

**Advice 28-2008 of the Scientific Committee of the FASFC on the comparison of analyses results of dioxins (PCDD/F) and dioxin-like PCBs obtained by the CALUX and GC-HRMS methods**

The Scientific Committee started a self tasking study to assess whether the results obtained by the CALUX method (Chemical Activated Luciferase gene eXpression), in terms of use of this method in Belgium, are appropriate to be used in quantitative risk assessment.

The CALUX biological test is a screening method that assesses the level of compounds with a dioxin activity present in a sample. Samples that are suspected after the first screening are subjected to a confirmation analysis by a quantitative method (GC-HRMS, Gas Chromatography-High Resolution Mass Spectrometry).

The analytical results from the FASFC control program 2005, 2006 and 2007 for dairy products, eggs, fish, animal fat and vegetable oil, obtained by the CALUX and the GC-HRMS method, have been compared. Different assumptions were formulated and investigated in order to explain the divergent results between the two methods.

It was shown in general, that for the investigated foods, the biological CALUX-test results in an overestimation in comparison with the GC-HRMS analysis, especially for the low contamination levels. The CALUX test has on the other hand the characteristics of a good screening method (low percentage of false negatives). However, this study indicates that the results provided by the CALUX method, under the Belgian conditions of use of the method, are not appropriate to be used in a quantitative risk assessment of dietary exposure to polychloro-dibenzo-p-dioxines, polychloro-dibenzofuranes (PCDD/F) and dioxin-like polychlorinated biphenyls (DL PCB). The exposure of the consumer to dioxins and DL PCB's can not be estimated with the data of a screening method such as the CALUX method. This method does not measure specifically the 17 dioxins and 12 DL PCB congeners.

In addition, the Scientific Committee recommends, when a significant difference is detected between results obtained by the CALUX and the GC-HRMS method, to carry out further chemical analyses in order to identify the nature of any co-eluting substance with a dioxin activity.

The full text is available on this website in dutch and in french, respectively under the section "Wetenschappelijk Comité/Adviezen" and "Comité scientifique/Avis".