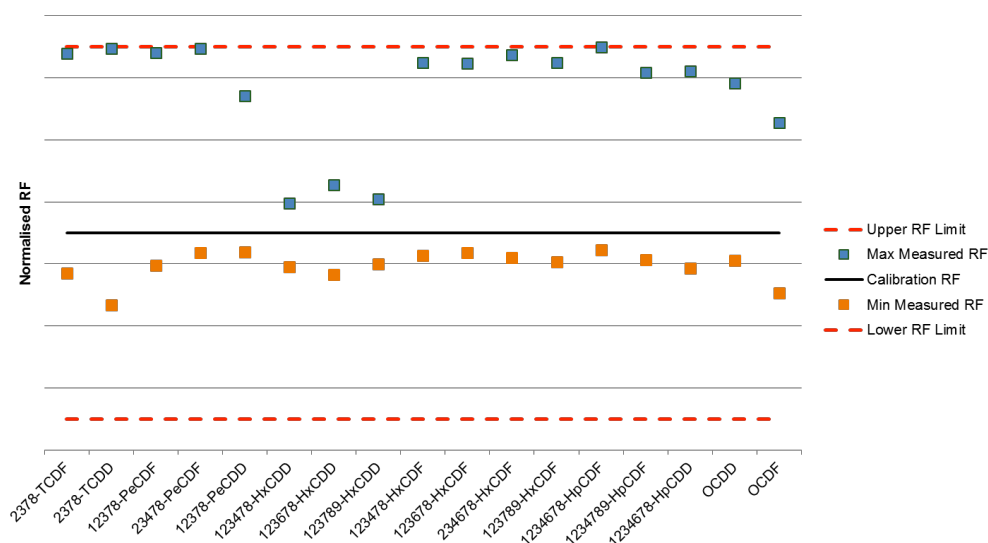








Figure 5. Minimum and maximum normalised response factors values measured for all native congeners in calibration standards throughout the analytical sequence.



Calculated upperbound SUM PCDD/Fs WHO TEQ (pg/g) were all significantly lower than the 1/5<sup>th</sup> ML for the samples analysed with results below the ML, and agreement between the upperbound and lowerbound concentrations for the samples analysed with results above the ML agreed well within the 20% difference allowed and with the GC-HRMS data provided (table 1).

Congener	Alfalfa TEQ pg/g	Premix TEQ pg/g	Premix TEQ pg/g	Pork fat TEQ pg/g	Sheep TEQ pg/g	Sheep GCHRMS TEQ (pg/g)
2378-TCDF	0.009	0.001	<LOQ	<LOQ	0.018	<LOQ
2378-TCDD	<LOQ	<LOQ	<LOQ	<LOQ	0.902	0.840
12378-PeCDF	0.001	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
23478-PeCDF	0.011	<LOQ	<LOQ	<LOQ	0.770	0.793
12378-PeCDD	0.020	<LOQ	<LOQ	<LOQ	2.200	2.246
123478-HxCDF	0.003	<LOQ	0.002	<LOQ	0.167	0.146
123678-HxCDF	0.002	<LOQ	<LOQ	<LOQ	0.093	0.075
234678-HxCDF	0.003	0.002	0.002	<LOQ	0.088	0.072
123789-HxCDF	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	0.021
123478-HxCDD	<LOQ	<LOQ	<LOQ	<LOQ	0.134	0.083
123678-HxCDD	0.003	<LOQ	<LOQ	<LOQ	0.456	0.339
123789-HxCDD	0.003	<LOQ	<LOQ	<LOQ	0.095	0.092
1234678-HpCDF	0.001	<LOQ	<LOQ	<LOQ	0.013	0.001
1234789-HpCDF	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
1234678-HpCDD	0.002	0.001	<LOQ	<LOQ	0.049	0.047
OCDD	0.000	0.000	<LOQ	0.000	0.001	0.001
OCDF	0.000	0.000	<LOQ	<LOQ	<LOQ	<LOQ
Upperbound SUM PCDD/Fs WHO TEQ (pg/g)	0.064	0.059	0.054	0.129	4.999	4.815
Lowerbound SUM PCDD/Fs WHO TEQ (pg/g)	N/A	N/A	N/A	N/A	4.987	4.756
Maximum Level (TEQ pg/g)	0.750	1.000	1.000	1.000	2.500	2.500
1/5th ML	0.150	0.200	0.200	0.200	0.500	0.500

Table 1. Summary table of results for PCDD/F WHO TEQ (pg/g) including upperbound, lowerbound, Maximum and 1/5th Maximum levels displayed.

The results shown here demonstrate that the GC-MS/MS system with advanced electron ionisation (AEI) source provides a real alternative from GC-HRMS for laboratories looking to control maximum levels. Demonstration of the LOQ throughout the sequence, as per EU guidance, enables simple calculation of upper, middle and lowerbound WHO TEQs ensuring compliance throughout.

#### References:

- Wenzl T, Haedrich J, Schaechtele A, Robouch P, Stroka J (2016); *Guidance Document on the Estimation of LOD and LOQ for Measurements in the Field of Contaminants in Feed and Food*; EUR 28099, Publications Office of the European Union, Luxembourg, ISBN 978-92-79-61768-3; doi:10.2787/8931