A reliable and routine GC/MS/MS
Method for the Determination of Dioxins in Foodstuffs and Animal Feed

Need a sensitive, reliable and robust method for the routine determination of polychlorinated Dioxins and Furans in a variety of foodstuffs and animal feed?

Polychlorinated dibenzo-p-dioxins (PCDD) and polychlorinated dibenzofurans (PCDF) are fat-soluble, highly toxic, ubiquitous environmental contaminants found at trace levels in all foodstuffs and animal feed. Current legislation in the European Union (EU) and the United States requires the confirmation of PCDD and PCDF congeners by GC-high resolution mass spectrometry (GC-HRMS). In the event of a food-related Dioxin contamination incident, many samples must be analyzed in as short a time as possible in order to determine the extent of the contamination and the subsequent potential risk to human health.

Compounds

- As specified in US and EU legislation

- 7 PCDD congeners

- 10 PCDF congeners

Agilent Technologies has partnered with a leading European Dioxin Laboratory to develop a method based on GC/MS/MS for the trace analysis of PCDD and PCDF congeners in foodstuffs and animal feed. The method provides sensitive and reproducible results that are comparable to those obtained by GC-HRMS. The GC/MS/MS method meets the requirements of current EU legislation for the screening of PCDD and PCDF congeners in foodstuffs and animal feed and has the potential as an alternative confirmatory methodology for the determination of PCDD and PCDF congeners in official food and feed control, pending analytical quality criteria to be set by legislative bodies.

The Measure of Confidence

Agilent Technologies

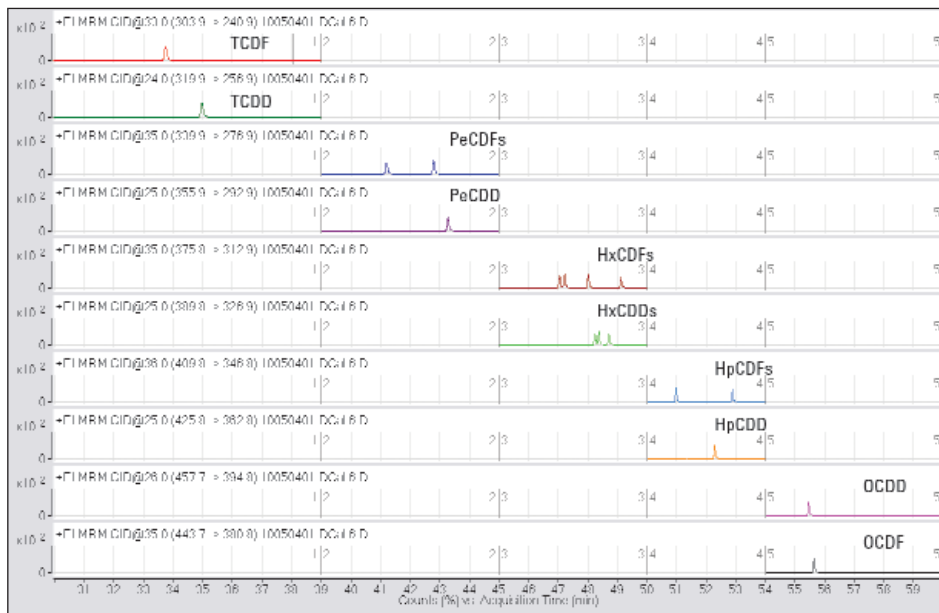# Method for the Determination of Dioxins in Foodstuffs and Animal Feed

Figure 1. *Chromatographic separation of native PCDD and PCDF congeners*.*

* Full analytical details are available in Agilent Technologies
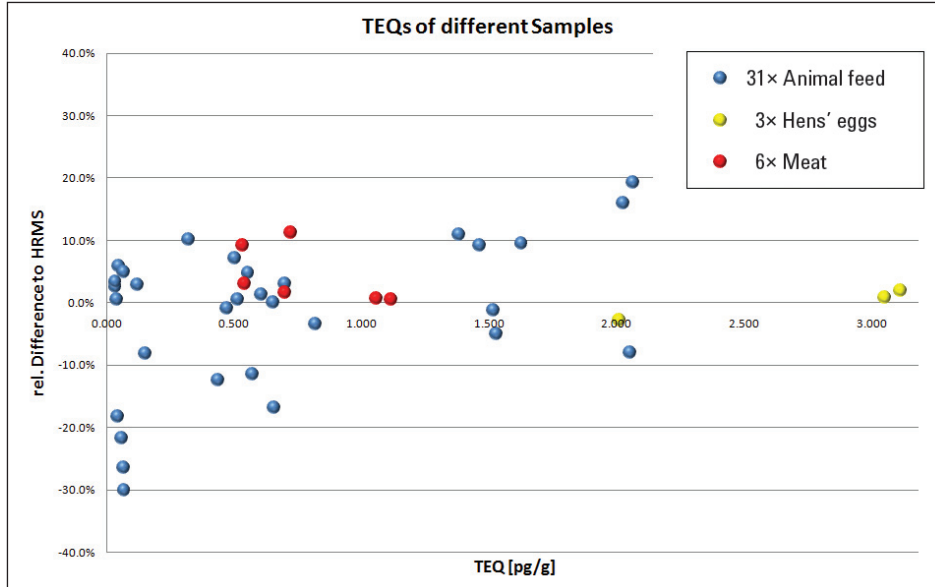publication 5990-6594EN.

Figure 2. *Relative difference in the sum of PCDD/PCDF congener quantitative results (TEQ $_{WHO98}$ upperbound values) for 40 foodstuff and animal feed samples analysed by GC-HRMS and GC/MS/MS.*

Key Benefits

- Retention time locked method for ease of chromatographic set-up.

- Capillary flow technology provides concurrent backflush for improved method robustness.

- Excellent linearity and response reproducibility for Dioxins in foodstuffs and animal feed over the range of interest.

- Reproducible response even at low fg levels on column.

- Detection down to low pg WHO-TEQ/g.

- Chromatographic results that meet legislated screening requirements for EU methods.

- Mass Hunter software that is very powerful yet easy to master, providing excellent data review capabilities and easy, flexible reporting of data.

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info_agilent@agilent.com

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