Plastic Food and Drink Packaging

Origin of the controversy

In 2009, a viral email claimed that celebrity Sheryl Crowe developed breast cancer after leaving her bottle of water in the car. The email was falsely attributed to Johns Hopkins University and claimed that plastic bottles and food containers contain chemicals called dioxins which can leach into food and drink, causing reproductive and developmental problems, liver damage and cancer.[1]

Current evidence

Food packaging is used to prevent contamination, to enable food to be transported, to extend shelf life and to provide a surface for labelling of products.[2]

Dioxins are organic environmental pollutants released by the burning of waste, especially PVC (polyvinyl chloride) and aromatic compounds commonly used in hospitals. These dioxins, after being released into the atmosphere, are taken up by fish and animals and stored in fat. People are exposed to dioxins most by eating meat and fish that is high in fat. Dioxin exposure in Australia is low.[3]

The plastics used to store drinks and food do not contain dioxins, however many contain two other chemicals that have caused public concern: phthalates and bisphenol A (BPA).[2]

Phthalates

Phthalates are a group of chemicals that are used to soften plastic in food packaging and a wide range of other industrial and consumer products.[4] Food Standards Australia New Zealand (FSANZ) has confirmed that substances used to make plastic packaging can leach into food and drink.[2]

The evidence on the health effects of phthalates is mixed and leading agencies around the world have taken different approaches to regulating their use. Phthalates are considered to be endocrine disrupting chemicals, which means they may interfere with normal reproductive development in humans.[5]

In the European Union, six phthalates, including DEHP (di-[2-ethylhexyl]-phthalate) have been banned from use in children's toys.[6] Similarly, in Australia, the Australian Competition and Consumer Commission (ACCC) introduced a permanent ban on children's plastic products with more than 1 per cent DEHP. The use of DEHP in cosmetic products is now also prohibited.[7]

In the US, DEHP (di-[2-ethylhexyl]-phthalate) is classified as reasonably anticipated to be a human carcinogen.[8] .In 2000, the International Agency for Research on Cancer (IARC) declared that DEHP was not classifiable as to its carcinogenicity. Since that time, more evidence has become available and in 2011, the classification of DEHP was upgraded to Group 2B – possibly carcinogenic to humans.[9] This was based on sufficient evidence that DEHP causes cancer in laboratory animals.

Bisphenol A

Bisphenol A, or BPA is used in the production of food and drink containers and food can linings. In cans, BPA forms a barrier that prevents corrosion of the can and the migration of metal into the food. Studies indicate that small amounts of BPA can leach into drinks and food.[10]

Concerns about the safety of BPA emerged after animal studies showed that high doses of BPA may cause health problems. In recent years there have been many extensive reviews of the safety of BPA and the weight of scientific evidence supports the view that BPA is safe at the levels to which people are typically exposed.[11]

In the US, the Food and Drug Administration (FDA) continues to review the available evidence on BPA. In its latest safety assessment, dated June 2014, the FDA reported that the available evidence continues to support the safety of BPA for use in food containers and packaging.[12] Despite this reassurance, a level of public concern remained and so industry voluntarily ceased the use of BPA in baby bottles, sippy cups and infant formula packaging. As a result, the FDA amended its regulations to reflect that the use of BPA in these products had been permanently abandoned. This action was not taken because of any safety concern.[12]

Following an extensive review of the evidence, the European Food Safety Authority (EFSA) concluded in January 2015 that BPA poses no health risks to consumers at any age group (including unborn children, infants and adolescents) at the current exposure level, which is considerably lower than the tolerable daily intake (TDI).[13]

Food Standards Australia New Zealand (FSANZ) monitors research on the safety of Bisphenol A and other plasticisers and prepares responses to these studies.[14] FSANZ advises that none of the research to date has shown a causal link between BPA and adverse health effects. Despite this, consumers remain concerned and so the Australian Government introduced a voluntary phase out of BPA use in polycarbonate baby bottles in 2010.[15] This action was taken to meet consumer demand rather than to address issues with product safety.

BPA is not known or reasonably anticipated to be a human carcinogen, according to the US Report on Carcinogens.[8] The International Agency for Research on Cancer (IARC) has not yet evaluated BPA.

Summary

Based on the current evidence, a link between the use of BPA in food and drink containers and cancer is considered unlikely. The safety of BPA is continually monitored and leading agencies around the world maintain a watching brief.

Although considerable uncertainties remain, a link between cancer and the use of the phthalate DEHP is possible. DEHP has been classified as a possible carcinogen by two expert agencies because experimental studies show that it can cause cancer in rats and mice. It is not known, however, if DEHP is carcinogenic to humans at the levels at which humans are usually exposed. To reduce exposure through consumer products in Australia, the use of DEHP has been banned in cosmetics and restricted in plastic children's products.

Plastic containers used to store or heat food and drink should be used according to the manufacturers' directions.

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