

## Frequently asked questions on bisphenol F in mustard

BfR FAQ, 17 November 2015

In the course of food monitoring bisphenol F (BPF) was found in mustard samples.. It was initially suspected that the substance migrated from the food packaging material into the mustard, but analysis has not confirmed this suspicion. BPF is probably formed during the production process from a naturally occurring ingredient in white mustard. The BfR has conducted an assessment to determine whether the occurrence of BPF in mustard poses a potential health risk to the consumer. After careful analysis of the currently available data and consideration of the relevance of the lack of data, the BfR regarded it as being unlikely based on current knowledge, that, the consumption of mustard containing BPF poses a health risk to the consumer.

### **Why is there bisphenol F in mustard?**

The substance is probably formed during the production process for white mustard. White mustard contains the natural ingredient glucosinabin, which it is currently believed acts together with vinegar to form BPF.

### **From which other sources it is possible for consumers to ingest DBPF?**

The substance can originate from different sources. BPF and chemical derivatives of the substance occur naturally in certain types of orchid or can, as outlined above, be created during the production process for white mustard from the natural ingredient glucosinabin. BPF may be contained not only in mustard and food products containing mustard such as ready-to-use salad dressings or sauces but has also been detected in other food products. Analysis have recovered the highest concentrations in fish, seafood and meat or meat products. BPF occurs not just in food but also in cosmetics and personal care products. BPF is also used as a raw material in novolac glycidyl ethers (NOGEs) that are used in the production of epoxy resins. Due to its use in these products, BPF is also released into the environment and is therefore detected in such things as indoor dust and sewage sludge. At the present time, it is not possible to make any reliable estimates regarding the total exposure of the population to BPF.

### **Is there a possibility that BPF also migrates from packaging into the mustard?**

The use of NOGE-based epoxy resins for the internal coating of food tins is prohibited in Europe by Regulation 1895/2005. The exceptions to this ban are containers and storage tanks with a capacity of over 10,000 litres as well as the associated or connected pipelines. BPF is currently only pre-registered under REACH. The manufacturers have not yet undertaken any registration.

### **What effect does bisphenol F have on humans?**

BPF is rapidly absorbed via the gut, metabolised in the liver and eliminated via the urine within of a few hours. Very little toxicological research has been conducted on BPF, which means there is a lack of key data on which to base a risk assessment. It belongs to the group of bisphenols and has a chemical structure similar to that of bisphenol A (BPA). In view of the chemical similarity of the two substances, it is also be assumed that, like BPA, BPF has an effect on the hormonal system. In the case of BPA, the hormonal effect was observed in animal studies and taken into consideration by the by the European Food Safety Authority (EFSA) in the derivation of a value for the tolerable daily intake (TD).

### **Is there a limit value for BPF in food?**

There is no limit value for BPF. Neither are there any animal studies on BPF that could form the basis for derivation of a toxicological limit value. However, toxicokinetic studies and analysis of the mode of action of BPF suggest a similar risk potential to that of bisphenol A (BPA). For this reason, the BfR uses the temporary tolerable daily intake (t-TDI) for BPA of 4 µg/kg body weight and day as an indirect criterion for the health assessment of BPF. The temporary TDI for BPA was derived by the European Food Safety Authority (EFSA).

### **Does BPF in mustard pose a health risk?**

The BfR believes it is unlikely that BPF in mustard poses a health risk. For the purpose of its health assessment of BPF in mustard, the BfR compared the BPF levels in mustard measured by the foodstuff control with the value defined for BPA by the European Food Safety Authority (EFSA) for the tolerable daily intake (t-TDI) of BPA of 4 µg/kg body weight and day. It was determined that, even in the case of consumers who eat high quantities of mustard, the intake of BPF was ten times lower than the tolerable daily intake (TDI). In the case of "normal consumers", the estimated intake quantity is a 100 times lower.

### **How dependable is the risk assessment?**

After careful analysis of the currently available data and consideration of the relevance of the lack of data, the BfR regarded it as being unlikely based on current knowledge, that, the consumption of mustard containing BPF poses a health risk to the consumer. The preliminary assessment reflects the current status of scientific knowledge in this area.

### **What is the recommendation of the BfR?**

Despite the lack of data, the occurrence of undesirable effects on health due to BPF in mustard is unlikely based on the current assessment. However, further research is needed, in particular toxicological studies with prenatal exposure regime as well as subchronic and chronic studies, in order to make a definitive assessment. Moreover, there is a lack of data on the amounts of BPF that consumers ingest via the various intake sources (food and environment).