Technical Datasheet

Analysis Name: Dioxins by GC-MS/MS

Method Number: NQA-54.0012

Scope of Application: The method has been validated for oil and fat.

Description: This analytical method for polychlorinated dibenzo-p-dioxins (PCDDs), polychlorinated dibenzofurans (PCDFs) and polychlorinated biphenyls (PCBs) in food uses microwave assisted extraction to isolate the fat/oil from the sample, followed by additional acid/base silica clean-up to remove interferences. Quantitative analysis of the extract occurs by gas chromatography / tandem mass spectrometry. The result is reported in both the fat portion and the total product. This result will be the same in both fields for pure fat/oil products.

Sample Weight Required: 300g

Method Reference: The method is based on the EPA 1613, revision B and Afnor Norm EN 1948-1/2/3/4

Analytical Platform: GC-MS-MS

Special Information:

It is strongly recommended that samples be submitted in glass containers covered in foil or original finished product. If unavailable, samples will be analyzed, however please know there is a risk of elevated levels.

Measurement and reporting of Dioxins are evaluated with a toxicity equivalency quotient (TEQ) that evaluates the toxicity of the mixture of compounds. To facilitate this, each congener is assigned a toxicity equivalency factor (TEF) which is the ratio of estimated toxicity for a particular congener to the toxicity of the most toxic compound: 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD).

The lower bound reported represents the lowest possible value based on the amount detected- this includes any values

detected and non-detected compounds are considered as zero. The upper bound represents the highest possible amount accounting for any potentially present compounds below the quantitation limits of the method - this includes all detected values and the sum of each LOQ value for non-detected compounds.

Analyte Reported	Alias	Unit of Measure
Total Dioxin/Furan TEQ (Lower Bound)	PCDDs/PCDFs	pg/g TEQ
Total Dioxin/Furan TEQ (Upper Bound)	PCDDs/PCDFs	pg/g TEQ
Total Dioxin/Furan TEQ (Lower Bound On Fat)	PCDDs/PCDFs	pg/g TEQ
Total Dioxin/Furan TEQ (Upper Bound On Fat)	PCDDs/PCDFs	pg/g TEQ
Total TEQ (Lower Bound)	Dioxin-like PCBs	pg/g TEQ
Total TEQ (Upper Bound)	Dioxin-like PCBs	pg/g TEQ
Total TEQ (Lower Bound On Fat)	Dioxin-like PCBs	pg/g TEQ
Total TEQ (Upper Bound On Fat)	Dioxin-like PCBs	pg/g TEQ
Total PCB (Lower Bound)	PCBs	ng/g
Total PCB (Upper Bound)	PCBs	ng/g
Total PCB (Lower Bound On Fat)	PCBs	ng/g
Total PCB (Upper Bound On Fat)	PCBs	ng/g

Compounds included in the calculated totals reported:

Total Dioxin/Furan TEQ	Total TEQ	Total PCB
2,3,7,8–TCDD	2,3,7,8–TCDD	PCB 28 2,4,4'-TrCB
1,2,3,7,8–PeCDD	1,2,3,7,8–PeCDD	PCB 52 2,2',5,5'-TCB
1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDD	PCB 101 2,2',4,5,5'-PeCB
1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDD	PCB 138 2,2',3,4,4',5'-HxCB
1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDD	PCB 153 2,2',4,4',5,5'-HxCB
1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDD	PCB 180 2,2',3,4,4',5,5'-HpCB
OCDD	OCDD	
2,3,7,8-TCDF	2,3,7,8-TCDF	
1,2,3,7,8-PeCDF	1,2,3,7,8-PeCDF	
2,3,4,7,8-PeCDF	2,3,4,7,8-PeCDF	
1,2,3,4,7,8-HxCDF	1,2,3,4,7,8-HxCDF	
1,2,3,6,7,8-HxCDF	1,2,3,6,7,8-HxCDF	
2,3,4,6,7,8-HxCDF	2,3,4,6,7,8-HxCDF	
1,2,3,7,8,9-HxCDF	1,2,3,7,8,9-HxCDF	
1,2,3,4,6,7,8-HpCDF	1,2,3,4,6,7,8-HpCDF	
1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8,9-HpCDF	
OCDF	OCDF	
	PCB 77 3,3',4,4'-TCB	
	PCB 81 3,4,4',5-TCB	
	PCB 126 3,3',4,4',5-PeCB	
	PCB 169 3,3',4,4',5,5'-HxCB	
	PCB 105 2,3,3',4,4'-PeCB	
	PCB 114 2,3,4,4',5-PeCB	
	PCB 118 2,3',4,4',5-PeCB	
	PCB 123 2',3,4,4',5-PeCB	
	PCB 156 2,3,3',4,4',5-HxCB	
	PCB 157 2,3,3',4,4',5'-HxCB	
	PCB 167 2,3',4,4',5,5'-HxCB	
	PCB 189 2,3,3',4,4',5,5'-HpCB	