term study of rats from the US National Toxicology Program, which will help to address some of the uncertainties about potential health effects.

In the exposure assessment of BPA in humans, the CEF Panel considered both dietary and non-dietary sources, e.g. toys, dust, cosmetics and thermal paper. It also considered specific groups of the population, e.g. infants, teenagers (10-18 years) and women of child-bearing age (18-45 years). The estimates of dietary exposure were based on EFSA's Comprehensive European Food Consumption Database, combined with data on the occurrence of BPA in food. While estimates of dietary exposure are considered robust, there are uncertainties regarding exposure from non-dietary sources.

The assessment found that diet is the main source of BPA exposure, particularly canned food and non-canned meat and meat products. The CEF Panel evaluated intake of BPA for adults, infants and children and found that they were all well below the TDI and, in fact, significantly lower than estimated in its 2006 assessment. EFSA concluded that BPA poses no risk to human health at current exposure levels, including for pregnant women, infants, children and the elderly.

For more information please see:

1. EFSA CEF Panel, EFSA Panel on Food Contact Materials, Enzymes, Flavourings and Processing Aids. (2015). Scientific Opinion on the risks to public health related to the presence of bisphenol A (BPA) in foodstuffs: Executive summary. EFSA Journal 2015;13(1):3978, 22 pp.
2. EFSA CEF Panel, EFSA Panel on Food Contact Materials, Enzymes, Flavourings and Processing Aids. (2015). Scientific Opinion on the risks to public health related to the presence of bisphenol A (BPA) in foodstuffs: Part I – Exposure assessment. EFSA Journal 2015;13(1):3978, 396 pp.
3. EFSA CEF Panel, EFSA Panel on Food Contact Materials, Enzymes, Flavourings and Processing Aids. (2015). Scientific Opinion on the risks to public health related to the presence of bisphenol A (BPA) in foodstuffs: PART II – Toxicological assessment and risk characterisation. EFSA Journal 2015;13(1):3978, 621 pp.
4. EFSA explains the Safety of Bisphenol A

Related Information:

EUFIC Q&As Bisphenol A