



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Field Test Experiments and Validation for EN 1948-4
Dioxin-like PCBs from stationary sources
– CEN/TC 264/WG 1 “Dioxins and PCBs (Emission)” –

Corrigendum

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Contract M/388 EN SA/CEN/ENV/388/2006/30



Secretariat:

Kommission Reinhaltung der Luft im VDI und DIN – Normenausschuss KRdL

P.O. Box 10 11 39, KRdL@VDI.de

D-40002 Düsseldorf

Germany

10.2 Break through

For validation of the break through of the method the data of the additional validation of the filter/condenser method at the high concentrations of the shredder plant was used as summarized below in Table 16 and described in detail in Annex 7b. During sampling an extra cartridge was placed after the original sampling cartridge to measure the break through of the PCBs.

The break through is below 0,6 % for WHO PCBs calculated as TEQ. For the marker PCBs the break through was below 6 %. For all individual WHO PCB congeners the break through was below 5 % and in agreement with criteria specified in Clause 9.2 of CEN/TS 1948-4:2007 except for PCB #189. The level of this PCB was below the detection limit in the break through samples but due to a relatively high detection limit in combination with the low levels present in the samples, the 'upper bound' break through could be relatively high (>20 %). The contribution of PCB #189 was less than 5 % to the total TEQ.

Table 16. Break through at high levels sampling at the shredder facility for the filter/condenser method¹.

	Average Day 4	Break through	Average Day 6	Break through
WHO-TEQ PCB	368 pg/m ³	0,38%	<u>418</u> pg/m ³	0,52%
Marker PCBs	8 364 ng/m ³	2,6%	<u>7314</u> ng/m ³	5,3%

¹ Breakthrough calculated on the individual sample with the extra cartridge

11 Conclusion

The overall method reproducibility for the WHO PCBs was 0,25 pg TEQ/m³ based on measurements at a full scale incinerator over an extreme low concentration range from 0,19 pg TEQ/m³ to 0,41 pg TEQ/m³. The corresponding reproducibility was 6,8 ng/m³ for the sum of the 6 marker PCBs over a concentration range from 4,4 ng/m³ to 11 ng/m³.

These concentrations were very close to the LODs based on the field blanks for the three methods which ranged from 0,11 pg TEQ/m³ to 0,57 pg TEQ/m³ for the WHO PCBs and 1,3 ng/m³ to 14 ng/m³ for the marker PCBs. Corresponding LOQ values based on the field blanks varied from 0,20 pg/m³ to 1,37 pg/m³ for the WHO PCBs and from 1,7 ng/m³ to 33 ng/m³ for the marker PCBs.

The levels in the field blank samples were at least two orders of magnitude below the EU limit value for dioxins, used in the absence of a limit value for PCBs, and thus in agreement with the requirement of CEN/TS 1948-4:2007 (see Clause 10.2).

Recoveries of the isotope labeled standards were in good agreement with CEN/TS 1948-4:2007.

The absolute amount of break through at levels just above the detection limit and field blank levels were at least two orders of magnitude below the EU limit for all three methods. At higher concentrations the break through was below 0,6 % for the WHO PCBs (expressed as total WHO-TEQ) and below 6 % for the sum of the marker PCBs for the filter/condenser method.

The validation measurements demonstrated the applicability of CEN/TS 1948-4:2007 for the determination of PCBs from stationary sources. The results will be used for the transfer of the Technical Specification CEN/TS 1948-4:2007 to a European Standard EN 1948-4 which will then include the performance characteristics and important guidance for sampling and analysis over a broad concentration range.