



NQAC

Nestlé Quality Assurance Center  
Dublin

# Technical Datasheet

**Analysis Name:** Dioxins by GC-MS/MS

**Method Number:** NQA-54.0012

**Scope of Application:** The method has been validated for oil, fat, infant formula (powder), milk powder and skimmed milk powder.

**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. Samples that are less than 2% fat will only be reported as the total in product.

**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:** Because the fat percentage of the product is required to calculate the test result, the customer will need to provide the fat value from an ISO 17025 accredited laboratory or request fat determination testing on the sample from NQAC Dublin. Please note that fat testing at NQAC Dublin will be charged separately by the test selected.

Samples should be submitted in glass containers to avoid packaging contamination.

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



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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