

## Food Packaging: EUROFINS SCIENTIFIC offers superior methods to detect migration of chemicals

Most food products need to be protected by means of suitable packaging. During storage, the packaging must provide protection against reactive gasses, microorganisms and chemical components in the environment. The effect of this protection is demonstrated by permeation tests.

On the other hand it is also essential that the packaging material itself does not contaminate the food products. Any migration of chemical components from the packaging material is detected by migration testing. However, the normally used standardised tests do not always adequately demonstrate the suitability of the packaging material and may therefore lead to false conclusions.

A current example is testing of food packaging laminates for the migration of primary amines (PAA) formed from isocyanates in the adhesive. The internationally accepted method is based on spectrometry. Even though this method is used



by food producers, it does not always lead to specific and unambiguous conclusions.

Our experience shows that such techniques have two major drawbacks, i.e. the lack of specificity and the risk of interference from other components. Consequently, such techniques are not recommendable for the full evaluation of risks in relation to consumer safety. They are good screening methods and they are recommended to be used as a preli-

minary analytical tool to evaluate the safety of a packaging. Results obtained with spectrometric methods however should not be the sole basis of a decision, not even in routine testing of laminates.

Aromatic isocyanates in adhesives for laminates are sometimes substituted by aliphatic isocyanates. Such substitution calls for superior techniques based on chromatography coupled with mass spectrometry (GC/MS or LC/MS). Reliable test methods that can identify, quantify, and suppress interfering chemical components exist today and are generally recommended. These methods have been developed by MILJØ-KEMI, Danish Environmental Centre, member of EUROFINS SCIENTIFIC Group and represents state of the art knowledge. The methods can be taken as reference by the authorities and by the packaging and food industries ●

*René Fuhlendorff*

Contact : [rf@miljo-kemi.com](mailto:rf@miljo-kemi.com)



## Dioxins and PCBs in Feed and Food products and in the environment



Dioxins (polychlorinated dibenzo-p-dioxins) and furans (polychlorinated dibenzofurans) collectively known as "dioxins" are environmental contaminants produced in small amounts during combustion and as by-products in the manufacture of certain chemicals. Dioxins have been shown to be toxic to certain animals and some of them are known as carcinogenic in humans. Dioxins have also been implicated in disrupting the endocrine (hormone) systems in humans and wildlife. PCBs (Polychlorinated Biphenyls) are a group of closely related chemicals and some individual PCBs, named dioxin-like PCBs exhibit toxicity similar to those of toxic dioxins. Unlike dioxins, PCBs were purposely produced but by now their use should have been phased out.

Dioxins and PCBs do not degrade easily. Because they are so persistent they have become very widespread in the natural environment, and can also be found at very low concentrations in many foods, particularly fatty foods. The nature of dioxins and PCBs means that they tend to become more concentrated along the food chain and to meet strict limits, control is needed in the environment, in foods and in animal feeds. Meeting strict control limits routinely requires measurement as low as parts per trillion.

EUROFINS SCIENTIFIC is able to offer these most demanding of chemical analyses through GfA becoming part of the EUROFINS SCIENTIFIC Group. Based in

Münster, Germany, GfA was founded in 1985, and is today one of Europe's leading institutes for workplace, environmental and food analysis as well as for emission and ambient air measurements, accidental release and emergency analyses. GfA is in the top 5 laboratories world wide with more than 5,500 dioxin analyses performed during the year 2000.

The GfA group totals 95 staff and the GfA laboratory is accredited for more than 220 tests to the international ISO IEC 17025 standard. The main focus of GfA services is on the analysis of dioxins and dioxin-like ultra trace components in a wide range of matrices, e.g. ambient air, emissions, food, feeding stuff, soil, residues, biological samples, and water.

Together with GfA's recent establishment of AERIA (founded in 2000 in Orléans, France) the GfA group supports industrial customers, authorities as well as scientific institutes.

This widens the overall portfolio of EUROFINS SCIENTIFIC in food analyses and along with MILJØ-KEMI in Denmark strengthens the entire environmental portfolio, especially air measurements ●

*Dr. Peter Luthardt*

Contact : [pluthardt@gfa-ms.de](mailto:pluthardt@gfa-ms.de)

