Results of Proficiency Test
PFOA/PFOS in Textile
March 2017

Organised by: Institute for Interlaboratory Studies (iis)
Spijkenisse, the Netherlands

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1 INTRODUCTION

Perfluorooctanoic acid (PFOA) is one important representative of the substance group of per- and polyfluorinated substances (PFASs). The hazard profile of PFOA is well known: PFOA is a persistent, bioaccumulative, and toxic (PBT-) substance, which may cause severe and irreversible adverse effects on the environment and human health. PFOA has a harmonised classification in Annex VI of European Regulation (EC) No. 1272/2008 on classification, labelling and packaging of substances and mixtures (CLP) as Carc. 2, Repr. 1B and STOT RE 1 (liver). Due to its PBT and CMR properties, PFOA and its ammonium salt (APFO) has been identified as substances of very high concern (SVHC) under REACH by unanimous agreement between EU Member States in 2014.
Perfluorooctanesulfonic acid (PFOS) shall not be used as a substance or constituent in preparations of products with a concentration equal to or higher than 0.005 % by mass (50 mg/kg). Otherwise, products will be restricted to be placed on the market (Limits outlined by EU REACH(Directive 1907/2006/EC)). Limits for the concentration of PFOS in textiles or other coated materials is set on equal or higher than 1 µg/m^2. Perfluorooctanoic acid (PFOA) and its salts are suspected to have a similar risk profile as to PFOS. Another article (see lit 19) showed that textiles could be a significant direct and indirect source of PFOS and PFOA exposure for both humans and the environment.

For the 2016/2017 PT program the Institute for Interlaboratory Studies decided to organise a proficiency test on PFOA/PFOS in textile as a result of an inventory held under the participants of the proficiency test PFOA and PFOS in polymer in 2015.
In the interlaboratory study of March 2017, 75 laboratories from 19 different countries registered for participation (see appendix 4). In this report, the results of the proficiency test are presented and discussed. This report is also electronically available through the iis website www.iisnl.com.

2 SET-UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organiser of this proficiency test. Sample analyses for fit-for-use and homogeneity testing were subcontracted to an ISO/IEC 17025 accredited laboratory. It was decided to send 2 different textile samples made of woven cotton, positive (artificially fortified) on PFOA and/or PFOS, labelled #17535 and #17536 respectively. Participants were requested to report rounded and unrounded test results and some details of the test methods used. The unrounded test results were preferably used for statistical evaluation.

2.1 QUALITY SYSTEM

The Institute for Interlaboratory Studies in Spijkenisse, the Netherlands, has implemented a quality system based on ISO/IEC 17043:2010. This ensures strict adherence to protocols for sample preparation and statistical evaluation and 100% confidentiality of participant's data. Feedback from the participants on the reported data is encouraged and customer's satisfaction is measured on regular basis by sending out questionnaires.

2.2 PROTOCOL

The protocol followed in the organisation of this proficiency test was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of March 2017 (iis-protocol, version 3.4). This protocol is electronically available through the iis website www.iisnl.com, from the FAQ page.

2.3 CONFIDENTIALITY STATEMENT

All data presented in this report must be regarded as confidential and for use by the participating companies only. Disclosure of the information in this report is only allowed by means of the entire report. Use of the contents of this report for third parties is only allowed by written permission of the Institute for Interlaboratory Studies. Disclosure of the identity of one or more of the participating companies will be done only after receipt of a written agreement of the companies involved.

2.4 SAMPLES

One cotton textile sample, labelled as #17535, was artificially fortified on PFOS and another cotton textile sample, labelled as #17536, was artificially fortified with PFOA. A batch of each of the selected materials were cut, homogenised and divided over 90 plastic bags, approx. 3 grams. The textile materials were cut in order to ascertain good homogeneity of the subsamples.

The homogeneity of the subsamples of each sample was checked by determination of PFOA/PFOS content according to an in-house test method on eight stratified randomly selected subsamples. See the following table for the test results.

	PFOS in mg/kg sample #17535	*PFOA in mg/kg sample #17536*
sample 1	8.91	8.18
sample 2	9.21	7.85
sample 3	9.04	8.35
sample 4	9.24	7.72
sample 5	8.68	8.21
sample 6	8.44	8.28
sample 7	8.58	8.52
sample 8	8.89	7.61

Table 1: homogeneity test results of subsamples #17535 and #17536

The relative between sample standard deviations RSD_r were calculated from the test results of the homogeneity tests and compared with 0.3 times the relative proficiency target standard deviations RSD_R in agreement with the procedure of ISO 13528, Annex B2 in next table;

	PFOS in mg/kg sample #17535	*PFOA in mg/kg sample #17536*
$\%RSD_r$	3.3%	4.0%
reference method	Horwitz	Horwitz
0.3 * $\%RSD_R$ (reference method)	3.5%	3.5%

Table 2: evaluation of the relative standard deviation of the subsamples #17535 and #17536

The target value for the precision of the determination of PFOA and PFOS content is based on the Horwitz equation. The calculated variation coefficients RSDr for both samples are lower or close to 0.3 times the estimated reference reproducibilities using the Horwitz equation. Therefore, the homogeneity of the subsamples of #17535 and #17536 were assumed.

To each of the participating laboratories one set of samples; 1 times sample #17535 and 1 times sample #17536 was sent on March 8, 2017. A letter of instructions was added to the sample package.

2.5 ANALYSES

The participants were asked to determine PFOA and PFOS, applying the analysis procedure that is routinely used in the laboratory. Also some analytical details were requested to be reported.

It was explicitly requested to treat the sample as if it was a routine sample, but not to use less than 0.5 gram per determination.
It was also requested to report the test results using the indicated units on the report form and not to round the test results, but to report as much significant figures as possible. It was also requested not to report ‘less than’ test results, which are above the detection limit, because such test results cannot be used for meaningful statistical evaluation.

To get comparable test results a detailed report form and a letter of instructions are prepared. The detailed report form and the letter of instructions are both made available on the data entry portal www.kpmd.co.uk/sgs-iis-cts/. The participating laboratories were also requested to confirm the sample receipt on this data entry portal. The letter of instructions can also be downloaded from the iis website www.iisnl.com.

3 RESULTS

During five weeks after sample dispatch, the test results of the individual laboratories were gathered via the data entry portal www.kpmd.co.uk/sgs-iis-cts/. The reported test results are tabulated per sample and per component in the appendix 1 of this report. The laboratories are represented by their code numbers.

Directly after the deadline, a reminder was sent to those laboratories that did not report test results at that moment.

Shortly after the deadline, the available test results were screened for suspect data. A test result was called suspect in case the Huber Elimination Rule (a robust outlier test) found it to be an outlier. The laboratories that produced these suspect data were asked to check the reported test results (no reanalyses). Additional or corrected test results are used for the data analysis and the original test results are placed under 'Remarks' in the test result tables in appendix 1. Test results that came in after the deadline were not taken into account in this screening for suspect data and thus these participants were not requested for checks.

3.1 STATISTICS

The protocol followed in the organisation of this proficiency test was the one as described for proficiency testing in the report ‘iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation’ of March 2017 (iis-protocol, version 3.4).

For the statistical evaluation the *unrounded* (when available) figures were used instead of the rounded test results. Test results reported as ‘<...’ or ‘>...’ were not used in the statistical evaluation.

First, the normality of the distribution of the various data sets per determination was checked by means of the Lilliefors-test, a variant of the Kolmogorov-Smirnov test and by the calculation of skewness and kurtosis. Evaluation of the three normality indicators in combination with the visual evaluation of the graphic Kernel density plot, lead to judgement of the normality being either ‘unknown’, ‘OK’, ‘suspect’ or ‘not OK’.
After removal of outliers, this check was repeated. If a data set does not have a normal distribution, the results of the statistical evaluation should be used with due care.

In accordance to ISO 5725 the original test results per determination were submitted subsequently to Dixon’s, Grubbs’ and or Rosner’s outlier tests. Outliers are marked by D(0.01) for the Dixon’s test, by G(0.01) or DG(0.01) for the Grubbs’ test and by R(0.01) for the Rosner’s test. Stragglers are marked by D(0.05) for the Dixon’s test, by G(0.05) or DG(0.05) for the Grubbs’ test and by R(0.05) for the Rosner’s test. Both outliers and stragglers were not included in the calculations of averages and standard deviations.

For each assigned value the uncertainty was determined in accordance with ISO13528. Subsequently the calculated uncertainty was evaluated against the respective requirement

based on the target reproducibility in accordance with ISO13528. When the uncertainty passed the evaluation no remarks are made in the report. However, when the uncertainty failed the evaluation it is mentioned in the report and it will have significant consequences for the evaluation of the test results.

Finally, the reproducibilities were calculated from the standard deviations by multiplying them with a factor of 2.8.

3.2 GRAPHICS

In order to visualise the data against the reproducibilities from literature, Gauss plots were made, using the sorted data for one determination (see appendix 1). On the Y-axis the reported test results are plotted. The corresponding laboratory numbers are on the X-axis. The straight horizontal line presents the consensus value (a trimmed mean). The four striped lines, parallel to the consensus value line, are the +3s, +2s, -2s and -3s target reproducibility limits of the selected reference test method. Outliers and other data, which were excluded from the calculations, are represented as a cross. Accepted data are represented as a triangle.
Furthermore, Kernel Density Graphs were made. The Kernel Density Graph is a method for producing a smooth density approximation to a set of data that avoids some problems associated with histograms. Also a normal Gauss curve was projected over the Kernel Density Graph for reference.

3.3 Z-SCORES

To evaluate the performance of the participating laboratories the z-scores were calculated. As it was decided to evaluate the performance of the participants in this proficiency test (PT) against the literature requirements, the z-scores were calculated using a target standard deviation. This results in an evaluation independent of the variation in this interlaboratory study.

The target standard deviation was calculated from the literature reproducibility by division with 2.8. In general when no literature reproducibility is available, another target may be used, like Horwitz or an estimated reproducibility based on former iis proficiency tests.

When a laboratory did use a test method with a reproducibility that is significantly different from the reproducibility of the reference test method used in this report, it is strongly advised to recalculate the z-score, while using the reproducibility of the actual test method used. This should be done in order to evaluate whether the reported test results are fit-for-purpose.

The z-scores were calculated in accordance with:

$z_{(target)}$ = (test result - average of PT) / target standard deviation

The $z_{(target)}$ scores are listed in the test result tables in appendix 1.

Absolute values for z<2 are very common and absolute values for z>3 are very rare. Therefore the usual interpretation of z-scores is as follows:

	|z| < 1	good
1 <	|z| < 2	satisfactory
2 <	|z| < 3	questionable
3 <	|z|	unsatisfactory

4 EVALUATION

In this interlaboratory study, no problems were encountered with the dispatch of the samples. None of participants reported test results after the final reporting date and three participants did not report any test results at all. Finally, the 72 reporting laboratories reported 263 numerical results. Observed were 17 outlying test results, which is 6.5%. In proficiency studies, outlier percentages of 3% - 7.5% are quite normal.

Not all original data sets proved to have a normal Gaussian distribution. These are referred to as “not OK” or “suspect”. The statistical evaluation should be used with due care, see also paragraph 3.1.

4.1 EVALUATION PER SAMPLE AND COMPONENT

In this section the results are discussed per sample and component.
For the determination of PFOA/PFOS in textile, the CEN-TS 15968 method is considered to be the official EC test method by the majority of the participating laboratories. However, test method CEN-TS 15968 does not mention reproducibility requirements. Therefore, the target requirements in this study were estimated using the Horwitz equation.
The Horwitz equation is developed for weight based determinations (e.g. mg/kg). The estimated reproducibility was converted to area based determinations (µg/m^2) by using the weight of the textile per square meter (so called the “density of the textile”). The “density of the textile” could be determined from the reported area based and weight based test results. It appeared that these densities were remarkable comparable (0.011-0.015 g/cm^2). This density is on average 0.01353 ± 0.00099 g/cm^2. In this calculation the density of lab 2713 was not used as this participant had used a different density of 0.022-0.025 g/cm^2. Therefore, all test results of participant 2713 are excluded from the statistical evaluations.
It appeared also that all participants that had reported a test value for area based also reported a test value for weight based. In order to compare the test values reported in mg/kg to the limit of 1 µg/m^2 (see paragraph 1) iis calculated the concentrations PFOA/PFOS in µg/m^2 by means of the averaged textile density and the reported test results in mg/kg (see appendix 1).

Sample #17535

PFOA: Only 7 test results were reported for the determination in µg/m^2 (area based). Taking into account that the number of reported test results is low it might be concluded that the determination may not be problematic. One statistical outlier was observed and one another test result was excluded. The calculated reproducibility over the 5 test results after the rejection of the suspect data is in agreement with the estimated reproducibility using the Horwitz equation and subsequently converted to µg/m^2. When compared to the iis calculated values in µg/m^2 it appears that the mean value obtained by the 5 reported test results is in line with the mean value calculated over the group of 31 values calculated by iis. The calculated reproducibility over the 31 values is slightly higher, but still close to the estimated target reproducibility.
The determination in mg/kg (weight based) may be not problematic. Two statistical outliers were observed and one another test result was excluded as explained above. However, the calculated reproducibility after rejection of the suspect data is only slightly higher than the estimated reproducibility using the Horwitz equation.

PFOS: Only 9 test results were reported for the determination in µg/m^2 (area based). Taking into account that the number of reported test results is low it might be concluded that the determination may be problematic. One statistical outlier was observed. The calculated reproducibility over the 8 test results after the rejection of the statistical outlier is not in agreement with the estimated reproducibility using the Horwitz equation and subsequently converted to µg/m^2. When compared to the iis calculated values in µg/m^2 it appears that the mean value obtained by the 8 reported test results is in line with the mean value over the group of 66 values. The calculated reproducibility over the 66 values is slightly lower and closer to the estimated target reproducibility. The calculation by iis is done with one (averaged) value for the density of textile while the calculation by the laboratories is done with (slightly) different density values (0.011-0.015 g/cm^2) and this will affect the variation.
The determination in mg/kg (weight based) may be problematic. Four statistical outliers were observed and one another test result was excluded as explained above. The calculated reproducibility after rejection of the suspect data is not in agreement with the estimated reproducibility using the Horwitz equation.

Other Per- and poly-fluorinated substances: Only three test results were reported in µg/m^2 and four test results were reported in mg/kg of which one clearly a false positive test result. No statistical evaluation was done.

Sample #17536

PFOA: Only 10 test results were reported for the determination in µg/m^2 (area based). Taking into account that the number of reported test results is low it might be concluded that the determination may be problematic. One statistical outlier was observed and one another test result was excluded. The calculated reproducibility after rejection of the suspect data is not in agreement with the estimated reproducibility using the Horwitz equation and subsequently converted to µg/m^2. When compared to the iis calculated values in µg/m^2 it appears that the mean value obtained by the 8 reported test results is in line with the mean value over the group of 68 calculated values. The calculated reproducibility over the 68 values is slightly higher than the estimated target reproducibility. This is remarkable because the calculation by iis is done with one (averaged) value for the density of textile while the calculation by the laboratories is done with slightly different density values (0.011-0.015 g/cm^2) and it is expected that this will affect the variation. Apparently more sources contribute in the variation of the determination of PFOA (see also paragraph 5 Discussion). The determination in mg/kg (weight based) may be problematic. Three statistical outliers were observed and one another test result was excluded as explained above. The calculated reproducibility after rejection of the suspect data is not in agreement with the estimated reproducibility using the Horwitz equation.

PFOS: In total 7 test results were reported for the determination in µg/m^2 (area based). Taking into account that the number of reported test results is low it might be concluded that the determination may be problematic. One statistical outlier was observed and one another test result was excluded. The calculated reproducibility over the 5 reported test values after rejection of the suspect data is not in agreement with the estimated reproducibility using the Horwitz equation and subsequently converted to µg/m^2. However, when the calculated reproducibility over 33 test values, as calculated by iis, was compared to the target reproducibility the determination is not problematic. The calculation by iis is done with one (averaged) value for the density of textile while the calculation by the laboratories is done with slightly different density values (0.011-0.015 g/cm^2) and this will affect the variation. When compared to the iis calculated values in µg/m^2 it appears that the mean value obtained by the 5 reported test results is in line with the mean value over the group of 33 values as calculated by iis. The calculated reproducibility over the 33 values is in agreement with the estimated target reproducibility. This is because the calculation by iis is done with one (averaged) value for the density of textile while the calculation by the laboratories is done with slightly different density values (0.011-0.015 g/cm^2) and it is expected that this will affect the variation.
The determination in mg/kg (weight based) was not problematic. Three statistical outliers were observed and one another test result was excluded

as explained above. However, the calculated reproducibility after rejection of the suspect data is in full agreement with the estimated reproducibility using the Horwitz equation.

Other Per- and poly-fluorinated substances: Only four test results were reported in µg/m^2 and five test results were reported in mg/kg. No statistical evaluation was done.

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

The calculated reproducibilities and the target reproducibilities derived from the literature test methods, here estimated from the Horwitz equation, are compared in below table.

	unit	n	average	2.8 * sd	R(Horwitz)
PFOA in #17535	mg/kg	31	0.032	0.028	0.024
PFOS in #17535	mg/kg	66	5.01	2.08	1.76
PFOA in #17536	mg/kg	68	7.96	4.06	2.61
PFOS in #17536	mg/kg	33	0.044	0.032	0.031

Table 3: performance overview for samples #17535 and #17536

Without further statistical calculations, it can be concluded that there is no good compliance of the group of participating laboratories with the target reproducibility of PFOA/PFOS.

4.3 COMPARISON OF PROFICIENCY TEST OF MARCH 2017 WITH THE TARGET

The observed variation expressed as relative standard deviation RSD of the test results is compared to the relative target standard deviation, see below table.

RSD%	*2017*	*Target Horwitz (<10 mg/kg)*
PFOA sample 1	24-31%	28%
PFOA sample 2	18-19%	12%
PFOS sample 1	15-21%	13%
PFOS sample 2	27-32%	26%

Table 4: The uncertainties over the PT data reported as RSD compared to the target RSD

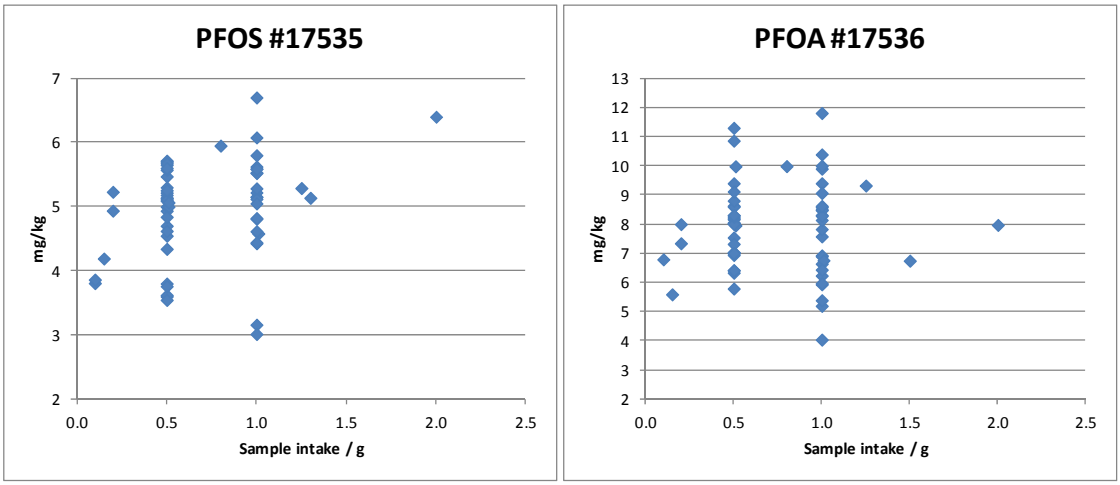
The target value for the precision of the PFOA and PFOS content determination in textile was based on the Horwitz equation. The observed variation coefficient of 15 - 32% in this first proficiency test on PFOA/PFOS in textile is not bad at all (see for more discussion also paragraphs 5 and 6).

5 DISCUSSION

In this PT also some analytical details were asked (see appendix 2) to use for further statistical analysis. About 69% of the reporting participants mentioned to use test method CEN/TS 15968 for the determination of PFOA/PFOS. About 10% of the participants reported to have used in house method and 16% of the participants did not report a test method at all.

It appeared that 75% of the reporting participants is accredited for the determination of PFOA/PFOS in textile. Although, no significant difference is observed in variation or mean value between the group “accredited” or “not accredited” for these determinations. Further it is noticed that the majority of the participants had used the same analytical conditions like: cut the sample (71%), use ultrasonic bath with Methanol for extraction (>95%) and 66% of the participants did extract for 120 minutes at 60°C. No significant effect on the mean value and reproducibility was demonstrated by these analytical details.

Remarkable was the amount of sample used for the determination. Test method CEN/TS 15968 mentions to use 2 g. It appeared that 45% of the participants reported to use 0.5 g and 41% of the participants reported to use 1 g, see next figure. However, no significant effect was observed on the variation or the mean value.



It appeared that 41% of the participants used an internal standard and 59% an external standard and again no effect is observed on the mean or the variation. The sample was not filtered by most of the participants. Three participants mentioned to use a PTFE filter, which is remarkable. Test method EM201 mentions not to use PTFE in the determination of polyfluorinated compounds like PFOA or PFOS. However, the reported test results are in line with the group. In general a MS technique was used to identify the components and the reported ions are all in line with the test method CEN/TS 15968 or EM201.

PFOA and PFOS exist in linear and branched isomers. During the PT one of the participants asked iis what should be reported as the given CAS numbers are from the linear isomers. In legislation and in the limits set to PFOS/PFOA it is clear that **total** PFOS and **total** PFOA is meant. However, in the available test methods this is less clear. Test method CEN/TS 15968 mentions the existence of linear and branched isomers and the

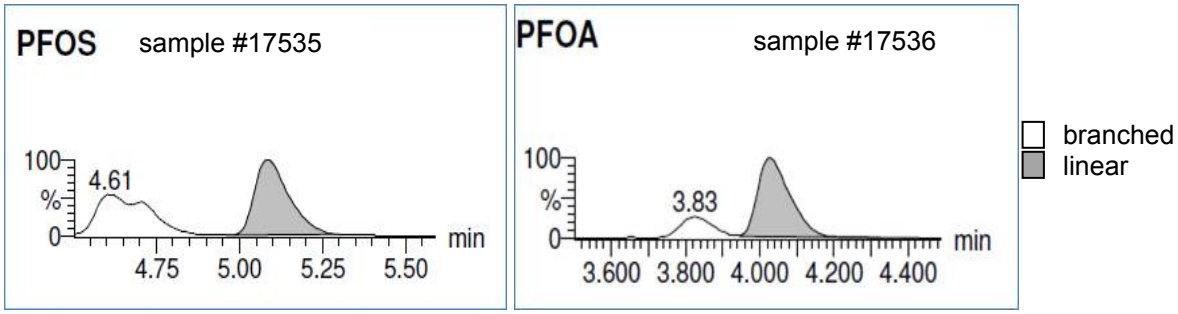
possibility to separate these isomers. Also it is mentioned that branched isomers have to be calculated using the response factor of the linear isomer. But method CEN/TS 15968 is not clear whether the sum of linear and branched isomers should be reported.
Therefore an extra questionnaire was sent to the participants who registered for this proficiency test (see appendix 3) to investigate what was reported in this PT. In total 47 participants (63%) responded on this questionnaire. Because of the answers and remarks given it became obvious that for most laboratories it is not clear whether the total or the linear PFOA/PFOS is determined. Some laboratories mentioned to measure the linear isomers only, but mentioned at the same time not to be able to separate the branched isomers from the linear isomer. In total five participants reported the amount of linear or branched PFOA or PFOS in the returned questionnaire, see next table;

lab	PFOS %Branched in sample #17535	PFOA %Branched in sample #17536
324	25%	19%
2129	29%	14%
2370	45%	22%
2590	37%	21%
3153	36%	17%

Table 5: The relative amount branched isomers reported for the highest component present in the sample

It is clear that the concentration of branched isomer of PFOS is higher in sample #17535 than of the concentration branched isomer of PFOA in sample #17536.

One of the reasons for the confusion might be that no standard is commercially available for branched PFOA/PFOS and according to CEN/TS 15968 the linear standards should be used for the determination of the branched isomers as well for the linear isomers. It might be possible that the laboratories assume to measure only linear isomers while integrating the sum of ‘co-eluting peaks’ of branched and linear isomers. Another reason might be that laboratories are not aware that branched isomers exist which are present in the chromatograms (in case the isomers do not co-elute). In these cases the peaks of the branched isomers, which elute before the linear isomers (see next pictures), may be seen as impurities and therefore be ignored.



It is expected that the reproducibility may improve when all laboratories report the same components; either branched, linear or the sum of branched and linear.

6 CONCLUSION

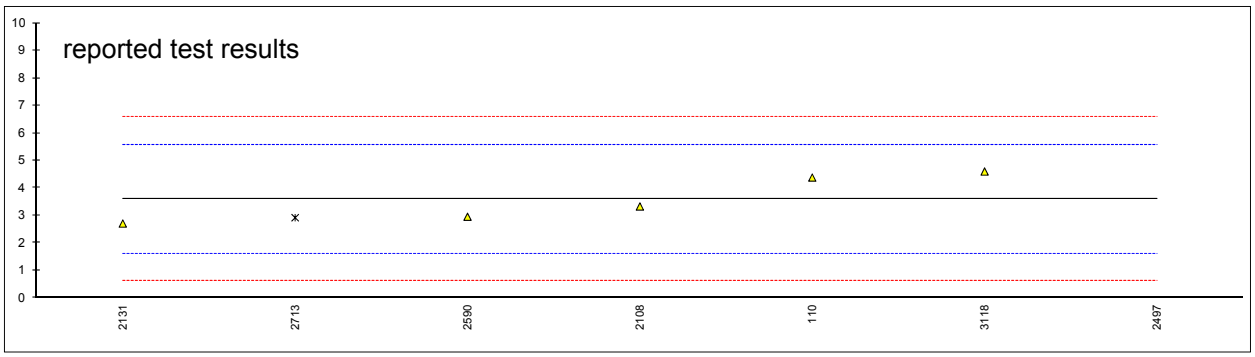
As mentioned above the observed variation coefficient of 15 - 32% (see table 5) in this first proficiency test on PFOA/PFOS in textile is not bad at all. This is due to that the majority of the participants reported to use in general the same analytical processes which are in line with test method CEN/TS 15968. Another source for the variability is that the reported test results are presumable a mix of linear isomers only or the sum of branched and linear. Consequently, the reproducibility may not be improved by only one change in the analysis. Each laboratory has to evaluate its performance in this study and make decisions about necessary corrective actions. Therefore, participation on a regular basis in this scheme could be helpful to improve the performance and thus increase of the quality of the analytical results.

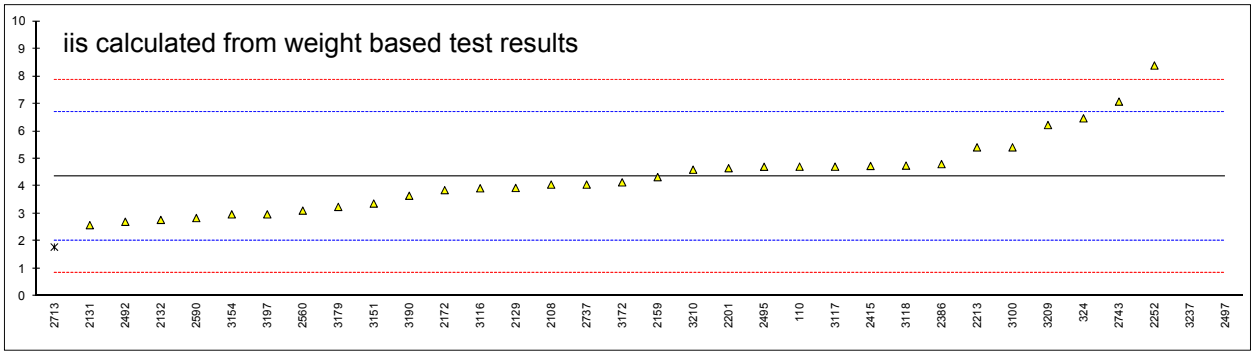
APPENDIX 1

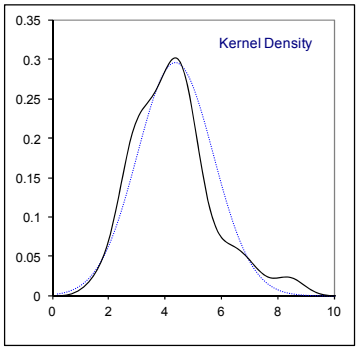
Determination of PFOA on sample #17535; results in µg/m^2

lab	method	value	mark	z(targ)	iis calc	mark	remarks
110		4.381435		0.79	4.711		
324		-----		-----	6.469		
339		<1		-----	-----		
623		-----		-----	-----		
840		-----		-----	-----		
2108		3.33		-0.27	4.060		
2129		-----		-----	3.938		
2131	Oeko-Tex	2.71		-0.89	2.585		
2132		-----		-----	2.775		
2139		-----		-----	-----		
2159		-----		-----	4.331		
2172		-----		-----	3.857		
2201		-----		-----	4.656		
2213		-----		-----	5.414		
2241		-----		-----	-----		
2252		-----		-----	8.391		
2272		-----		-----	-----		
2284		-----		-----	-----		
2285		-----		-----	-----		
2295		-----		-----	-----		
2297		-----		-----	-----		
2310	CEN-TS15968	n.d.		-----	-----		
2311	CEN-TS15968	n.d.		-----	-----		
2330		-----		-----	-----		
2347		-----		-----	-----		
2350		-----		-----	-----		
2352		-----		-----	-----		
2358		-----		-----	-----		
2363		-----		-----	-----		
2365		-----		-----	-----		
2369		-----		-----	-----		
2370		-----		-----	-----		
2375		-----		-----	-----		
2380		-----		-----	-----		
2386		-----		-----	4.805		
2390		-----		-----	-----		
2410		-----		-----	-----		
2415		-----		-----	4.737		
2482		-----		-----	-----		
2489		-----		-----	-----		
2492		-----		-----	2.707		
2495		-----		-----	4.707		
2497	CEN-TS15968	1204.33	G(0.01)	1208.89	1116.4	R(0.01)	
2560		-----		-----	3.113		
2561		-----		-----	-----		
2566		-----		-----	-----		
2590	In house	2.9550		-0.65	2.842		
2713	In house	2.920	ex	-0.68	1.787	ex	see § 4.1
2737		-----		-----	4.060		
2743		-----		-----	7.078		
2744		-----		-----	-----		
2766		-----		-----	-----		
2776		-----		-----	-----		
3100		-----		-----	5.414		
3116		-----		-----	3.925		
3117		-----		-----	4.711		
3118	In house	4.602		1.01	4.751		
3146		-----		-----	-----		
3151		-----		-----	3.370		
3153		-----		-----	-----		
3154		-----		-----	2.978		
3163		-----		-----	-----		
3172		-----		-----	4.142		
3176		-----		-----	-----		
3179		-----		-----	3.248		
3185		-----		-----	-----		
3190		-----		-----	3.654		
3197		-----		-----	2.978		
3200		-----		-----	-----		
3209		-----		-----	6.226		
3210		-----		-----	4.602		
3214		-----		-----	-----		
3218		-----		-----	-----		

lab	method	value	mark	z(targ)	iis calc	mark	remarks
3220		-----		-----	-----		
3237		-----		-----	12.628	R(0.01)	
	normality	unknown			not OK		
	n	5			31		
	outliers	1+1ex			2+1ex		
	mean (n)	3.5957			4.3624		
	st.dev. (n)	0.85082			1.34708		
	R(calc.)	2.3823			3.7718		
	R(Horwitz *))	2.7811			3.2774	*) based on Horwitz in mg/kg converted to µg/m^2	





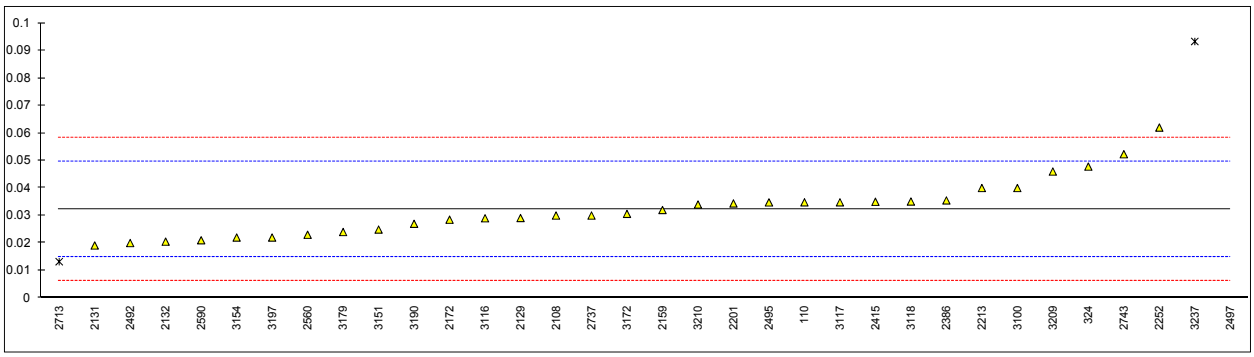


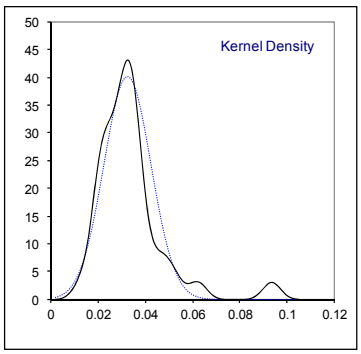
Determination of PFOA on sample #17535; results in mg/kg

lab	method	value	mark	z(targ)	remarks
110		0.0348085		0.30	
324	CEN-TS15968	0.0478		1.80	
339		<0.1		-----	
623	CEN-TS15968	n.d.		-----	
840	CEN-TS15968	n.d.		-----	
2108		0.03		-0.26	
2129	CEN-TS15968	0.0291	C	-0.36	first reported: 29.1 mg/kg
2131	Oeko-Tex	0.0191		-1.52	
2132	In house	0.0205		-1.36	
2139		-----		-----	
2159	CEN-TS15968	0.0320		-0.03	
2172		0.0285		-0.43	
2201	CEN-TS15968	0.0344		0.25	
2213	CEN-TS15968	0.04	C	0.90	first reported: 0.08
2241		-----		-----	
2252	CEN-TS15968	0.062		3.44	
2272		-----	W	-----	first reported: 0.092804681
2284		-----		-----	
2285		-----		-----	
2295		-----		-----	
2297	CEN-TS15968	n.d.		-----	
2310	CEN-TS15968	n.d.		-----	
2311	CEN-TS15968	<1		-----	
2330		-----		-----	
2347		<2		-----	
2350	CEN-TS15968	<1.00		-----	
2352	CEN-TS15968	n.d.		-----	
2358	CEN-TS15968	<1		-----	
2363	CEN-TS15968	n.d.		-----	
2365	CEN-TS15968	<10		-----	
2369	CEN-TS15968	<1		-----	
2370	CEN-TS15968	n.d.		-----	
2375		-----		-----	
2380		-----		-----	
2386	CEN-TS15968	0.0355		0.38	
2390	CEN-TS15968	n.d.		-----	
2410		-----		-----	
2415	CEN-TS15968	0.035		0.32	
2482		-----		-----	
2489	In house	n.d.		-----	
2492		0.020		-1.41	
2495	CEN-TS15968	0.03478		0.29	
2497	CEN-TS15968	8.24882	C,R(0.01)	950.07	first reported: 8248.82 mg/kg
2560	In house	0.0230		-1.07	
2561		<0.025		-----	
2566	CEN-TS15968	<0.05		-----	
2590	In house	0.0210		-1.30	
2713	In house	0.0132	ex	-2.20	see § 4.1
2737	CEN-TS15968	0.03		-0.26	
2743	CEN-TS15968	0.0523		2.32	
2744		-----		-----	
2766		-----		-----	
2776	CEN-TS15968	n.d.		-----	
3100	CEN-TS15968	0.04		0.90	
3116	In house	0.029		-0.37	
3117		0.03481		0.30	
3118	In house	0.0351		0.33	
3146	CEN-TS15968	<0.02		-----	
3151	CEN-TS15968	0.0249		-0.85	
3153	CEN-TS15968	<1		-----	
3154		0.022		-1.18	
3163		-----		-----	
3172	CEN-TS15968	0.0306		-0.19	
3176	CEN-TS15968	n.d.		-----	
3179		0.0240		-0.95	
3185	CEN-TS15968	<0.1		-----	
3190	CEN-TS15968	0.027		-0.60	
3197	CEN-TS15968	0.022		-1.18	
3200	CEN-TS15968	<0.10		-----	
3209		0.046		1.59	
3210	In house	0.034		0.20	
3214	CEN-TS15968	<1		-----	
3218	CEN-TS15968	<0.1		-----	

lab	method	value	mark	z(targ)	remarks
3220	CEN-TS15968	<0.1		-----	
3237	CEN-TS15968	0.0933	R(0.01)	7.06	

normality	not OK
n	31
outliers	2+1ex
mean (n)	0.03223
st.dev. (n)	0.009953
R(calc.)	0.02787
R(Horwitz)	0.02422

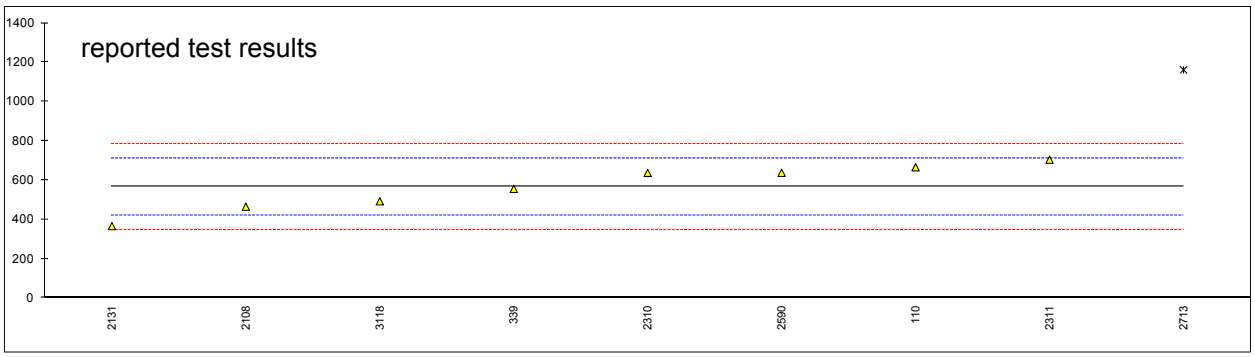


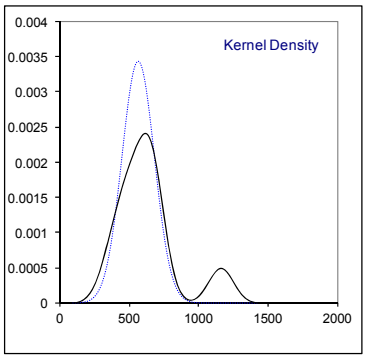


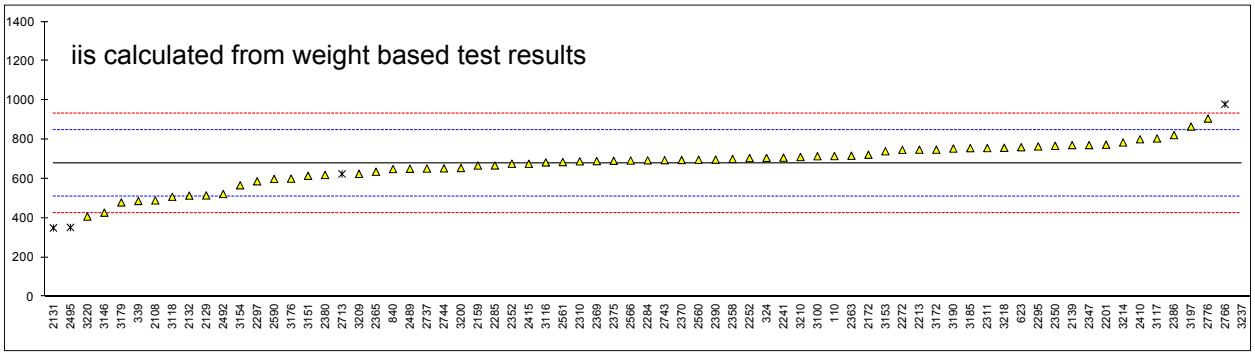
Determination of PFOS on sample #17535; results in µg/m^2

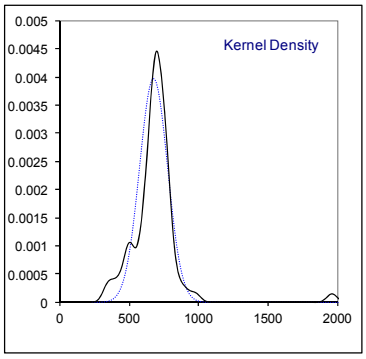
lab	method	value	mark	z(targ)	iis calc	mark	remarks
110		665.553		1.37	715.89		
324		-----		-----	706.49		
339		556		-0.13	487.24		
623		-----		-----	761.04		
840		-----		-----	649.65		
2108		464.71		-1.38	489.94		
2129		-----		-----	515.32		
2131	Oeko-Tex	366.295		-2.73	349.86	R(0.05)	
2132		-----		-----	514.37		
2139		-----		-----	771.46		
2159		-----		-----	667.92		
2172		-----		-----	722.73		
2201		-----		-----	773.49		
2213		-----		-----	748.45		
2241		-----		-----	707.85		
2252		-----		-----	705.95		
2272		-----		-----	747.42		
2284		-----		-----	694.18		
2285		-----		-----	668.06		
2295		-----		-----	764.69		
2297		-----		-----	587.39		
2310	CEN-TS15968	637		0.98	688.90		
2311	CEN-TS15968	704.3		1.90	756.57		
2330		-----		-----	-----		
2347		-----		-----	771.46		
2350		-----		-----	768.07		
2352		-----		-----	676.72		
2358		-----		-----	701.08		
2363		-----		-----	717.32		
2365		-----		-----	636.11		
2369		-----		-----	690.25		
2370		-----		-----	695.67		
2375		-----		-----	691.61		
2380		-----		-----	619.76		
2386		-----		-----	822.62		
2390		-----		-----	697.64		
2410		-----		-----	801.23		
2415		-----		-----	676.72		
2482		-----		-----	-----		
2489		-----		-----	651.00		
2492		-----		-----	522.56		
2495		-----		-----	352.29	R(0.05)	
2497		-----		-----	-----		
2560		-----		-----	697.03		
2561		-----		-----	685.38		
2566		-----		-----	692.96		
2590	CEN-TS15968	637.6570		0.99	599.30		
2713	In house	1161.6	C, G(0.05)	8.17	624.64	ex	first reported: 1321.6
2737		-----		-----	652.36		
2743		-----		-----	695.11		
2744		-----		-----	653.03		
2766		-----		-----	979.89	R(0.05)	
2776		-----		-----	906.80		
3100		-----		-----	715.02		
3116		-----		-----	683.48		
3117		-----		-----	805.37		
3118	In house	492.32		-1.00	508.65		
3146		-----		-----	427.55		
3151		-----		-----	615.14		
3153		-----		-----	740.33		
3154		-----		-----	567.09		
3163		-----		-----	-----		
3172		-----		-----	748.45		
3176		-----		-----	600.93		
3179		-----		-----	479.79		
3185		-----		-----	756.23		
3190		-----		-----	754.13		
3197		-----		-----	866.20		
3200		-----		-----	655.06		
3209		-----		-----	625.29		
3210		-----		-----	711.09		
3214		-----		-----	784.99		
3218		-----		-----	757.92		

lab	method	value	mark	z(targ)	iis calc	mark	remarks
3220		-----		-----	407.93		
3237		-----		-----	1961.45	R(0.01)	
	normality	OK			OK		
	n	8			66		
	outliers	1			4+1ex		
	mean (n)	565.479			678.446		
	st.dev. (n)	116.4239			100.5707		
	R(calc.)	325.987			281.598		
	R(Horwitz *))	204.281			238.463		*) based on Horwitz in mg/kg converted to µg/m^2







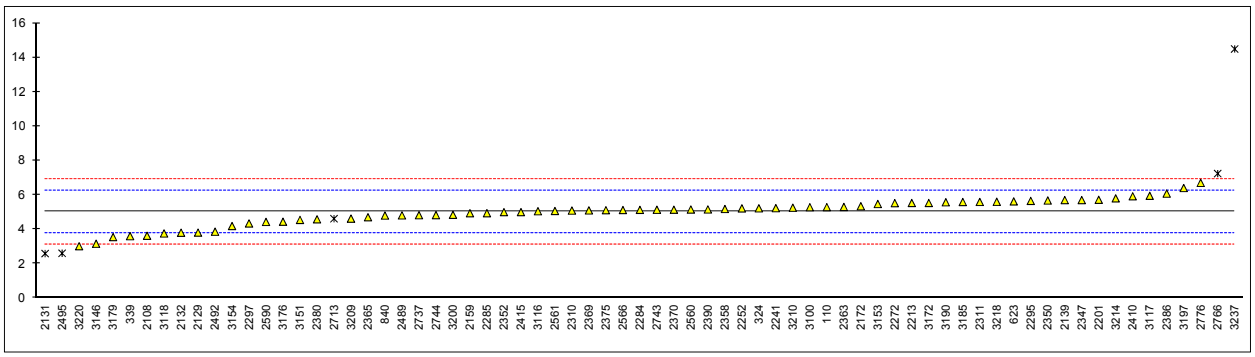


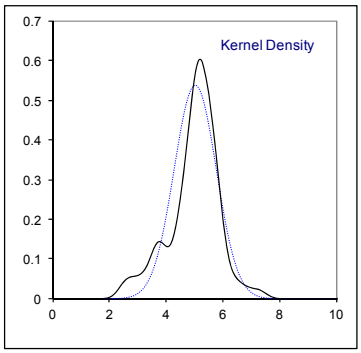
Determination of PFOS on sample #17535; results in mg/kg

lab	method	value	mark	z(targ)	remarks
110		5.2894236		0.44	
324	CEN-TS15968	5.220		0.33	
339		3.60		-2.25	
623	CEN-TS15968	5.623		0.97	
840	CEN-TS15968	4.8		-0.34	
2108		3.62		-2.21	
2129	CEN-TS15968	3.8075	C	-1.92	first reported: 3808 mg/kg
2131	Oeko-Tex	2.585	R(0.05)	-3.86	
2132	In house	3.8005		-1.93	
2139	CEN-TS15968	5.7		1.09	
2159	CEN-TS15968	4.935		-0.12	
2172		5.34		0.52	
2201	CEN-TS15968	5.7150		1.12	
2213	CEN-TS15968	5.53	C	0.82	first reported: 8.23
2241	CEN-TS15968	5.23		0.35	
2252	CEN-TS15968	5.216		0.32	
2272	CEN-TS15968	5.522359562		0.81	
2284	CEN-TS15968	5.129		0.18	
2285	GB/T 31126-2014	4.936		-0.12	
2295	CEN-TS15968	5.65		1.01	
2297	CEN-TS15968	4.34		-1.07	
2310	CEN-TS15968	5.09		0.12	
2311	CEN-TS15968	5.59		0.92	
2330		-----		-----	
2347		5.7		1.09	
2350	CEN-TS15968	5.6750		1.05	
2352	CEN-TS15968	5.0		-0.02	
2358	CEN-TS15968	5.18		0.27	
2363	CEN-TS15968	5.3		0.46	
2365	CEN-TS15968	4.7		-0.50	
2369	CEN-TS15968	5.1		0.14	
2370	CEN-TS15968	5.14		0.20	
2375	CEN-TS15968	5.11		0.15	
2380	CEN-TS15968	4.5792		-0.69	
2386	CEN-TS15968	6.078		1.69	
2390	CEN-TS15968	5.1546		0.23	
2410	CEN-TS15968	5.92		1.44	
2415	CEN-TS15968	5.0		-0.02	
2482		-----		-----	
2489	In house	4.81		-0.32	
2492		3.861		-1.83	
2495	CEN-TS15968	2.6029	R(0.05)	-3.83	
2497		-----		-----	
2560	In house	5.1501		0.22	
2561		5.064		0.08	
2566	CEN-TS15968	5.12		0.17	
2590	CEN-TS15968	4.4280		-0.93	
2713	In house	4.6152	ex	-0.63	see §4.1
2737	CEN-TS15968	4.82		-0.31	
2743	CEN-TS15968	5.1359		0.20	
2744		4.825		-0.30	
2766	EM201	7.24	C,R(0.05)	3.54	first reported: 14.5
2776	CEN-TS15968	6.7		2.68	
3100	CEN-TS15968	5.283		0.43	
3116	In house	5.05		0.06	
3117		5.95056		1.49	
3118	In house	3.7582		-1.99	
3146	CEN-TS15968	3.158975		-2.95	
3151	CEN-TS15968	4.545		-0.74	
3153	CEN-TS15968	5.47		0.73	
3154		4.19		-1.31	
3163		-----		-----	
3172	CEN-TS15968	5.53		0.82	
3176	CEN-TS15968	4.44		-0.91	
3179		3.545		-2.33	
3185	CEN-TS15968	5.5875		0.91	
3190	CEN-TS15968	5.572		0.89	
3197	CEN-TS15968	6.4	C	2.20	first reported: 2.71
3200	CEN-TS15968	4.84		-0.27	
3209		4.62		-0.62	
3210	In house	5.254		0.38	
3214	CEN-TS15968	5.80		1.25	
3218	CEN-TS15968	5.6		0.93	

lab	method	value	mark	z(targ)	remarks
3220	CEN-TS15968	3.014	C	-3.18	first reported: 1.913
3237	CEN-TS15968	14.4924	R(0.01)	15.06	

normality	OK
n	66
outliers	4+1ex
mean (n)	5.0128
st.dev. (n)	0.74308
R(calc.)	2.0806
R(Horwitz)	1.7619





Determination of other Per- and poly-fluorinated substances on sample #17535; results in µg/m^2 and mg/kg

lab	method	in µg/m^2	mark	in mg/kg	mark	remarks
110		-----		-----		
324		-----		-----		
339		-----		-----		
623		-----		-----		
840	CEN-TS15968	-----		n.d.		
2108		-----		-----		
2129		-----		-----		
2131	Oeko-Tex	10.54		0.07435		
2132		-----		-----		
2139		-----		-----		
2159		-----		-----		
2172		-----		-----		
2201	CEN-TS15968	-----		n.d.		
2213		-----		-----		
2241		-----		-----		
2252		-----		-----		
2272		-----		-----		
2284		-----		-----		
2285		-----		-----		
2295		-----		-----		
2297	CEN-TS15968	-----		n.d.		
2310		-----		-----		
2311		-----		-----		
2330		-----		-----		
2347		-----		-----		
2350		-----		-----		
2352		-----		-----		
2358		-----		-----		
2363	CEN-TS15968	-----		n.d.		
2365		-----		-----		
2369		-----		-----		
2370	CEN-TS15968	-----		n.d.		
2375		-----		-----		
2380		-----		-----		
2386		-----		-----		
2390		-----		-----		
2410		-----		-----		
2415		-----		-----		
2482		-----		-----		
2489	In house	-----		n.d.		
2492		-----		-----		
2495		-----		-----		
2497	CEN-TS15968	10.191	ex	69.829	ex	excluded, all other test results are outliers
2560	In house	-----		<0.001		
2561		-----		-----		
2566		-----		-----		
2590	In house	10.428		0.072		sum of PFHpS and PFHxS *)
2713		-----		-----		
2737		-----		-----		
2743		-----		-----		
2744		-----		-----		
2766		-----		-----		
2776		-----		-----		
3100		-----		-----		
3116		-----		-----		
3117		-----		-----		
3118		-----		-----		
3146	CEN-TS15968	-----		< 0,02		
3151		-----		-----		
3153		-----		-----		
3154		-----		-----		
3163		-----		-----		
3172		-----		-----		
3176	CEN-TS15968	-----		n.d.		
3179		-----		0.081		
3185		-----		-----		
3190		-----		-----		
3197	CEN-TS15968	n.d.		n.d.		
3200		-----		-----		
3209		-----		-----		
3210		-----		-----		
3214	CEN-TS15968	-----		<1		
3218		-----		-----		

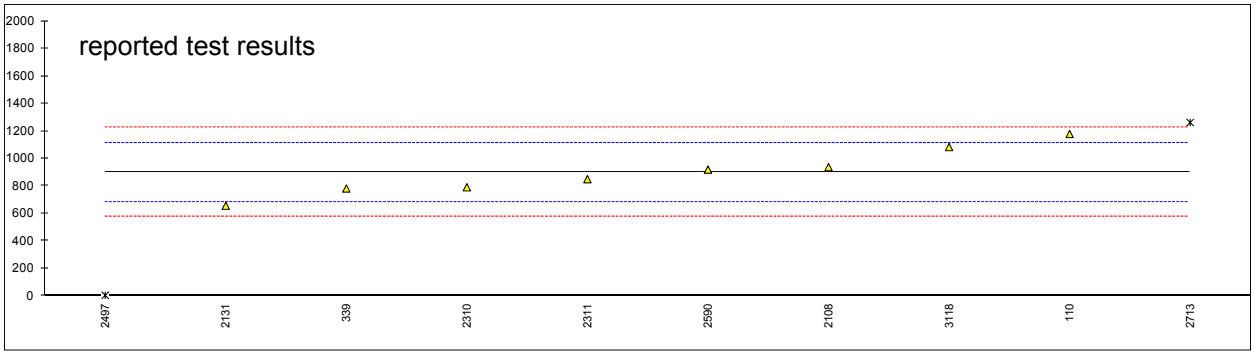
lab	method	in µg/m^2	mark	in mg/kg	mark	remarks
3220		-----		-----		
3237		-----		-----		

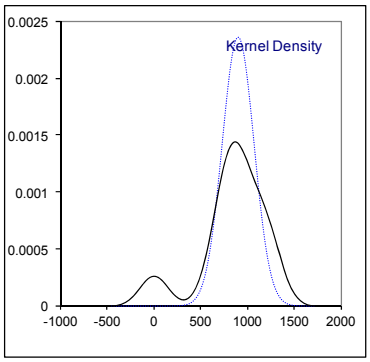
*) Lab 2590 reported: Other PFCs found; PFHpS 5.193 µg/m^2 and 0.036 mg/kg; PFHxS 5.235 µg/m^2 and 0.036 mg/kg

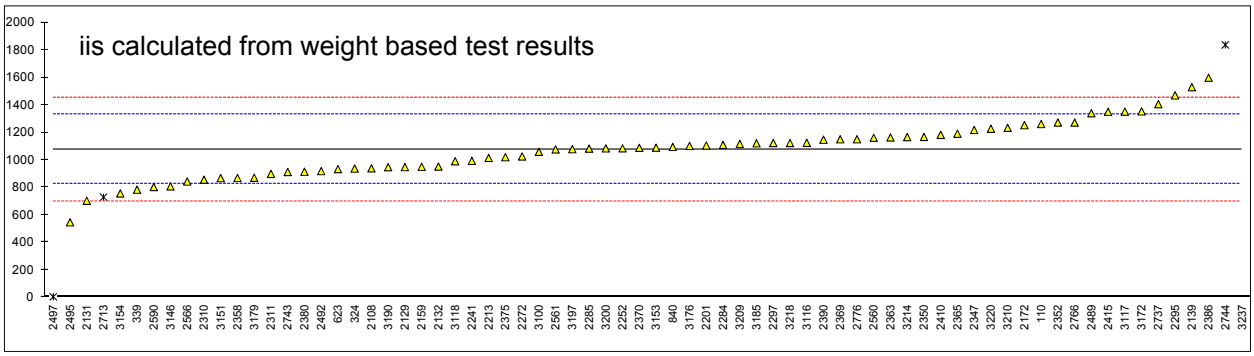
Determination of PFOA on sample #17536; results in µg/m^2

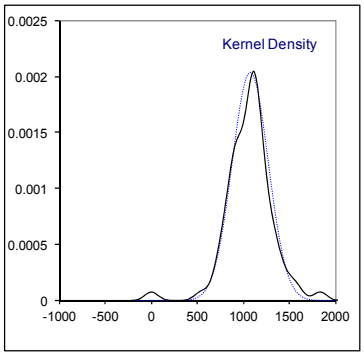
lab	method	value	mark	z(targ)	iis calc	mark	remarks
110		1179.230		2.58	1261.52		
324		-----		-----	937.36		
339		782		-1.09	783.64		
623		-----		-----	933.46		
840		-----		-----	1094.93		
2108		937.67		0.35	939.28		
2129		-----		-----	948.35		
2131	Oeko-Tex	657.17		-2.24	703.11		
2132		-----		-----	952.01		
2139		-----		-----	1529.38		
2159		-----		-----	950.38		
2172		-----		-----	1253.28		
2201		-----		-----	1105.35		
2213		-----		-----	1015.08		
2241		-----		-----	993.42		
2252		-----		-----	1084.78		
2272		-----		-----	1025.60		
2284		-----		-----	1109.68		
2285		-----		-----	1082.34		
2295		-----		-----	1469.83		
2297		-----		-----	1123.35		
2310	CEN-TS15968	791		-1.01	856.72		
2311	CEN-TS15968	849.9		-0.46	898.68		
2330		-----		-----	-----		
2347		-----		-----	1218.09		
2350		-----		-----	1167.46		
2352		-----		-----	1272.23		
2358		-----		-----	868.91		
2363		-----		-----	1163.95		
2365		-----		-----	1191.02		
2369		-----		-----	1150.42		
2370		-----		-----	1088.16		
2375		-----		-----	1020.49		
2380		-----		-----	914.48		
2386		-----		-----	1598.14		
2390		-----		-----	1147.46		
2410		-----		-----	1182.90		
2415		-----		-----	1350.73		
2482		-----		-----	-----		
2489		-----		-----	1339.90		
2492		-----		-----	918.98		
2495		-----		-----	546.25		
2497	CEN-TS15968	5.011	G(0.05)	-8.27	4.583	R(0.01)	
2560		-----		-----	1161.49		
2561		-----		-----	1076.52		
2566		-----		-----	843.60		
2590	In house	919.6000		0.18	802.99		
2713	In house	1262.0	ex	3.34	729.34	ex	see § 4.1
2737		-----		-----	1406.22		
2743		-----		-----	912.74		
2744		-----		-----	1837.29	R(0.05)	
2766		-----		-----	1272.23		
2776		-----		-----	1150.42		
3100		-----		-----	1059.33		
3116		-----		-----	1124.70		
3117		-----		-----	1351.75		
3118	In house	1083.35		1.69	990.71		
3146		-----		-----	807.87		
3151		-----		-----	867.82		
3153		-----		-----	1089.52		
3154		-----		-----	756.57		
3163		-----		-----	-----		
3172		-----		-----	1353.43		
3176		-----		-----	1101.70		
3179		-----		-----	870.94		
3185		-----		-----	1121.32		
3190		-----		-----	947.54		
3197		-----		-----	1078.69		
3200		-----		-----	1084.10		
3209		-----		-----	1116.58		
3210		-----		-----	1233.93		
3214		-----		-----	1166.66		
3218		-----		-----	1123.35		

lab	method	value	mark	z(targ)	iis calc	mark	remarks
3220		-----		-----	1227.02		
3237		-----		-----	7830.27	R(0.01)	
	normality	OK			OK		
	n	8			68		
	outliers	1+1ex			3+1ex		
	mean (n)	899.990			1077.807		
	st.dev. (n)	169.3143			196.0929		
	R(calc.)	474.080			549.060		
	R(Horwitz *))	303.160			353.337		*) based on Horwitz in mg/kg converted to µg/m^2







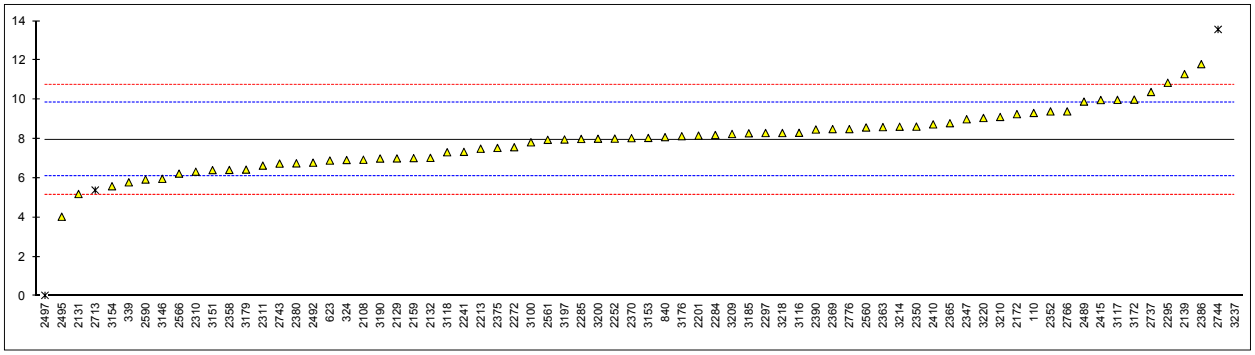


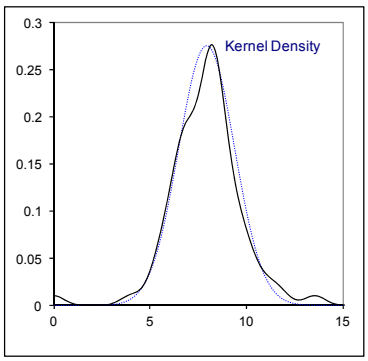
Determination of PFOA on sample #17536; results in mg/kg

lab	method	value	mark	z(targ)	remarks
110		9.320888		1.46	
324	CEN-TS15968	6.9258		-1.11	
339		5.79		-2.33	
623	CEN-TS15968	6.897		-1.14	
840	CEN-TS15968	8.09		0.14	
2108		6.94		-1.10	
2129	CEN-TS15968	7.007	C	-1.03	first reported: 7008 mg/kg
2131	Oeko-Tex	5.195		-2.97	
2132	In house	7.0340		-1.00	
2139	CEN-TS15968	11.3		3.58	
2159	CEN-TS15968	7.022		-1.01	
2172		9.26		1.39	
2201	CEN-TS15968	8.1670		0.22	
2213	CEN-TS15968	7.5	C	-0.50	first reported: 10.05
2241	CEN-TS15968	7.34		-0.67	
2252	CEN-TS15968	8.015		0.06	
2272	CEN-TS15968	7.577749748		-0.41	
2284	CEN-TS15968	8.199		0.25	
2285	GB/T 31126-2014	7.997		0.04	
2295	CEN-TS15968	10.86		3.11	
2297	CEN-TS15968	8.30		0.36	
2310	CEN-TS15968	6.33		-1.75	
2311	CEN-TS15968	6.64		-1.42	
2330		-----		-----	
2347		9.0		1.11	
2350	CEN-TS15968	8.6259		0.71	
2352	CEN-TS15968	9.4		1.54	
2358	CEN-TS15968	6.42		-1.66	
2363	CEN-TS15968	8.6		0.68	
2365	CEN-TS15968	8.8		0.90	
2369	CEN-TS15968	8.5		0.58	
2370	CEN-TS15968	8.04		0.08	
2375	CEN-TS15968	7.54		-0.45	
2380	CEN-TS15968	6.7567		-1.29	
2386	CEN-TS15968	11.808		4.12	
2390	CEN-TS15968	8.4781		0.55	
2410	CEN-TS15968	8.74		0.83	
2415	CEN-TS15968	9.98		2.16	
2482		-----		-----	
2489	In house	9.9		2.08	
2492		6.790		-1.26	
2495	CEN-TS15968	4.0360		-4.21	
2497	CEN-TS15968	0.033859	C,R(0.01)	-8.50	first reported: 33.859 mg/kg
2560	In house	8.5818		0.66	
2561		7.954		-0.01	
2566	CEN-TS15968	6.233		-1.86	
2590	In house	5.9330		-2.18	
2713	In house	5.3888	ex	-2.76	see § 4.1
2737	CEN-TS15968	10.39		2.60	
2743	CEN-TS15968	6.7439		-1.31	
2744		13.575	R(0.05)	6.02	
2766	EM201	9.4		1.54	
2776	CEN-TS15968	8.5		0.58	
3100	CEN-TS15968	7.827		-0.15	
3116	In house	8.31		0.37	
3117		9.98756		2.17	
3118	In house	7.3200		-0.69	
3146	CEN-TS15968	5.969		-2.14	
3151	CEN-TS15968	6.412		-1.66	
3153	CEN-TS15968	8.05		0.09	
3154		5.59		-2.55	
3163		-----		-----	
3172	CEN-TS15968	10.0		2.18	
3176	CEN-TS15968	8.14		0.19	
3179		6.435		-1.64	
3185	CEN-TS15968	8.2850		0.34	
3190	CEN-TS15968	7.001		-1.03	
3197	CEN-TS15968	7.97		0.01	
3200	CEN-TS15968	8.01		0.05	
3209		8.25		0.31	
3210	In house	9.117		1.24	
3214	CEN-TS15968	8.62		0.70	
3218	CEN-TS15968	8.3		0.36	

lab	method	value	mark	z(targ)	remarks
3220	CEN-TS15968	9.066		1.18	
3237	CEN-TS15968	57.8548	R(0.01)	53.51	

normality	OK
n	68
outliers	3+1ex
mean (n)	7.96349
st.dev. (n)	1.448854
R(calc.)	4.05679
R(Horwitz)	2.61067

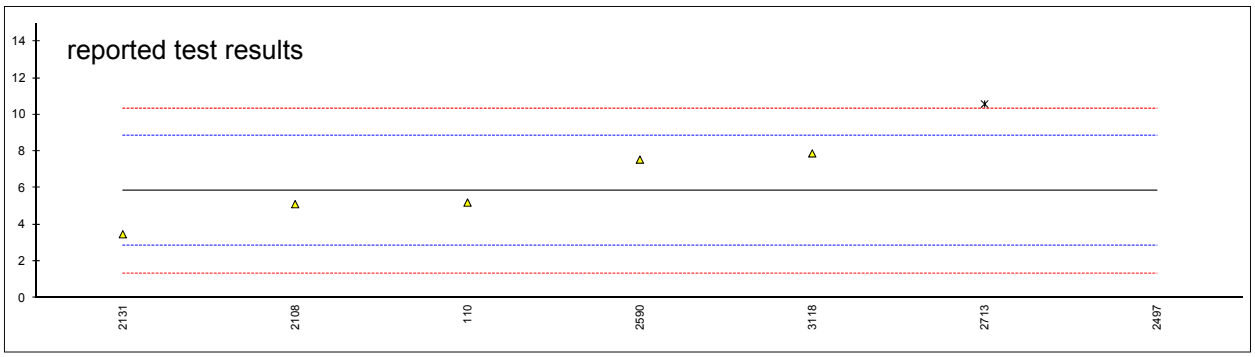


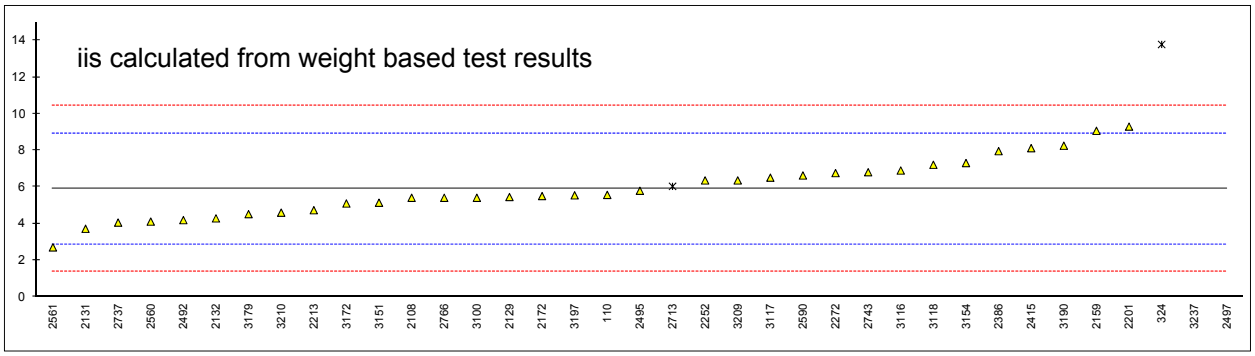


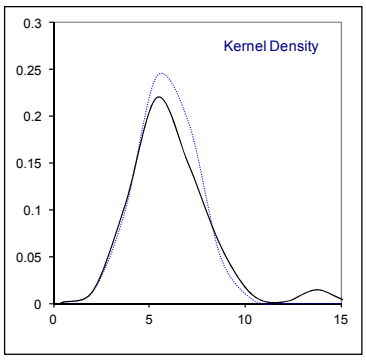
Determination of PFOS on sample #17536; results in µg/m^2

lab	method	value	mark	z(targ)	iis calc	mark	remarks
110		5.20668		-0.43	5.571		
324		-----		-----	13.778	R(0.01)	
339		<1		-----	-----		
623		-----		-----	-----		
840		-----		-----	-----		
2108		5.12		-0.49	5.414		
2129		-----		-----	5.454		
2131	Oeko-Tex	3.48		-1.58	3.722		
2132		-----		-----	4.290		
2139		-----		-----	-----		
2159		-----		-----	9.068		
2172		-----		-----	5.508		
2201		-----		-----	9.298		
2213		-----		-----	4.737		
2241		-----		-----	-----		
2252		-----		-----	6.361		
2272		-----		-----	6.759		
2284		-----		-----	-----		
2285		-----		-----	-----		
2295		-----		-----	-----		
2297		-----		-----	-----		
2310	CEN-TS15968	n.d.		-----	-----		
2311	CEN-TS15968	n.d.		-----	-----		
2330		-----		-----	-----		
2347		-----		-----	-----		
2350		-----		-----	-----		
2352		-----		-----	-----		
2358		-----		-----	-----		
2363		-----		-----	-----		
2365		-----		-----	-----		
2369		-----		-----	-----		
2370		-----		-----	-----		
2375		-----		-----	-----		
2380		-----		-----	-----		
2386		-----		-----	7.960		
2390		-----		-----	-----		
2410		-----		-----	-----		
2415		-----		-----	8.121		
2482		-----		-----	-----		
2489		-----		-----	-----		
2492		-----		-----	4.196		
2495		-----		-----	5.795		
2497	CEN-TS15968	462.573	D(0.01)	304.10	423.015	R(0.01)	
2560		-----		-----	4.114		
2561		-----		-----	2.707		
2566		-----		-----	-----		
2590	CEN-TS15968	7.5520		1.13	6.632		
2713	In house	10.584	ex	3.15	6.036	ex	see § 4.1
2737		-----		-----	4.060		
2743		-----		-----	6.808		
2744		-----		-----	-----		
2766		-----		-----	5.414		
2776		-----		-----	-----		
3100		-----		-----	5.414		
3116		-----		-----	6.903		
3117		-----		-----	6.513		
3118	In house	7.892		1.36	7.214		
3146		-----		-----	-----		
3151		-----		-----	5.143		
3153		-----		-----	-----		
3154		-----		-----	7.309		
3163		-----		-----	-----		
3172		-----		-----	5.102		
3176		-----		-----	-----		
3179		-----		-----	4.520		
3185		-----		-----	-----		
3190		-----		-----	8.256		
3197		-----		-----	5.549		
3200		-----		-----	-----		
3209		-----		-----	6.361		
3210		-----		-----	4.602		
3214		-----		-----	-----		
3218		-----		-----	-----		

lab	method	value	mark	z(targ)	iis calc	mark	remarks
3220		-----		-----	-----		
3237		-----		-----	29.911	R(0.01)	
	normality	unknown			OK		
	n	5			33		
	outliers	1+1ex			3+1ex		
	mean (n)	5.8501			5.9053		
	st.dev. (n)	1.84596			1.56506		
	R(calc.)	5.1687			4.3822		
	R(Horwitz *))	4.2052			4.2389		*) based on Horwitz in mg/kg converted to µg/m^2





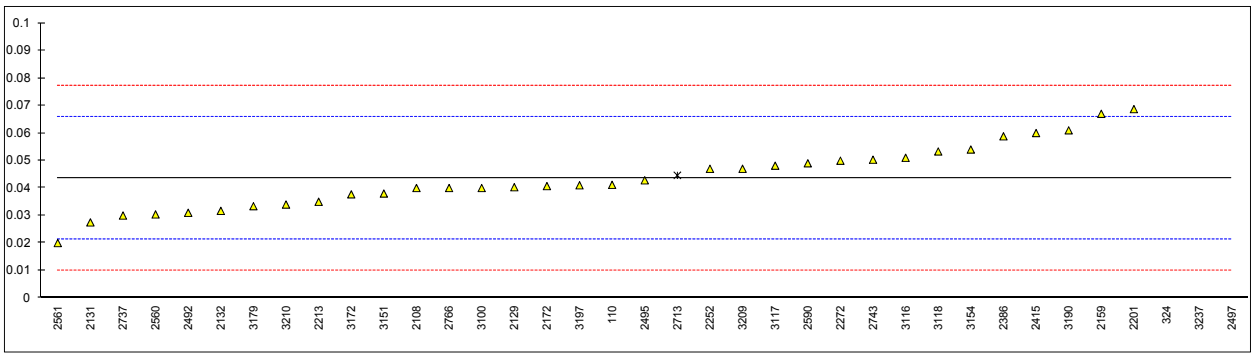


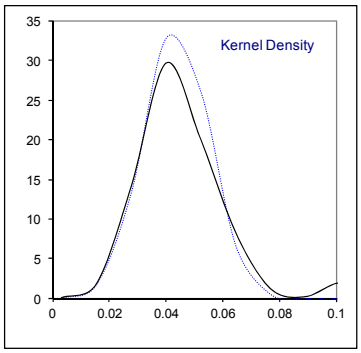
Determination of PFOS on sample #17536; results in mg/kg

lab	method	value	mark	z(targ)	remarks
110		0.041164		-0.22	
324	CEN-TS15968	0.1018	R(0.01)	5.20	
339		<0.1		-----	
623	CEN-TS15968	n.d.		-----	
840	CEN-TS15968	n.d.		-----	
2108		0.04		-0.32	
2129	CEN-TS15968	0.0403	C	-0.30	first reported: 40.3 mg/kg
2131	Oeko-Tex	0.0275		-1.44	
2132	In house	0.0317		-1.07	
2139		-----		-----	
2159	CEN-TS15968	0.067		2.09	
2172		0.0407		-0.26	
2201	CEN-TS15968	0.0687		2.24	
2213	CEN-TS15968	0.035	C	-0.77	first reported: 0.043
2241		-----		-----	
2252	CEN-TS15968	0.047	C	0.30	first reported: 0.094
2272	CEN-TS15968	0.049941473		0.56	
2284		-----		-----	
2285		-----		-----	
2295		-----		-----	
2297	CEN-TS15968	n.d.		-----	
2310	CEN-TS15968	n.d.		-----	
2311	CEN-TS15968	<1		-----	
2330		-----		-----	
2347		<2		-----	
2350	CEN-TS15968	<1.00		-----	
2352	CEN-TS15968	n.d.		-----	
2358	CEN-TS15968	<1		-----	
2363	CEN-TS15968	n.d.		-----	
2365	CEN-TS15968	<10		-----	
2369	CEN-TS15968	<1		-----	
2370	CEN-TS15968	n.d.		-----	
2375		-----		-----	
2380		-----		-----	
2386	CEN-TS15968	0.05881		1.36	
2390	CEN-TS15968	n.d.		-----	
2410		-----		-----	
2415	CEN-TS15968	0.06		1.46	
2482		-----		-----	
2489	In house	n.d.		-----	
2492		0.031		-1.13	
2495	CEN-TS15968	0.04282		-0.07	
2497	CEN-TS15968	3.125493	C,R(0.01)	275.52	first reported: 3125.493 mg/kg
2560	In house	0.0304		-1.18	
2561		0.020		-2.11	
2566	CEN-TS15968	<0.05		-----	
2590	CEN-TS15968	0.0490		0.48	
2713	In house	0.0446	ex	0.09	see § 4.1
2737	CEN-TS15968	0.03		-1.22	
2743	CEN-TS15968	0.0503		0.60	
2744		-----		-----	
2766	EM201	0.04	C	-0.32	first reported: 0.74
2776	CEN-TS15968	n.d.		-----	
3100	CEN-TS15968	0.04		-0.32	
3116	In house	0.051		0.66	
3117		0.04812		0.40	
3118	In house	0.0533		0.86	
3146		-----		-----	
3151	CEN-TS15968	0.038		-0.50	
3153	CEN-TS15968	<1		-----	
3154		0.054		0.93	
3163		-----		-----	
3172	CEN-TS15968	0.0377		-0.53	
3176	CEN-TS15968	n.d.		-----	
3179		0.0334		-0.91	
3185	CEN-TS15968	<0.1		-----	
3190	CEN-TS15968	0.061		1.55	
3197	CEN-TS15968	0.041		-0.24	
3200	CEN-TS15968	<0.10		-----	
3209		0.047		0.30	
3210	In house	0.034		-0.86	
3214	CEN-TS15968	<1		-----	
3218	CEN-TS15968	<0.1		-----	

lab	method	value	mark	z(targ)	remarks
3220	CEN-TS15968	<0.1		-----	
3237	CEN-TS15968	0.2210	R(0.01)	15.86	

normality	OK
n	33
outliers	3+1ex
mean (n)	0.04363
st.dev. (n)	0.011564
R(calc.)	0.03238
R(Horwitz)	0.03132





Determination of other Per- and poly-fluorinated substances on sample #17536; results in µg/m^2 and mg/kg

lab	method	in µg/m^2	mark	in mg/kg	mark	remarks
110		-----		-----		
324		-----		-----		
339		-----		-----		
623		-----		-----		
840	CEN-TS15968	-----		n.d.		
2108		17.55		0.13		Detected PFHpA
2129		-----		-----		
2131	Oeko-Tex	23.75		0.010501		
2132		-----		-----		
2139		-----		-----		
2159		-----		-----		
2172		-----		-----		
2201	CEN-TS15968	-----		n.d.		
2213		-----		-----		
2241		-----		-----		
2252		-----		-----		
2272		-----		-----		
2284		-----		-----		
2285		-----		-----		
2295		-----		-----		
2297	CEN-TS15968	-----		n.d.		
2310		-----		-----		
2311		-----		-----		
2330		-----		-----		
2347		-----		-----		
2350		-----		-----		
2352		-----		-----		
2358		-----		-----		
2363	CEN-TS15968	-----		n.d.		
2365		-----		-----		
2369		-----		-----		
2370	CEN-TS15968	-----		n.d.		
2375		-----		-----		
2380		-----		-----		
2386		-----		-----		
2390		-----		-----		
2410		-----		-----		
2415		-----		-----		
2482		-----		-----		
2489	In house	-----		n.d.		
2492		-----		-----		
2495		-----		-----		
2497	CEN-TS15968	11.589	ex	0.078308	ex, C	first reported: 78.308 mg/kg, excluded see *)
2560	In house	-----		<0.001		
2561		-----		-----		
2566		-----		-----		
2590	In house	23.139		0.15		sum of PFHpA and PFHxS **)
2713		-----		-----		
2737		-----		-----		
2743		-----		-----		
2744		-----		-----		
2766		-----		-----		
2776		-----		-----		
3100		-----		-----		
3116		-----		-----		
3117		-----		-----		
3118		-----		-----		
3146		-----		-----		
3151		-----		-----		
3153		-----		-----		
3154		-----		-----		
3163		-----		-----		
3172		-----		-----		
3176	CEN-TS15968	-----		n.d.		
3179		-----		0.116		
3185		-----		-----		
3190		-----		-----		
3197	CEN-TS15968	n.d.		n.d.		
3200		-----		-----		
3209		-----		-----		
3210		-----		-----		
3214	CEN-TS15968	-----		<1		
3218		-----		-----		

lab	method	in µg/m^2	mark	in mg/kg	mark	remarks
3220		-----		-----		
3237		-----		-----		

*) Lab 2497: test results are excluded as other test results are outliers

**) Lab 2590 reported: Other PFCs found; PFHpA 21.334 µg/m^2 and 0.138 mg/kg; PFHxS 1.805 µg/m^2 and 0.012 mg/kg

APPENDIX 2: Analytical details

lab	Accredited to ISO/IEC 17025 to determine these comp.	Sample grinded, cut or used as received	Sample intake (in grams)	Sample intake (in dm²)	Technique to release/ extract the analyte(s)	Used Internal Standard	Solvent (mixture) to release the analyte(s)	Extraction time (minutes) and temperature (°C)	Clean up step on the extraction solution
110	Yes	Cut	1.25g	1dm²	Ultrasonic	No	MeOH	60 mins, 60°C	No
324	Yes	Cut	1g	---	Ultrasonic	Yes	MeOH	60 mins, 60°C	No
339	No	Cut	0.5g	0.10dm²	Ultrasonic	---	MeOH/ Toluene (1/1)	120 mins, 60°C	No
623	No	Cut	1g	---	Ultrasonic	No	MeOH	60 mins	No
840	Yes	Cut	---	---	Ultrasonic	No	---	---	---
2108	Yes	as received	0.5g	0,375 dm²	Ultrasonic	Yes	MeOH	60 mins, 60°C	No
2129	Yes	as received	0.1-0.5g	---	Ultrasonic	Yes	MeOH	30 mins, room T	Yes, matrix precipitation and filtration
2131	Yes	as received	1g	1dm²	Ultrasonic	Yes	MeOH	60 mins, 60°C	No
2132	No	Cut	0.5g	---	Ultrasonic	No	MeOH	120 mins, 60°C	No
2139	Yes	Cut	0.5g	---	Ultrasonic	No	MeOH	120 mins	No
2159	No	Cut	0.5g	---	Ultrasonic	No	MeOH	120 mins, 60°C	No
2172	---	---	---	---	---	---	---	---	---
2201	Yes	Cut	0.5g	---	Ultrasonic	Yes	MeOH	120 mins, 60°C	No
2213	Yes	Cut	---	---	---	---	---	---	---
2241	Yes	Cut	0.2g	---	Ultrasonic	No	MeOH	120 mins, 60°C	Yes, filtered by 0.22µm filter
2252	Yes	as received	0.500g	---	Ultrasonic	No	MeOH	120 mins, 60°C	No
2272	Yes	Cut	1g	---	Ultrasonic	Yes	MeOH	120 mins	No
2284	Yes	Cut	0.5g	---	Ultrasonic	No	MeOH	120 mins, 60°C	No
2285	Yes	Cut	0.20g	---	Ultrasonic	No	MeOH	40 mins, room T	No
2295	Yes	Cut	0.5g	---	Ultrasonic	No	MeOH	30 mins, room T	Yes, glass wool with Na2SO4
2297	No	as received	0.5g	1dm²	Ultrasonic	Yes	MeOH	60 mins, 70°C	No
2310	Yes	Cut	0.5g	---	Ultrasonic	No	MeOH	60 mins, 70°C	No
2311	Yes	Cut	1g	0.01dm²	Ultrasonic	No	MeOH	120 mins, 60°C	No
2330	---	---	---	---	---	---	---	---	---
2347	Yes	Cut	---	---	Ultrasonic	No	MeOH	60 mins, 70°C	---
2350	Yes	Cut	0.5g	---	Ultrasonic	Yes	MeOH	120 mins	---
2352	Yes	Cut	0.5g	---	Ultrasonic	No	MeOH	120 mins, 60°C	Yes, PTFE
2358	Yes	Cut	0.5g	0.4dm²	Ultrasonic	Yes	MeOH	120 mins, 60°C	No
2363	No	Cut	0.5g	---	Ultrasonic	Yes	MeOH	120 mins, 60°C	No
2365	Yes	as received	0.50g	---	Ultrasonic	Yes	MeOH	120 mins, 60°C	No
2369	---	---	---	---	---	---	---	---	---
2370	Yes	Cut	0.50g	n.d.	Ultrasonic	No	MeOH	120 mins, 60°C	No
2375	Yes	Cut	0.5g	---	Ultrasonic	Yes	MeOH	120 mins, 60°C	No
2380	Yes	Cut	1.01g	---	Ultrasonic	No	MeOH	120 mins, 60°C	No
2386	Yes	Cut	1g	---	Ultrasonic	Yes	MeOH	120 mins, 60°C	Yes, filter
2390	Yes	Cut	1g	---	Ultrasonic	Yes	MeOH	120 mins, 60°C	---
2410	Yes	Cut	---	---	Ultrasonic	Yes	MeOH	120 mins, 60°C	No
2415	Yes	Cut	0.5100g	---	Ultrasonic	No	MeOH	120 mins	No
2482	---	---	---	---	---	---	---	---	---
2489	No	Cut	1g	---	Ultrasonic	No	MeOH	120 mins, 60°C	No
2492	Yes	as received	0.1g	---	Ultrasonic	Yes	MeOH	60 mins, 40°C	No
2495	Yes	as received	1g	---	Ultrasonic	No	MeOH	60 mins, 60°C	No
2497	Yes	Cut	1g	0.007dm²	Ultrasonic	Yes	MeOH	120 mins, 60°C	No
2560	No	as received	1.0g	---	Ultrasonic	No	MeOH	120 mins, 60°C	---
2561	No	as received	0.51g	---	Ultrasonic	No	MeOH	30 mins, 40°C	No
2566	Yes	Cut	1.0g	---	Ultrasonic	No	MeOH	120 mins, 60°C	No
2590	Yes	as received	1.0g	0.7dm²	Ultrasonic	Yes	MeOH	120 mins, 60°C	No
2713	Yes	Cut	1.0g	0.25dm²	Ultrasonic	No	MeOH	120 mins, 60°C	No
2737	Yes	Cut	1g	---	Ultrasonic	No	MeOH	120 mins, 60°C	Yes, PTFE
2743	Yes	as received	1.3-1.5g	---	Ultrasonic	Yes	MeOH	120 mins, 60°C	No
2744	---	---	---	---	---	---	---	---	---

lab	Accredited to ISO/IEC 17025 to determine these comp.	Sample grinded, cut or used as received	Sample intake (in grams)	Sample intake (in dm²)	Technique to release/ extract the analyte(s)	Used Internal Standard	Solvent (mixture) to release the analyte(s)	Extraction time (minutes) and temperature (°C)	Clean up step on the extraction solution
2766	No	Cut	1g	---	Soxhlet	No	MeOH	60 mins, 40°C	No
2776	No	as received	1.00g	---	Ultrasonic	No	MeOH	120 mins, 60°C	Yes, filter
3100	Yes	Cut	1g	---	Ultrasonic	Yes	MeOH	120 mins, 60°C	No
3116	No	Cut	1g	1dm²	Ultrasonic	No	MeOH	120 mins, 60°C	No
3117	No	Cut	0.8g	---	Soxhlet	No	MeOH	360 mins, 90°C	No
3118	Yes	Cut	0.5g	0.38dm²	Ultrasonic	No	MeOH	120 mins, 60°C	No
3146	Yes	as received	1g	---	Ultrasonic	---	MeOH	120 mins, 60°C	No
3151	Yes	as received	0.5g	---	Ultrasonic	Yes	MeOH	120 mins, 60°C	---
3153	No	as received	0.5g	---	Ultrasonic	No	MeOH	120 mins, 60°C	No
3154	Yes	as received	0.15g	---	Ultrasonic	Yes	MeOH	120 mins, 60°C	No
3163	---	---	---	---	---	---	---	---	---
3172	Yes	Cut	1g	---	Ultrasonic	No	MeOH	120 mins, 60°C	No
3176	Yes	Cut	1g	---	Ultrasonic	No	MeOH	120 mins, 60°C	No
3179	Yes	Cut	0,5-1g	---	Ultrasonic	Yes	MeOH	60 mins, 70°C	No
3185	Yes	Cut	1.0g	---	Ultrasonic	No	MeOH	120 mins, 60°C	No
3190	Yes	Cut	0.5g	---	Ultrasonic	Yes	MeOH	120 mins, 60°C	No
3197	Yes	Cut	2g	---	Ultrasonic	Yes	MeOH	120 mins, 60°C	No
3200	No	as received	0.5g	---	Ultrasonic	No	MeOH	120 mins, 60°C	No
3209	Yes	Cut	0.5g	---	Ultrasonic	No	MeOH	60 mins, 70°C	No
3210	No	as received	0.5g	---	Ultrasonic	Yes	MeOH	90 mins, 60°C	No
3214	Yes	Cut	1g	---	Ultrasonic	Yes	MeOH	120 mins, 60°C	No
3218	Yes	Cut	0.5g	n.d.	Ultrasonic	No	MeOH	120 mins, 60°C	Yes, PTFE
3220	Yes	Cut	1g	---	Ultrasonic	No	MeOH	120 mins, 60°C	No
3237	No	as received	0.5g	---	Ultrasonic	No	MeOH/DCM	120 mins, 60°C	No

Analytical details (continued)

lab	Analysis technique to quantify the components	Ions used for quantification for PFOA for MS	Ions used for quantification for PFOS for MS
110	---	369; 413	499; 500
324	LC-MS/MS	---	---
339	LC-MS/MS	412.9->368.9 ; 412.9->169.2	498.7->80 ; 498.7->130
623	LC-MS	369; 413	499; 500
840	---	---	---
2108	HPLC-MS/MS	413; 369	499; 80
2129	LC-MS/MS	---	---
2131	LC-MS/MS	370	499
2132	LC-MS/MS	412.9 -> 369	498.9 -> 79.8
2139	LC-MS	369, 169	499, 80
2159	LC-MS/MS, MRM	368.9	80
2172	---	---	---
2201	LC-MS/MS	412.9/168.8; 412.9/368.9	498.9/79.8; 498.9/98.8
2213	---	---	---
2241	LC-MS	413	499.3
2252	LC-MS/MS	413(169.2,219.0)	498(80.2,130.0)
2272	LC-MS/MS	168.8	79.9
2284	LC-MS	413, 369	499
2285	HPLC-MS/MS	413->369	499->80
2295	LC-MS/MS	413 to 369	499 to 99
2297	LC-MS	413	499
2310	LC-MS/MS	413/369	499/80
2311	LC-MS/MS	412.8/169	498.9/80
2330	---	---	---
2347	---	---	---
2350	HPLC-MS	413	499
2352	---	413	499
2358	LC-MS/MS	369.0	80.0
2363	LC-MS	413	499
2365	HPLC-MS	413	499
2369	---	---	---
2370	LC-MS/MS	413 169 369	499 80 90
2375	---	413	499
2380	LC-MS	413	499
2386	LC-MS/MS	---	---
2390	LC-MS	413	499
2410	HPLC-MS/MS	369.10	79.8
2415	LC-MS	413	498.9
2482	---	---	---
2489	LC-MS/MS	413/369, 413/169	499/80, 499/99
2492	LC-MS/MS	413 / 369	499 / 80
2495	LC-MS/MS	412.94/369.1	598.99/79.9
2497	LC-MS/MS	---	---
2560	LC-MS/MS	413.0>369.0 and 413.0>169.0	498.9>80.0 and 498.9>99.0
2561	LC-MS/MS	412.9-169, 412.9-219.0	498.9-80, 498-99
2566	LC-MS	413/369	499
2590	LC-MS QQQ	Quantifier 412.9 - qualifier 89.7 and 168.8	Quantifier 498.9 - qualifier 368.8 and 98.8
2713	MS-technique	412.9	498.9
2737	LC-QQQ	413, 369	499, 80
2743	LC-MS/MS	412.85>368.90/ 412.85>395.10 / 412.85>315.00 negative ions	498.80>99.10 / 498.80>169.05 / 498.80>253.00 negative ions
2744	---	---	---
2766	LC-MS	369	499
2776	LC-MS, MRM	413, 369	499, 80
3100	LC-MS/MS	413.0/368.8	498.6/79.8
3116	LC-MS/MS	413.0 / 369.0	498.9 / 80.0
3117	HPLC-MS	369	80
3118	LC-MS/MS	412.9 -> 368.9	498.6 -> 79.9

lab	Analysis technique to quantify the components	Ions used for quantification for PFOA for MS	Ions used for quantification for PFOS for MS
3146	LC-MS	---	---
3151	LC-MSMS & LC-QTOF	413 -> 168 and 369	499 -> 99 and 80
3153	HPLC-MS/MS, MRM	412.9/368.9	498.8/80.0
3154	LC-MS/MS	413 and 369	99 and 80
3163	---	---	---
3172	LC-MS	---	---
3176	LC-MS/MS	412.8, 368.9 , 168.9	498.8, 98.4 , 79.9
3179	LC-MS/MS	413 369 169	499 99 80
3185	HPLC-MS/MS	412.8/168.9	498.8/79.9
3190	LC-MS/MS	Q1:412.8 Q3:368.8	Q1:498.8 Q3:79.9
3197	MRM	413.0/368.7 ; 413.0/169.0	499.0/80.0 ; 498.9/99.0
3200	LC-MS/MS	412.9>368.9	498.8>79.8
3209	LC-MS/MS	412.8	498.8
3210	LC-MS/MS	413	499
3214	LC-MS	413	498.9
3218	LC-MS/MS	412.9 168.9	498.9 80.0
3220	LC-MS/MS	M1- 414, M2 - 368.7, M3 -218.6	M1- 498.7, M2 - 79.6, M3 -98.6
3237	---	412,8 368,9 218,8 168.9	498,7 99 80

APPENDIX 3 Questionnaire with summary

Q1 – Did you report during the PT iis17A05:

a - the total of all isomers as we do not analyse separate isomers OR

b - only the linear isomers OR

c - only the branched isomers.

Q2 – Did you separate the linear and the branched isomers by chromatography? …….

IF YES, can you please report both the linear isomers AND also the sum of branched isomers:

for sample #17535:

linear PFOS in mg/kg:……..

sum of branched PFOS in mg/kg:……..

for sample #17536:

linear PFOA in mg/kg:……..

sum of branched PFOA in mg/kg:……..

lab	Responded	Q1	Q2	Analysed	Remarks
110					
324	yes	A	Yes	**total**	#17535 PFOS branched: 25% & #17536 PFOA branched: 19%
339					
623					
840	yes	B	No	not clear	
2108	yes	B	No	not clear	
2129	yes	A & B	Yes	**mixed**	A for PFOS & B for PFOA #17535 PFOS branched: 29% & #17536 PFOA branched: 14%
2131					
2132	yes	A	No	not clear	
2139	yes	A	No	not clear	
2159	yes	A	No	not clear	
2172					
2201	yes	A	No	not clear	
2213					
2241	yes	A&B	Yes	**mixed**	B for PFOS & A for PFOA
2252	yes	A	No		
2272					
2284					
2285	yes	A	No	not clear	
2295	yes	B	---	not clear	Q2 not answered
2297	yes	A	No	not clear	
2310	yes	A	No	not clear	
2311	yes	A	No	not clear	
2330	yes	A	No	not clear	Lab reported no data
2347	yes	A	No	not clear	
2350					
2352	yes	A	No	not clear	
2358					
2363					
2365	yes	A	No	not clear	
2369	yes	A	No	not clear	
2370	yes	B	Yes	**Linear only**	#17535 PFOS branched: 45% & #17536 PFOA branched: 22%
2375	yes	A	Yes	not clear	
2380					

lab	Responded	Q1	Q2	Analysed	Remarks
2386					
2390	yes	A	No	not clear	
2410	yes	A	No	not clear	
2415					
2482	No data				
2489	yes	B	No	not clear	
2492	yes	A	No	not clear	
2495					
2497					
2560					
2561	yes	A	No	not clear	
2566	yes	A	No	not clear	
2590	yes	B	Yes	**Linear only**	#17535 PFOS branched: 37% & #17536 PFOA branched: 21%
2713	yes	A	No	not clear	
2737	yes	B	No	not clear	
2743	yes	A	No	**total**	Q1: we analyzed the total content of PFOS and PFOA isomers that co-elute with the compound that are specified in the CEN/TS 15968 rule (i.e. 1763-23-1 for PFOS and 754-91-6 for PFOA). Consequently we used for all the isomers that eventually co-eluted the same response factor of the compounds employed to prepare the standard solutions and that are recommended by the rule (i.e. the two mentioned above). We are not able to separate the isomers by our actual instrumental set-up.
2744	yes	B	---	not clear	Q2 not answered
2766	yes	B	No	not clear	
2776					
3100	yes	A	No	not clear	
3116	yes	A	No	not clear	
3117	yes	A	No	not clear	
3118					
3146					
3151	yes	A	No	not clear	
3153	yes	A	Yes	**total**	#17535 PFOS Branched: 36% & #17536 PFOA Branched: 17%
3154	yes	A	No	not clear	
3163	No data				
3172					
3176					
3179					
3185	yes	A	No	not clear	
3190					
3197	yes	B	No	not clear	
3200	yes	B	No	not clear	
3209					
3210					
3214	yes	A	No	not clear	
3218	yes	A	No	not clear	
3220	yes	B	No	**Linear only**	Since we have reference standard of Linear isomer only (PFOS CAS no 1763-23-1 & PFOA CAS No 335-67-1), we did not look for any branched isomers.
3237	yes	A	No	not clear	

Summary Questionnaire – continued –

labs	linear PFOS in mg/kg #17535	branched PFOS in mg/kg #17535	Total PFOS in mg/kg #17535	reported PFOS in mg/kg #17535 in PT	linear PFOA in mg/kg #17536	branched PFOA in mg/kg #17536	Total PFOA in mg/kg #17536	reported PFOA in mg/kg #17536 in PT	Analysed
110				5.2894236				9.320888	
324	3.9	1.32	5.22	5.22	5.6	1.3258	6.9258	6.9258	**total**
339				3.6				5.79	
623				5.623				6.897	
840	4.80		4.80	4.8	8.09		8.09	8.09	not clear
2108				3.62				6.94	not clear
2129	2.692	1.116	**3.808**	**3.8075**	**7.008**	1.137	8.145	**7.007**	**mixed**
2131				2.585				5.195	
2132				3.8005				7.034	not clear
2139				5.7				11.3	not clear
2159				4.935				7.022	not clear
2172				5.34				9.26	
2201				5.715				8.167	not clear
2213				5.53				7.5	
2241	**5.2**			**5.23**		**7.3**		**7.34**	**mixed**
2252				5.216				8.015	
2272				5.5223596				7.5777497	
2284				5.129				8.199	
2285				4.936				7.997	not clear
2295	**5.4?**			**5.65?**	**7.8?**			**10.86?**	not clear
2297				4.34				8.3	not clear
2310				5.09				6.33	not clear
2311				5.59				6.64	not clear
2330				---				---	
2347				5.7				9	not clear
2350				5.675				8.6259	
2352				5				9.4	not clear
2358				5.18				6.42	
2363				5.3				8.6	
2365				4.7				8.8	not clear
2369				5.1				8.5	not clear
2370	**5.14**	not calc.	5.14	**5.14**	**8.04**	not calc.	8.04	**8.04**	**Linear**
2375				5.11				7.54	not clear
2380				4.5792				6.7567	
2386				6.078				11.808	
2390				5.1546				8.4781	not clear
2410				5.92				8.74	not clear
2415				5				9.98	
2482				---				---	
2489				4.81				9.9	not clear
2492				3.861				6.79	not clear
2495				2.6029				4.036	
2497				---				0.033859	
2560				5.1501				8.5818	
2561				5.064				7.954	not clear
2566				5.12				6.233	not clear
2590	**4.428**	2.606	7.034	**4.428**	**5.933**	1.590	7.523	**5.933**	**Linear**
2713				4.6152				5.3888	not clear
2737				4.82				10.39	not clear
2743				5.1359				6.7439	**total**
2744				4.825				13.575	not clear
2766				7.24				9.4	not clear
2776				6.7				8.5	
3100				5.283				7.827	not clear
3116				5.05				8.31	not clear
3117				5.95056				9.98756	not clear

labs	linear PFOS in mg/kg #17535	branched PFOS in mg/kg #17535	Total PFOS in mg/kg #17535	reported PFOS in mg/kg #17535 in PT	linear PFOA in mg/kg #17536	branched PFOA in mg/kg #17536	Total PFOA in mg/kg #17536	reported PFOA in mg/kg #17536 in PT	Analysed
3118				3.7582				7.32	
3146				3.158975				5.969	
3151				4.545				6.412	not clear
3153	3.6	2.0	5.6	5.47	6.7	1.4	8.1	8.05	**total**
3154				4.19				5.59	not clear
3163				---				---	
3172				5.53				10	
3176				4.44				8.14	
3179				3.545				6.435	
3185				5.5875				8.285	not clear
3190				5.572				7.001	
3197				6.4				7.97	not clear
3200				4.84				8.01	not clear
3209				4.62				8.25	
3210				5.254				9.117	
3214				5.8				8.62	not clear
3218				5.6				8.3	not clear
3220				3.014				9.066	**Linear**
3237				14.4924				57.8548	not clear

APPENDIX 4

Number of participating laboratories per country:

2 labs in BANGLADESH
1 lab in BELGIUM
1 lab in CAMBODIA, Kingdom of
2 labs in FRANCE
8 labs in GERMANY
5 labs in HONG KONG
7 labs in INDIA
2 labs in INDONESIA
5 labs in ITALY
3 labs in KOREA
22 labs in P.R. of CHINA
1 lab in PAKISTAN
1 lab in SWITZERLAND
2 labs in TAIWAN R.O.C.
1 lab in THE NETHERLANDS
8 labs in TURKEY
1 lab in U.S.A.
1 lab in UNITED KINGDOM
2 labs in VIETNAM

APPENDIX 5

Abbreviations

C = final test result after checking of first reported suspect test result
D(0.01) = outlier in Dixon's outlier test
D(0.05) = straggler in Dixon's outlier test
G(0.01) = outlier in Grubbs' outlier test
G(0.05) = straggler in Grubbs' outlier test
DG(0.01) = outlier in Double Grubbs' outlier test
DG(0.05) = straggler in Double Grubbs' outlier test
R(0.01) = outlier in Rosner's outlier test
R(0.05) = straggler in Rosner's outlier test
W = test result withdrawn on request of participant
ex = test result excluded from statistical evaluation
n.a. = not applicable
n.e. = not evaluated
n.d. = not detected

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