



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

FOOD SAFETY



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



Polychlorinated biphenyls (PCBs) are fat-soluble, 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 the 12 dioxin-like PCB congeners (dl-PCBS) 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. Additionally, the setting of maximum limits for the sum of the 6 non-dioxin-like PCB congeners (ndl-PCBs – also referred to as 'Indicator PCBs') in foodstuffs and animal feed

has been discussed by the EU Commission. Agilent Technologies has partnered with a leading European food contaminants laboratory to develop two methods based on GC/MS/MS for the trace analysis of dl-PCB and ndl-PCB congeners in foodstuffs and animal feed. The methods provide sensitive and reproducible results that are comparable to those obtained by GC-HRMS. The GC/MS/MS methods meet the requirements of current EU legislation for the screening of dl-PCB congeners in foodstuffs and animal feed and has the potential as an alternative confirmatory methodology for the determination of dl-PCB congeners in official food and feed control, pending analytical quality criteria to be set by legislative bodies. The GC/MS/MS methods also provide sensitive and reproducible determination of ndl-PCB congeners in foodstuffs and animal feed.

Compounds

- As specified in US and EU legislation:
12 dl-PCB congeners
77, 81, 105, 114, 118, 123,
126, 156, 157, 167, 169, 189
 - Additionally:
6 ndl-PCB congeners
28, 52, 101, 138, 153, 180
-



Method for the Determination of Polychlorinated Biphenyls in Foodstuffs and Animal Feed

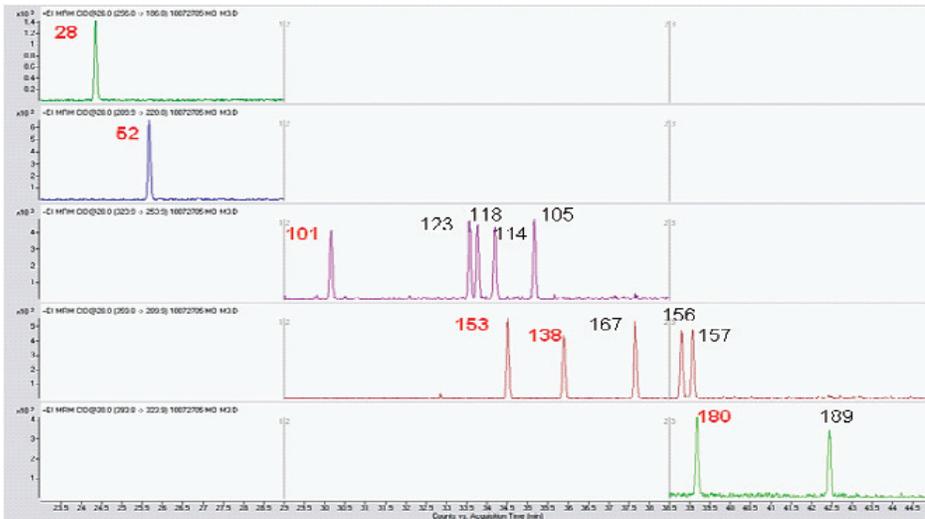


Figure 1. Chromatographic separation of dl- and ndl-PCB congeners. * (4 non-ortho dl-PCB congeners not shown).

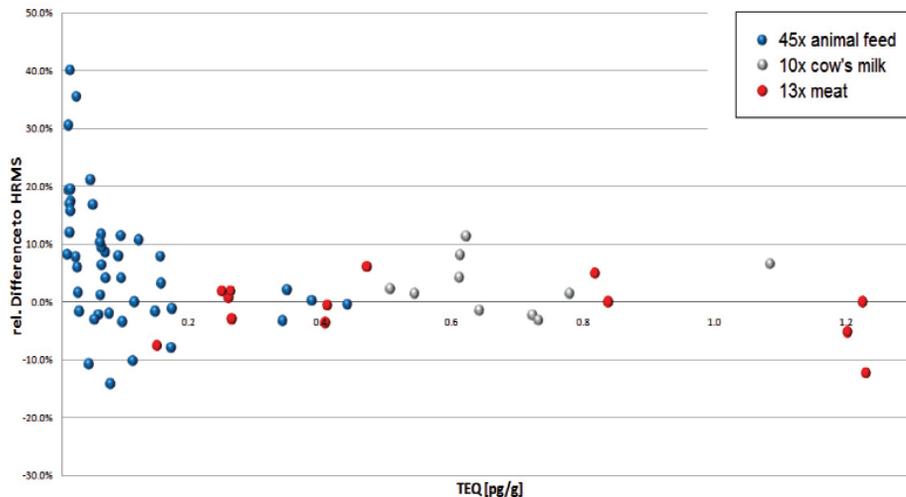


Figure 2. Relative difference in the sum of the quantitative dl-PCB results (upperbound concentrations, based on WHO98 TEF values) for 68 foodstuff and animal feed samples analyzed by GC-HRMS and GC/MS/MS.

* Full analytical details are available in Agilent Technologies publication 5990-6950EN.

Key Benefits

- Method can be retention time locked for ease of chromatographic set-up.
- Excellent linearity and response reproducibility for all dl-PCB and ndl-PCB congeners in foodstuffs and animal feed over the range of interest.
- dl-PCB congener detection down to low pg WHO-TEQ/g.
- ndl-PCB congener detection down to 1 ng/g product and below.
- Mass Hunter software that is very powerful yet easy to master, providing excellent data review capabilities and easy, flexible reporting.

Learn more:
www.agilent.com/chem

Email:
info_agilent@agilent.com

Find a customer center in your country:
www.agilent.com/chem/contactus

This information is subject to change without notice

© Agilent Technologies, Inc., 2011
 Printed in USA, March 1, 2011
 5990-7375EN

