

INFO SHEET

Dioxins and Dioxin-like PCB's

Method description

Extraction

1) Products and plants

To the sample labelled (^{13}C -surrogates) dioxins and/or dioxin-like PCB's are added then the sample is extracted by means of the soxhlett-method (fat extraction) using pentane.

2) Food/feed

To the sample labelled (^{13}C -surrogates) dioxins and/or dioxin-like PCB's are added then the sample is extracted by means of the soxhlett-method (fat extraction) using pentane.

3) Fats and oils

To the oil or fat labelled (^{13}C -surrogates) dioxins and/or dioxin-like PCB's are added

Analysis

The obtained fat is cleaned by means of a gelpermeation-chromatographie and a column-chromatograph. The thus obtained extract is analyzed using a dimensional gaschromatograph with a double in-line mass-spectrometer (GCGC-MSMS) and quantified with an isotop dilution according to DIN 38414-S24, EC nr. 199/2006 and guideline 2006/13/EC.

Quality control of the method.

The quality of the method is secured by an analyt containing reference sample (fat) and the labelled analytes per sample. The found analytes are calculated upon the labelled analytes.

Round Robin tests : FAPAS

Performance characteristics TLR

Limits of quantification.(LOQ)

	Food/feed in ng/kg	Oil/fat in ng/kg
Dioxins & Dibenzofurans		
2,3,7,8-TCDD	<0.05	<0.05
1,2,3,7,8-PeCDD	<0.05	<0.05
1,2,3,4,7,8-HxCDD	<0.05	<0.05
1,2,3,6,7,8-HxCDD	<0.05	<0.05
1,2,3,7,8,9-HxCDD	<0.05	<0,1
1,2,3,4,6,7,8-HpCDD	<0.1	<0,5
OCDD	<1	<2
2,3,7,8-TCDF	<0.05	<0.05
1,2,3,7,8-PeCDF	<0.05	<0,1
2,3,4,7,8-PeCDF	<0.05	<0,1
1,2,3,4,7,8-HxCDF	<0.05	<0,1
1,2,3,6,7,8-HxCDF	<0.05	<0,1
1,2,3,7,8,9-HxCDF	<0.05	<0,1
2,3,4,6,7,8-HxCDF	<0.05	<0,1
1,2,3,4,6,7,8-HpCDF	<0.2	<0,2
1,2,3,4,7,8,9-HpCDF	<0.2	<0,2
OCDF	<0.2	<0,5
WHO-TEQ without d.l. Lower bound	<0.01	<0,01
WHO-TEQ incl 0,5*d.l. Medium bound	<0.09	<0,12
WHO-TEQ incl 1*d.l. Upper bound	<0.17	<0,24
WHO-TEQ incl 1*d.l. 88% dm upperbound	<0.17	<0,24
Mono-ortho-PCB's		
PCB-81	2	2
PCB-77	2	2
PCB-126	2	2
PCB-169	2	2
PCB-123	50	50
PCB-118	50	50
PCB-114	50	50
PCB-105	50	50
PCB-167	50	50
PCB-156	50	50
PCB-157	50	50
PCB-189	50	50
WHO-TEQ without d.l. Lower bound	<0.01	<0.01
WHO-TEQ incl 0,5*d.l. Medium bound	<0.07	<0.07
WHO-TEQ incl 1*d.l. Upper bound	<0.14	<0.14
WHO-TEQ incl 1*d.l. 88% dm upperbound	<0.14	<0.14

Reproducibility

For all analytes RSDr <15%

Reproducibility demand

For all analytes RSDR <22%

Recovery demand

All analytes 100% *

- The analysis results are corrected for the labelled analytes which run throughout the whole method.