Results of Proficiency Test
PAH in Polymers
February 2019

Organised by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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1 INTRODUCTION

Polycyclic Aromatic Hydrocarbons (PAH) are often, not intentionally, introduced in plastic and rubber with processing additives of plastics and rubber. As essential raw materials of consumer components in articles under REACH, the PAH risk of plastics and rubbers shall be identified. Enterprises shall strictly monitor PAH in high-risk materials, to ensure that the products comply with regulation requirements and with trust of consumers. As early as 2008, the Board of Technical Work Equipment and Consumer Products (AtAV) of Germany includes 16 types of PAH in GS certification. On December 7th, 2013, Regulation (EU) 1272/2013 was published and new PAH requirements have been added under entry 50 of ANNEX XVII of REACH. On August 4th, 2014, the committee for product safety amended the PAH testing requirements under GS-Mark in accordance with § 21, subsection no.3 of the German Product Safety Act.
Only a few reference materials (RMs) for PAH in polymers are available to optimise the determination of PAH. As an alternative, participation in a proficiency test may enable the laboratories to check their performance and thus to increase this comparability.

Since 2015, the Institute for Interlaboratory Studies (iis) organizes a proficiency test scheme for the determination of PAH in Polymers. During the annual testing program 2018/2019, it was decided to continue the proficiency test (PT) on PAH in Polymers.
In this interlaboratory study 102 laboratories from 27 different countries registered for participation. See appendix 4 for the number of participants per country. In this report, the results of the 2019 proficiency test are presented and discussed. This report is also electronically available through the iis website ww.iisnl.com.

2 SET UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organiser of this proficiency test (PT). 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 polymer samples (3 grams each), both positive on PAH and labelled #19502 and #19503 respectively. The participants were requested to report rounded and unrounded test results. 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 a 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 June 2018 (iis-protocol, version 3.5). 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

The first batch, a grinded and sieved black powder polymer (originally knife grips) positive on PAH, was obtained from the market via a third-party laboratory. This batch was used in a previous interlaboratory study (iis16P02 labelled as sample #16506). Therefore, the batch was considered homogeneous (see report iis16P02). Subsamples of approx. 3 grams each were prepared and labelled #19502.

The second batch, white/light yellow PP squares positive on PAH, was selected. Subsamples of approx. 3 grams each were prepared and labelled #19503. Eight stratified randomly selected subsamples were tested on Phenanthrene, Benzo[b]anthracene and Benzo[b]fluoranthene using an in house test method to check the homogeneity of the batch.

	Phenanthrene in mg/kg	Benzo(a)anthracene in mg/kg	Benzo(b)fluoranthene in mg/kg
Sample #19503-1	4.93	5.56	4.80
Sample #19503-2	5.10	5.60	4.55
Sample #19503-3	4.94	5.68	4.97
Sample #19503-4	5.00	5.60	4.89
Sample #19503-5	4.90	5.36	4.71
Sample #19503-6	5.07	5.56	4.74
Sample #19503-7	5.01	5.64	4.90
Sample #19503-8	4.90	5.60	4.81

Table 1: homogeneity test results of subsamples #19503

From the test results of table 1, the repeatabilities were calculated and compared with 0.3 times the target reproducibility, estimated from the Horwitz equation, in agreement with the procedure of ISO 13528, Annex B2, see the next table.

	Phenanthrene in mg/kg	Benzo(a)anthracene in mg/kg	Benzo(b)fluoranthene in mg/kg
r (observed)	0.21	0.27	0.37
reference method	Horwitz	Horwitz	Horwitz
0.3 x R (ref. method)	0.53	0.58	0.51

Table 2: evaluation of the repeatabilities of subsamples #19503

The calculated repeatabilities of the test results were in agreement with 0.3 times the corresponding estimated reproducibility using the Horwitz equation. Therefore, homogeneity of the subsamples was assumed.

To each of the participating laboratories one sample, labelled #19502 and one sample, labelled #19503, was sent on January 16, 2019.

2.5 ANALYSES

The participants were asked to determine on samples #19502 and #19503 the concentrations of any of the following PAH:
- Total PAH
- Naphthalene 91-20-3
- Acenaphthylene 208-96-8
- Acenaphthene 83-32-9
- Fluorene 86-73-7
- Phenanthrene 85-01-8
- Anthracene 120-12-7
- Fluoranthene 206-44-0
- Pyrene 129-00-0
- Benzo[a]anthracene 56-55-3
- Chrysene 218-01-9
- Triphenylene 217-59-4
- Sum of Chrysene and Triphenylene
- Benzo[b]fluoranthene 205-99-2
- Benzo[j]fluoranthene 205-82-3
- Benzo[k]fluoranthene 207-08-9
- Sum of [b],[j] and [k] Benzofluoranthenes
- Benzo[e]pyrene 192-97-2
- Benzo[a]pyrene 50-32-8
- Indeno[1,2,3-c,d]pyrene 193-39-5
- Dibenzo[a,h]anthracene 53-70-3
- Benzo[g,h,i]perylene 191-24-2
- Cyclopenta[c,d]pyrene 27208-37-3

Also, it was requested to report some analytical details.

It was explicitly requested to treat the samples as if they were routine samples and to report the test results using the indicated units on the report form and not to round the results, but to report as much significant figures as possible. It was also requested not to report “less than’ results, which are above the detection limit, because such results cannot be used for meaningful statistical evaluations.

To get comparable results, a detailed report form and a letter of instructions are prepared. On the report form the reporting units are given as well as the appropriate reference test methods that will be used during the evaluation. 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 are also requested to confirm 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.kmpd.co.uk/sgs-iis-cts/. The reported test results are tabulated per sample in appendix 1 of this report. The laboratories are presented by their code numbers.

Directly after the deadline, a reminder was sent to those laboratories that had not reported 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 reanalysis). Additional or corrected test results are used for the data analysis and the original 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 wast the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of June 2018 (iis-protocol, version 3.5).
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.

According to ISO 5725 the original test results per determination were submitted 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. In this PT, the criterion of ISO13528, paragraph 9.2.1 was met for all evaluated tests, therefore, the uncertainty of all assigned values may be negligible and need not to be included in the PT report.

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 refrence 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. This 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 target reproducibility by division with 2.8. In case no literature reproducibility was available, other target values are used. In some cases, a reproducibility based on former iis proficiency tests could be used.

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 according to:

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

The $z_{(target)}$ scores are listed in the 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

During the execution of this proficiency test no serious problems occurred. Two participants reported the test results after the final reporting date and six participants did not report any test results at all. Not all laboratories were able to report all analyses requested. In total 96 participants reported 1844 numerical test results. Observed were 53 outlying test results, which is 2.9% of the statistically evaluated numerical test results. 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 of these data sets should be used with due care, see also paragraph 3.1.

4.1 EVALUATION PER SAMPLE AND PER COMPONENT

In this section, the reported test results are discussed per sample and per component.
The test methods, which were used by the various laboratories were taken into account for explaining the observed differences when possible and applicable. These test methods are also in the tables in appendix 1 together with the original data. The abbreviations used in these tables are listed in appendix 5.

Most of the participants reported to have used AfPS GS 2014 and some mentioned method ZEK01.4-08.
Regretfully, in the common test methods AfPS GS 2014:01 and ZEK01.4-08 no precision data are mentioned. Neither in any other relevant test method for the determination of PAH. Therefore, it was decided to compare the calculated reproducibility against the reproducibility estimated from the Horwitz equation.

The test results of laboratories 551, 2497 and 2705 showed a significant number of statistical outliers and/or deviating test results. It was decided to exclude the test results of these laboratories from the statistical evaluations as the test results are not independent.

Sample #19502

Total PAH: This determination is not problematic. Two statistical outliers were observed and two other test results were excluded from the statistical evaluations. However, the calculated reproducibility after rejection of the suspect data is in agremeent with the estimated target reproducibility using the Horwitz equation based on 10 components.
The total PAH level was also calculated by iis from components which level exceed 0.2 mg/kg according to AfPS GS 2014. It appeared that about 50% found a different total level of total PAH.

Naphthalene: This determination may be problematic. Two statistical outliers were observed and one other test result was excluded. The calculated reproducibility after rejection of the suspect data is not in agreement with the estimated target reproducibility using the Horwitz equation.

Acenaphthene: This determination is not problematic. Two statistical outliers were observed and three other test results were excluded. However, the calculated reproducibility after rejection of the suspect data is in full agreement with the estimated target reproducibility using the Horwitz equation.

Fluorene: This determination is not problematic. Two statistical outliers were observed and two other test results were excluded. However, the calculated reproducibility after rejection of the suspect data is in full agreement with the estimated target reproducibility using the Horwitz equation.

Phenanthrene: This determination is not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the estimated target reproducibility using the Horwitz equation.

Anthracene: This determination may be problematic. Five statistical outliers were observed and one other test result was excluded. The calculated reproducibility after rejection of the suspect data is not in agreement with the estimated target reproducibility using the Horwitz equation.

Fluoranthene: This determination is not problematic. Two statistical outliers were observed and two other test results were excluded. However, the calculated reproducibility after rejection of the suspect data is in full agreement with the estimated target reproducibility using the Horwitz equation.

Pyrene: This determination may be problematic. One statistical outlier was observed and two other test results were excluded. The calculated reproducibility after rejection of the suspect data is not in agreement with the estimated target reproducibility using the Horwitz equation.

Benzo[a]anthracene: The determination may be problematic. Three statistical outliers were observed and two other test results were excluded. The calculated reproducibility after rejection of the suspect data is not in agreement with the estimated target reproducibility using the Horwitz equation.

Chrysene: This determination may be problematic. One statistical outlier was observed and three other test results were excluded. The calculated reproducibility after rejection of the suspect data is not in agreement with the estimated target reproducibility using the Horwitz equation.

Benzo[b]fluoranthene: This determination is not problematic. Three statistical outliers were observed and two other test results were excluded. However, the calculated reproducibility after rejection of the suspect data is in full agreement with the estimated target reproducibility using the Horwitz equation.

Benzo[j]fluoranthene: This determination is not problematic. One statistical outlier was observed and one other test result was excluded. However, the calculated reproducibility after rejection of the suspect data is in full agreement with the estimated target reproducibility using the Horwitz equation.

Benzo[k]fluoranthene: This determination is not problematic. Four statistical outliers were observed and two other test results were excluded. However, the calculated reproducibility after rejection of the suspect data is in full agreement with the estimated target reproducibility using the Horwitz equation.

Sum of [b], [j] and [k]Benzofluoranthenes: This determination is not problematic. Two statistical outliers were observed and two other test results were excluded. However, the calculated reproducibility after rejection of the suspect data is in agreement with the estimated target reproducibility using the Horwitz equation based on 3 components.

Benzo[e]pyrene: This determination may be problematic. One statistical outlier was observed and three other test results were excluded. The calculated reproducibility after rejection of the suspect data is not in agreement with the estimated target reproducibility using the Horwitz equation.

Benzo[a]pyrene: This determination may be problematic. One statistical outlier was observed and two other test results were excluded. The calculated reproducibility after rejection of the suspect data is not in agreement with the estimated target reproducibility using the Horwitz equation.

Indeno[1,2,3-c,d]pyrene: This determination may be problematic. Four statistical outliers were observed and three other test results were excluded. The calculated reproducibility after rejection of the suspect data is not in agreement with the estimated target reproducibility using the Horwitz equation.

Benzo[g,h,i]perylene: This determination is not problematic. One statistical outlier was observed and three other test results were excluded. However, the calculated reproducibility after rejection of the suspect data is in full agreement with the estimated target reproducibility using the Horwitz equation.

For other PAH, the participants agreed on a concentration near or below the limit of detection. Therefore, no significant conclusions were drawn for these PAH (see appendix 2).

Sample #19503

Total PAH: This determination is not problematic. One statistical outlier was observed and two other test results were excluded from the statistical evaluations. However, the calculated reproducibility after rejection of the suspect data is in agremeent with the estimated target reproducibility using the Horwitz equation based on 4 components. The total PAH level was also calculated by iis from components which level exceed 0.2 mg/kg according to AfPS GS 2014. It appeared that almost one third found a different total level of total PAH.

Phenanthrene: This determination may be problematic. One statistical outlier was observed and two other test results were excluded. The calculated reproducibility after rejection of the suspect data is not in agreement with the estimated target reproducibility using the Horwitz equation.

Benzo[a]anthracene: This determination may be problematic. Six statistical outliers were observed and one other test result was excluded. The calculated reproducibility after rejection of the suspect data is not in agreement with the estimated target reproducibility using the Horwitz equation.

Benzo[b]fluoranthene: This determination may be problematic. Two statistical outliers were observed and two other test results were excluded. The calculated reproducibility after rejection of the suspect data is not in agreement with the estimated target reproducibility using the Horwitz equation.

Sum of [b], [j] and [k]Benzofluoranthenes: This determination is not problematic. Three statistical outliers were observed and one other test result was excluded. However, the calculated reproducibility after rejection of the suspect data is in agreement with the estimated target reproducibility using the Horwitz equation based on one component.

For other PAH, the participants agreed on a concentration near or below the limit of detection. Therefore, no significant conclusions were drawn for these PAH (see appendix 2).

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

A comparison has been made between the reproducibility as declared by the estimated target reproducibility using the Horwitz equation and the reproducibility as found for the group of participating laboratories. The number of significant test results, the average test result, the calculated reproducibility (2.8 * standard deviation) and the target reproducibility are presented in the next tables.

component	unit	n	average	2.8 * sd	R(Horwitz)
Total PAH	mg/kg	61	22.0	8.9	19.5
Naphthalene	mg/kg	79	0.37	0.25	0.19
Acenaphthene	mg/kg	80	0.49	0.24	0.25
Fluorene	mg/kg	86	1.00	0.43	0.45
Phenanthrene	mg/kg	88	6.70	2.41	2.26
Anthracene	mg/kg	84	0.75	0.42	0.35
Fluoranthene	mg/kg	87	4.45	1.49	1.59
Pyrene	mg/kg	89	3.37	1.47	1.26
Benzo[a]anthracene	mg/kg	87	1.15	0.58	0.50
Chrysene	mg/kg	85	1.13	0.74	0.50
Benzo[b]fluoranthene	mg/kg	68	0.62	0.31	0.30
Benzo[j]fluoranthene	mg/kg	59	0.28	0.14	0.15
Benzo[k]fluoranthene	mg/kg	63	0.27	0.16	0.15
Sum of [b],[j] and [k] Benzofluoranthenes	mg/kg	66	1.10	0.57	0.84
Benzo[e]pyrene	mg/kg	79	0.54	0.29	0.26
Benzo[a]pyrene	mg/kg	80	0.49	0.29	0.25
Indeno[1,2,3-c,d]pyrene	mg/kg	68	0.30	0.19	0.16
Benzo[g,h,i]perylene	mg/kg	78	0.40	0.22	0.21

Table 3: reproducibilities of components on sample #19502

component	unit	n	average	2.8 * sd	R(Horwitz)
Total PAH	mg/kg	61	13.2	5.6	8.0
Phenanthrene	mg/kg	87	4.37	1.76	1.57
Benzo[a]anthracene	mg/kg	84	4.72	1.93	1.67
Benzo[b]fluoranthene	mg/kg	77	3.63	1.60	1.34
Sum of [b],[j] and [k] Benzofluoranthenes	mg/kg	51	3.63	1.42	1.34

Table 4: reproducibilities of components on sample #19503

Without further statistical calculations, it can be concluded that the group of participating laboratories have no problems with the analysis of PAH in polymer at the evaluated concentration levels of sample #19502 but have problems with sample #19503. See also the discussion in paragraphs 4.1, 4.4 and 5.

4.3 COMPARISON OF THE PROFICIENCY TEST OF FEBRUARY 2019 WITH PREVIOUS PTS.

The uncertainty in the test results of the determination of PAH in Polymers in the iis19P02 PT are listed in the next table:

component	February 2019	February 2018	February 2017	February 2016	Target (Horwitz) 0.2 - 40 mg/kg
Total PAH	15%	n.e.	n.e.	n.e.	64 - 29% *)
Naphthalene	24%	30%	43%	23%	20 - 9%
Acenaphthylene	n.e.	23%	n.e.	n.e.	20 - 9%
Acenaphthene	17%	14 - 29%	13%	13 - 22%	20 - 9%
Fluorene	16%	n.e.	15%	19%	20 - 9%
Phenanthrene	13% - 14%	13%	13 - 41%	14%	20 - 9%
Anthracene	20%	12 - 37%	15%	13 - 25%	20 - 9%
Fluoranthene	12%	14%	12%	17%	20 - 9%
Pyrene	16%	12 - 13%	14 - 33%	14 - 18%	20 - 9%
Benzo[a]anthracene	15% - 18%	23%	17%	23%	20 - 9%
Chrysene	23%	n.e.	n.e.	23%	20 - 9%
Triphenylene	n.e.	n.e.	n.e.	n.e.	20 - 9%
Sum of Chrysene and Triphenylene	n.e.	23%	n.e.	21%	29 - 13% *)
Benzo[b]fluoranthene	16% - 18%	22%	n.e.	26%	20 - 9%
Benzo[j]fluoranthene	18%	25%	n.e.	21%	20 - 9%
Benzo[k]fluoranthene	21%	23%	n.e.	27%	20 - 9%
Sum of [b],[j] and [k] Benzofluoranthenes	14% - 18%	30%	n.e.	28%	35 - 16% *)
Benzo[e]pyrene	20%	19%	n.e.	23%	20 - 9%
Benzo[a]pyrene	21%	26%	17%	24%	20 - 9%
Indeno[1,2,3-c,d]pyrene	23%	29%	n.e.	29%	20 - 9%
Dibenzo[a,h]anthracene	n.e.	n.e.	n.e.	n.e.	20 - 9%
Benzo[g,h,i]perylene	19%	31%	n.e.	25%	20 - 9%
Cyclopenta(c,d)pyrene	n.e.	26%	n.e.	n.e.	20 - 9%

Table 5: development of relative uncertainties (RSD) over the years.

*) Horwitz estimation based on 2 components for Sum of Chrysene and Triphenylene, based on 3 components for Sum of [b],[j] and [k] Benzofluoranthenes and based on 4 and 10 components for total PAH

The uncertainties observed in this PT are in line with the uncertainties observed in previous PTs. The uncertainties are close to or in line with the requirements mentioned in the target.

4.4 EVALUATION ANALYTICAL DETAILS

For this PT, some analytical details were requested (see appendix 3). Based on the answers given by the participants the following can be summarized:

- 79% of the participants mentioned that they are accredited for determination of PAH.
- 35 participants mentioned that they have further cut the samples before use, and 46 participants used the samples as received, see tables 6 and 7 below for further analyses.
- Almost all participants reported to use ultrasonic as technique to release/extract the analytes. One participant reported to use ASE technique, and two participants reported to use thermal desorption.
- Almost all participants reported to use Toluene (mixture) as extraction solvent. Three participants have used n-Hexane and one participant have used mixture of Hexane/Aceton.
- Almost all participants used an extraction time of 60 minutes and an extraction temperature of 60°C.

5 DISCUSSION

To extract the requested components mentioned in §2.5 from a polymer, the extraction solvent, the extraction conditions and the contact surface area could be important variables. The effect of further cutting/further grinding on the determination of Phenanthrene and Benzo[a]anthracene in sample #19503 were further investigated, see tables 6 and 7 respectively. It appeared that the effect of decreased sample particles on the determination of Benzo[a]anthracene and Phenanthrene in sample #19503 is very small and not statistically significant.

Phenanthrene	unit	n	average	sd
Further cut (prior to analysis)	mg/kg	36	4.4	0.61
Used as received	mg/kg	49	4.3	0.74

Table 6: effect of analytical details on Phenanthrene in sample #19503.

Benzo[a]anthracene	unit	n	average	sd
Further cut (prior to analysis)	mg/kg	35	4.9	0.56
Used as received	mg/kg	46	4.6	0.76

Table 7: effect of analytical details on Benzo[a]anthracene in sample #19503

In the PT of 2019 most of the particpants identified the added PAH correctly in sample #19503 which was fortified with: Phenanthrene, Benzo[b]anthracene and Benzo[b]fluoranthene.
Sample #19502 was also used in a previous PT iis16P02, labelled as sample #16506. An comparison of the findings of both proficiency test is given in table 8.

		sample #19502			sample #16506		
component	unit	n	average	R(calc)	n	average	R(calc)
Naphthalene	mg/kg	79	0.37	0.25	60	0.53	0.35
Acenaphthene	mg/kg	80	0.49	0.24	67	1.50	0.94
Fluorene	mg/kg	86	1.00	0.43	67	1.27	0.69
Phenanthrene	mg/kg	88	6.70	2.41	66	7.01	2.79
Anthracene	mg/kg	84	0.75	0.42	67	1.56	1.09
Fluoranthene	mg/kg	87	4.45	1.49	69	4.76	2.24
Pyrene	mg/kg	89	3.37	1.47	65	3.75	1.51
Benzo[a]anthracene	mg/kg	87	1.15	0.58	61	1.25	0.80
Chrysene	mg/kg	85	1.13	0.74	62	1.35	0.88
Benzo[b]fluoranthene	mg/kg	68	0.62	0.31	52	0.68	0.51
Benzo[j]fluoranthene	mg/kg	59	0.28	0.14	43	0.30	0.18
Benzo[k]fluoranthene	mg/kg	63	0.27	0.16	48	0.31	0.24
Sum of [b],[j] and [k] Benzofluoranthenes	mg/kg	66	1.10	0.57	50	1.16	0.91
Benzo[e]pyrene	mg/kg	79	0.54	0.29	58	0.59	0.38
Benzo[a]pyrene	mg/kg	80	0.49	0.29	56	0.57	0.38
Indeno[1,2,3-c,d]pyrene	mg/kg	68	0.30	0.19	44	0.30	0.24
Benzo[g,h,i]perylene	mg/kg	78	0.40	0.22	55	0.36	0.26

Table 8: comparison sample #19502 vs #16506

It can be concluded that the reproducibility of the determination of PAH in 2019 PT has been improved compared to the 2016 PT. Furthermore, that observed averages give a good correlation.

6 CONCLUSION

It is clear that all reporting laboratories would judge both samples the same and would reject both samples for too much PAH present in accordance the latest GS-Mark certification on PAH (4 August 2014, see next table).
Found concentrations of total PAH in sample #19502 and #19503 are above the allowed limit in Category 1 and 2 but not for Category 3.

Parameter	Category 1	Category 2		Category 3	
	Materials, that are intended to be put into the mouth or materials in toys with intended and prolonged skin-contact (longer than 30 s)	Materials, not covered by category 1, with foreseeable skin-contact of > 30 s (prolonged skin-contact) or short-term repetitive contact with the human skin [4]		Materials, not covered by category 1 or 2, with foreseeable skin-contact of up to 30 s (short-term skin contact)	
[mg/kg]		Toys according to Toy Directive 2009/48/EU	Other products according to Product Safety Act	Toys according to Toy Directive 2009/48/EU	Other products according to Product Safety Act
Benzo[a]pyrene	< 0,2	< 0,2	< 0,5	< 0,5	< 1
Benzo[e]pyrene	< 0,2	< 0,2	< 0,5	< 0,5	< 1
Benzo[a]anthracene	< 0,2	< 0,2	< 0,5	< 0,5	< 1
Benzo[b]fluoroanthene	< 0,2	< 0,2	< 0,5	< 0,5	< 1
Benzo[j]fluoroanthene	< 0,2	< 0,2	< 0,5	< 0,5	< 1
Benzo[k]fluoroanthene	< 0,2	< 0,2	< 0,5	< 0,5	< 1
Chrysene	< 0,2	< 0,2	< 0,5	< 0,5	< 1
Dibenzo[a,h]anthracene	< 0,2	< 0,2	< 0,5	< 0,5	< 1
Benzo[g,h,i]perylene	< 0,2	< 0,2	< 0,5	< 0,5	< 1
Indeno[1,2,3-cd]pyrene	< 0,2	< 0,2	< 0,5	< 0,5	< 1
Acenaphthylene, Acenaphthen, Fluorene, Phenanthrene, Pyrene, Anthracene, Fluoranthene	Sum < 1	Sum < 5	Sum < 10	Sum < 20	Sum < 50
Naphthalene	< 1	< 2		< 10	
Sum 18 PAH	< 1	< 5	< 10	< 20	< 50

Table 9: Category limits from German GS-Mark per August 2014

It can be concluded that the observed variation in this interlaboratory study may not be caused by just one critical point in the analysis. Each participating laboratory will have to evaluate its performance in this study and decide about any corrective actions if necessary. Therefore, participation on a regular basis in this scheme could be helpful to improve the performance and the quality of the analytical results.

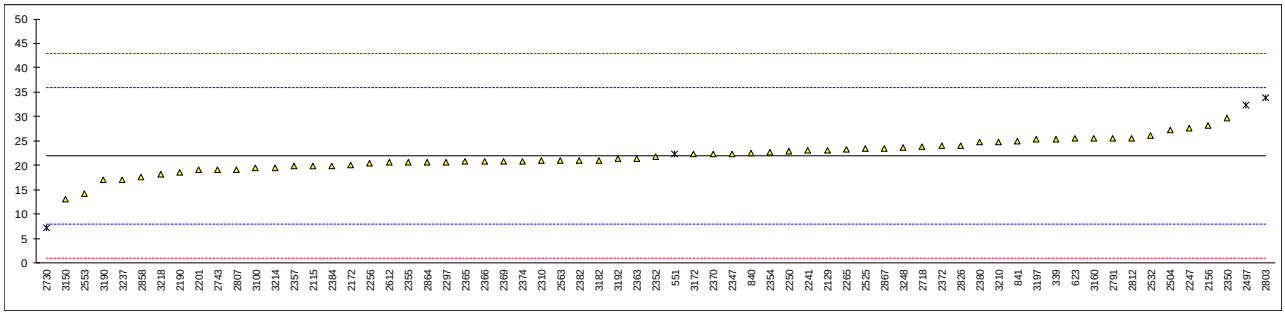
APPENDIX 1

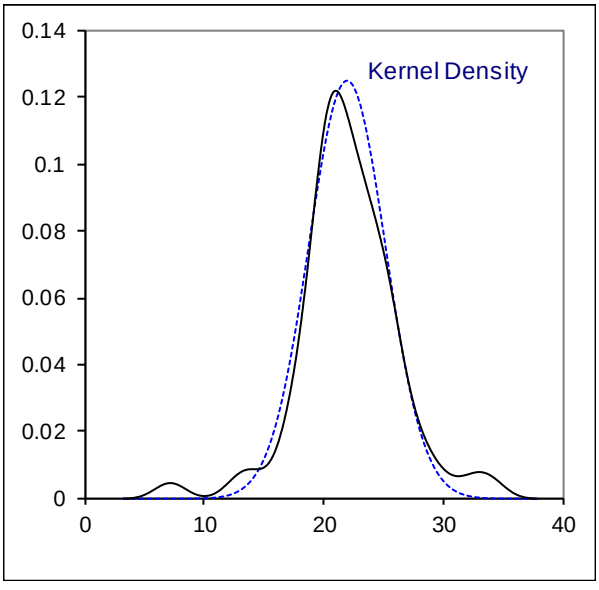
Determination of Total PAH in sample #19502; results in mg/kg

lab	method	value	mark	z(targ)	iis calc.*)	mark	remarks
230		-----		-----	24.62		
310		-----		-----	-----		
339	In house	25.4		0.49	25.45		
551	In house	22.2407	ex	0.04	12.65	R(0.05)	see §4.1
623	AfPS GS 2014	25.53		0.51	25.53		
840	AfPS GS 2014	22.49		0.08	22.49		
841	AfPS GS 2014	25.06		0.44	25.06		
1213		-----		-----	24.61		
2115	AfPS GS 2014	19.88		-0.30	14.27		
2129	AfPS GS 2014	23.14		0.17	21.89		
2146		-----		-----	-----		
2156	AfPS GS 2014	28.15		0.89	29.33	R(0.05)	
2165		-----		-----	24.01		
2172	AfPS GS 2014	19.975		-0.28	19.98		
2184		-----		-----	23.67		
2190	AfPS GS 2014	18.51		-0.49	12.04	R(0.05)	
2201	AfPS GS 2014	19.04		-0.42	19.04		
2241	AfPS GS 2014	23.05		0.16	22.99		
2247	ZEK01.4-08	27.70		0.82	25.61		
2250	AfPS GS 2014	22.91		0.14	21.17		
2256	AfPS GS 2014	20.4		-0.22	20.41		
2265	AfPS GS 2014	23.185		0.18	22.02		
2267		-----		-----	-----		
2295		-----		-----	19.17		
2297	AfPS GS 2014	20.71		-0.18	20.71		
2301		-----		-----	19.79		
2310	AfPS GS 2014	20.946		-0.15	20.95		
2311		-----		-----	21.14		
2330		-----		-----	20.59		
2347	AfPS GS 2014	22.4		0.06	21.80		
2350	AfPS GS 2014	29.748		1.12	26.17		
2352	AfPS GS 2014	21.69		-0.04	20.79		
2354	AfPS GS 2014	22.6744		0.10	22.67		
2355	AfPS GS 2014	20.68		-0.18	20.68		
2357	AfPS GS 2014	19.86		-0.30	19.86		
2363	AfPS GS 2014	21.46		-0.07	21.46		
2365	AfPS GS 2014	20.73		-0.18	20.73		
2366	AfPS GS 2014	20.73		-0.18	20.73		
2369	AfPS GS 2014	20.8		-0.17	20.40		
2370	AfPS GS 2014	22.366		0.06	22.37		
2372		23.981		0.29	22.74		
2374	AfPS GS 2014	20.8		-0.17	20.80		
2375		-----		-----	24.97		
2379		-----		-----	20.22		
2380	AfPS GS 2014	24.70		0.39	24.07		
2382	AfPS GS 2014	20.98		-0.14	20.98		
2384	AfPS GS 2014	19.89		-0.30	19.89		
2386		-----		-----	21.61		
2390		-----		-----	-----		
2481		-----		-----	2.22	R(0.01)	
2482		-----		-----	24.60		
2492		-----		-----	20.64		
2495		-----		-----	-----		
2497	AfPS GS 2014	32.331	ex	1.49	31.37	R(0.05)	see §4.1
2500		-----		-----	-----		
2504	AfPS GS 2014	27.25		0.76	27.25		
2525	AfPS GS 2014	23.41		0.21	22.48		
2532	AfPS GS 2014	26.15		0.60	25.85		
2553	In house	14.26		-1.10	8.51	R(0.05)	
2561		-----		-----	21.84		
2563	AfPS GS 2014	20.96		-0.14	20.94		
2590		-----		-----	20.77		
2612	AfPS GS 2014	20.6	C	-0.20	18.02		first reported: 11.44
2674		-----		-----	23.16		
2687		-----		-----	23.29		
2705		-----		-----	24.20		
2713		-----		-----	20.47		
2718	AfPS GS 2014	23.744		0.26	23.65		
2730		7.23	R(0.01)	-2.11	7.23	R(0.05)	
2743	ZEK01.4-08	19.065997		-0.41	18.40		
2791	AfPS GS 2014	25.61		0.52	25.61		
2803	ZEK01.4-08	33.93	R(0.05)	1.71	24.77		
2807	ZEK01.4-08	19.14		-0.40	18.82		
2812	AfPS GS 2014	25.620		0.52	21.65		
2826	AfPS GS 2014	24.1		0.31	23.20		
2841		-----		-----	20.70		

lab	method	value	mark	z(targ)	iis calc.*)	mark	remarks
2858	In house	17.56	C	-0.63	17.56		first reported: 41.759
2863		-----		-----	9.87	R(0.05)	
2864	AfPS GS 2014	20.698		-0.18	19.98		
2867	AfPS GS 2014	23.518		0.22	23.40		
3100	AfPS GS 2014	19.41		-0.37	19.41		
3116		-----		-----	21.34		
3118		-----		-----	20.32		
3146		-----		-----	20.18		
3150	AfPS GS 2014	12.99		-1.29	12.99	R(0.05)	
3153		-----		-----	19.90		
3154		-----		-----	33.25	R(0.05)	
3160		25.6		0.52	24.56		
3163		-----		-----	-----		
3172	AfPS GS 2014	22.2616		0.04	21.57		
3182	AfPS GS 2014	21.00		-0.14	21.00		
3185		-----		-----	19.77		
3190	AfPS GS 2014	17.03		-0.71	16.52		
3192	AfPS GS 2014	21.37		-0.08	21.37		
3197	AfPS GS 2014	25.33		0.48	25.33		
3210	AfPS GS 2014	24.835		0.41	23.55		
3214	AfPS GS 2014	19.54		-0.35	19.54		
3218	AfPS GS 2014	18.211		-0.54	18.21		
3220		-----		-----	21.97		
3228		-----		-----	22.53		
3237	AfPS GS 2014	17.103		-0.70	17.11		
3248	In house	23.7	C	0.25	23.70		first reported: 34.7
	normality	OK			OK		
	n	61			85		
	outliers	2 + (2ex)			10		
	mean (n)	21.9612			21.7321		
	st.dev. (n)	3.19083	RSD=15%		2.41442	RSD=11%	
	R(calc.)	8.9343			6.7604		
	st.dev.(Horwitz 10 comp.)	6.97969			6.91781		
	R(Horwitz 10 comp.)	19.5431			19.3699		

*) iis calculated the total of 18 PAH whose level in the material is found to exceed 0.2 mg/kg according to AfPS GS 2014

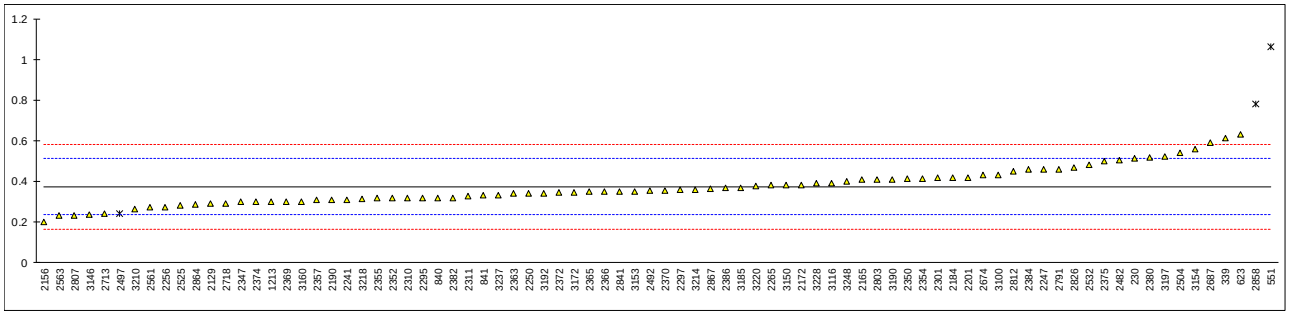


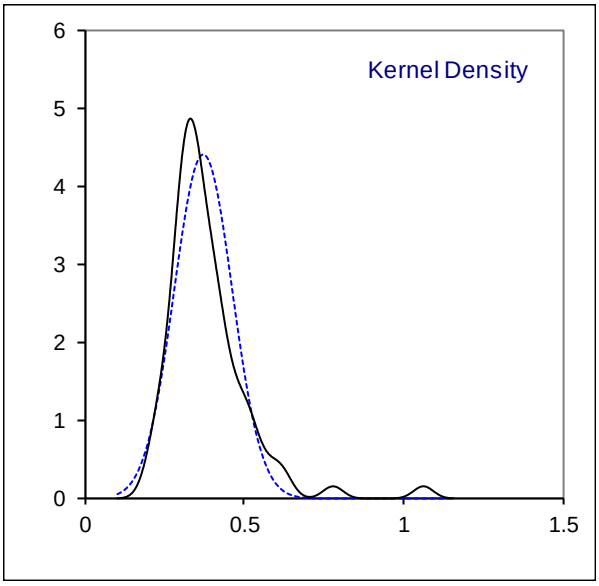


Determination of Naphthalene in sample #19502; results in mg/kg

lab	method	value	mark	z(targ)	remarks
230	EPA610	0.5111		1.98	
310		-----		-----	
339	In house	0.611		3.42	
551	In house	1.061	C,R(0.01)	9.91	first reported: 11.5591
623	AfPS GS 2014	0.63		3.69	
840	AfPS GS 2014	0.32		-0.78	
841	AfPS GS 2014	0.33		-0.63	
1213	AfPS GS 2014	0.30		-1.07	
2115		-----		-----	
2129	AfPS GS 2014	0.29		-1.21	
2146		-----		-----	
2156	AfPS GS 2014	0.20		-2.51	
2165	AfPS GS 2014	0.41		0.52	
2172	AfPS GS 2014	0.383		0.13	
2184	AfPS GS 2014	0.42		0.66	
2190	AfPS GS 2014	0.31		-0.92	
2201	AfPS GS 2014	0.42		0.66	
2241	AfPS GS 2014	0.31		-0.92	
2247	ZEK01.4-08	0.46		1.24	
2250	AfPS GS 2014	0.34		-0.49	
2256	AfPS GS 2014	0.275		-1.43	
2265	AfPS GS 2014	0.380		0.09	
2267		-----		-----	
2295	AfPS GS 2014	0.32		-0.78	
2297	AfPS GS 2014	0.36		-0.20	
2301		0.42		0.66	
2310	AfPS GS 2014	0.32		-0.78	
2311	AfPS GS 2014	0.329		-0.65	
2330	AfPS GS 2014	ND		-----	
2347	AfPS GS 2014	0.3		-1.07	
2350	AfPS GS 2014	0.412		0.55	
2352	AfPS GS 2014	0.32		-0.78	
2354	AfPS GS 2014	0.41262		0.56	
2355	AfPS GS 2014	0.32		-0.78	
2357	AfPS GS 2014	0.31		-0.92	
2363	AfPS GS 2014	0.34		-0.49	
2365	AfPS GS 2014	0.35		-0.34	
2366	AfPS GS 2014	0.35		-0.34	
2369	AfPS GS 2014	0.3		-1.07	
2370	AfPS GS 2014	0.354		-0.29	
2372		0.345		-0.42	
2374	AfPS GS 2014	0.3		-1.07	
2375	AfPS GS 2014	0.50		1.82	
2379	AfPS GS 2014	Not detected		-----	
2380	AfPS GS 2014	0.519	C	2.09	first reported: 0.72
2382	AfPS GS 2014	0.32		-0.78	
2384	AfPS GS 2014	0.46		1.24	
2386	AfPS GS 2014	0.370		-0.06	
2390		-----		-----	
2481		-----		-----	
2482	AfPS GS 2014	0.504		1.88	
2492	ZEK01.4-08	0.353		-0.30	
2495		-----		-----	
2497	AfPS GS 2014	0.241	ex	-1.92	test result excluded, see §4.1
2500		-----		-----	
2504	AfPS GS 2014	0.54		2.39	
2525	AfPS GS 2014	0.28		-1.35	
2532	AfPS GS 2014	0.48		1.53	
2553	In house	ND		-----	
2561	AfPS GS 2014	0.273		-1.45	
2563	AfPS GS 2014	0.23		-2.07	
2590		-----		-----	
2612	AfPS GS 2014	<0,2		-----	
2674	AfPS GS 2014	0.43		0.81	
2687	ZEK01.4-08	0.588		3.09	
2705		-----		-----	
2713	In house	0.24	C	-1.93	first reported: 0.42
2718	AfPS GS 2014	0.293		-1.17	
2730		-----		-----	
2743		-----		-----	
2791	AfPS GS 2014	0.46		1.24	
2803	ZEK01.4-08	0.41		0.52	
2807	ZEK01.4-08	0.23		-2.07	
2812	AfPS GS 2014	0.451		1.11	
2826	AfPS GS 2014	0.47		1.39	
2841	In house	0.350		-0.34	

lab	method	value	mark	z(targ)	remarks
2858	In house	0.779	C,R(0.01)	5.84	first reported: 0.956
2863		-----		-----	
2864	AfPS GS 2014	0.285		-1.28	
2867	AfPS GS 2014	0.362		-0.17	
3100	AfPS GS 2014	0.43		0.81	
3116		0.391		0.25	
3118		-----		-----	
3146	AfPS GS 2014	0.238		-1.96	
3150	AfPS GS 2014	0.38		0.09	
3153	AfPS GS 2014	0.35		-0.34	
3154	ZEK01.4-08	0.56	C	2.68	first reported: 0.77
3160		0.3		-1.07	
3163		-----		-----	
3172	AfPS GS 2014	0.347		-0.39	
3182	AfPS GS 2014	<0.20		-----	
3185	AfPS GS 2014	0.37		-0.06	
3190	AfPS GS 2014	0.41		0.52	
3192	AfPS GS 2014	0.34		-0.49	
3197	AfPS GS 2014	0.52		2.11	
3210	AfPS GS 2014	0.2641		-1.58	
3214	AfPS GS 2014	0.36		-0.20	
3218	AfPS GS 2014	0.314		-0.86	
3220	AfPS GS 2014	0.379		0.07	
3228	AfPS GS 2014	0.39		0.23	
3237	AfPS GS 2014	0.333		-0.59	
3248	In house	0.4	C	0.38	first reported: 0.7
	normality	OK			
	n	79			
	outliers	2 + (1ex)			
	mean (n)	0.3739			
	st.dev. (n)	0.09050	RSD=24%		
	R(calc.)	0.2534			
	st.dev.(Horwitz)	0.06937			
	R(Horwitz)	0.1942			





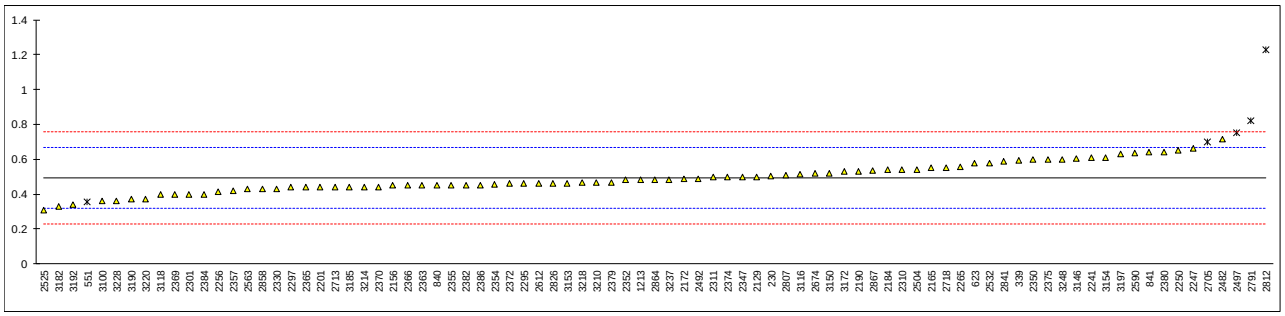
Determination of Acenaphthene in sample #19502; results in mg/kg

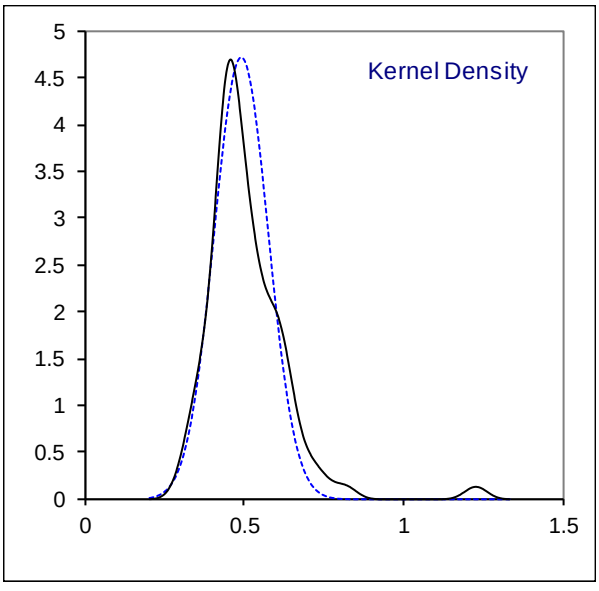
lab	method	value	mark	z(targ)	remarks
230	EPA610	0.5042		0.13	
310		-----		-----	
339	In house	0.592		1.13	
551	In house	0.356	C,ex	-1.56	first reported: 0.1684, test result excluded, see §4.1
623	AfPS GS 2014	0.58		1.00	
840	AfPS GS 2014	0.45		-0.49	
841	AfPS GS 2014	0.64		1.68	
1213	AfPS GS 2014	0.48		-0.14	
2115		-----		-----	
2129	AfPS GS 2014	0.50		0.08	
2146		-----		-----	
2156	AfPS GS 2014	0.45		-0.49	
2165	AfPS GS 2014	0.55		0.65	
2172	AfPS GS 2014	0.485		-0.09	
2184	AfPS GS 2014	0.54		0.54	
2190	AfPS GS 2014	0.53		0.43	
2201	AfPS GS 2014	0.44		-0.60	
2241	AfPS GS 2014	0.61		1.34	
2247	ZEK01.4-08	0.66		1.91	
2250	AfPS GS 2014	0.65		1.79	
2256	AfPS GS 2014	0.413		-0.91	
2265	AfPS GS 2014	0.555		0.71	
2267		-----		-----	
2295	AfPS GS 2014	0.46		-0.37	
2297	AfPS GS 2014	0.44		-0.60	
2301		0.40		-1.06	
2310	AfPS GS 2014	0.54		0.54	
2311	AfPS GS 2014	0.4989		0.07	
2330	AfPS GS 2014	0.432		-0.69	
2347	AfPS GS 2014	0.5		0.08	
2350	AfPS GS 2014	0.598		1.20	
2352	AfPS GS 2014	0.48		-0.14	
2354	AfPS GS 2014	0.45574		-0.42	
2355	AfPS GS 2014	0.45		-0.49	
2357	AfPS GS 2014	0.42		-0.83	
2363	AfPS GS 2014	0.45		-0.49	
2365	AfPS GS 2014	0.44		-0.60	
2366	AfPS GS 2014	0.45		-0.49	
2369	AfPS GS 2014	0.4		-1.06	
2370	AfPS GS 2014	0.441		-0.59	
2372		0.460		-0.37	
2374	AfPS GS 2014	0.5		0.08	
2375	AfPS GS 2014	0.60		1.22	
2379	AfPS GS 2014	0.467		-0.29	
2380	AfPS GS 2014	0.64		1.68	
2382	AfPS GS 2014	0.45		-0.49	
2384	AfPS GS 2014	0.40		-1.06	
2386	AfPS GS 2014	0.452		-0.46	
2390		-----		-----	
2481		-----		-----	
2482	AfPS GS 2014	0.714		2.52	
2492	ZEK01.4-08	0.485		-0.09	
2495		-----		-----	
2497	AfPS GS 2014	0.751	ex	2.95	test result excluded, see §4.1
2500		-----		-----	
2504	AfPS GS 2014	0.54		0.54	
2525	AfPS GS 2014	0.31		-2.08	
2532	AfPS GS 2014	0.58	C	1.00	first reported: 0.88
2553	In house	ND		-----	
2561	AfPS GS 2014	<0.2	C	<-3.34	first reported: 0.829, possibly a false negative test result?
2563	AfPS GS 2014	0.43		-0.72	
2590	AfPS GS 2014	0.637		1.65	
2612	AfPS GS 2014	0.46	C	-0.37	first reported: 0.25
2674	AfPS GS 2014	0.52		0.31	
2687	ZEK01.4-08	Not Detected	C	-----	first reported: 2.356
2705	In house	0.7	ex	2.36	test result excluded, see §4.1
2713	In house	0.44	C	-0.60	first reported: 1.39
2718	AfPS GS 2014	0.551		0.66	
2730		-----		-----	
2743		-----		-----	
2791	AfPS GS 2014	0.82	R(0.05)	3.73	
2803		-----		-----	
2807	ZEK01.4-08	0.51		0.20	
2812	AfPS GS 2014	1.23	C,R(0.01)	8.41	first reported: 1.012
2826	AfPS GS 2014	0.46		-0.37	
2841	In house	0.589		1.10	

lab	method	value	mark	z(targ)	remarks
2858	In house	0.431	C	-0.70	first reported: 0.541
2863		-----		-----	
2864	AfPS GS 2014	0.480		-0.14	
2867	AfPS GS 2014	0.536		0.49	
3100	AfPS GS 2014	0.36		-1.51	
3116		0.514		0.24	
3118	In house	0.399		-1.07	
3146	AfPS GS 2014	0.605		1.28	
3150	AfPS GS 2014	0.52		0.31	
3153	AfPS GS 2014	0.46		-0.37	
3154	ZEK01.4-08	0.61		1.34	
3160		non detectable	C	-----	first reported: 0.81
3163		-----		-----	
3172	AfPS GS 2014	0.529		0.41	
3182	AfPS GS 2014	0.33		-1.86	
3185	AfPS GS 2014	0.44		-0.60	
3190	AfPS GS 2014	0.37		-1.40	
3192	AfPS GS 2014	0.34		-1.74	
3197	AfPS GS 2014	0.63		1.57	
3210	AfPS GS 2014	0.4651		-0.31	
3214	AfPS GS 2014	0.44		-0.60	
3218	AfPS GS 2014	0.465		-0.32	
3220	AfPS GS 2014	0.372		-1.38	
3228	AfPS GS 2014	0.36		-1.51	
3237	AfPS GS 2014	0.481		-0.13	
3248	In house	0.6		1.22	

normality	OK
n	80
outliers	2 +(3ex)
mean (n)	0.4927
st.dev. (n)	0.08457
R(calc.)	0.2368
st.dev.(Horwitz)	0.08770
R(Horwitz)	0.2456

RSD=17%

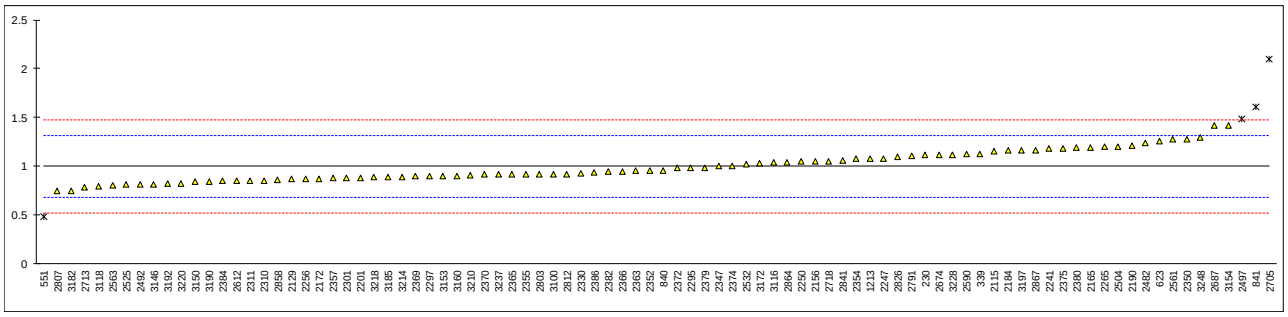


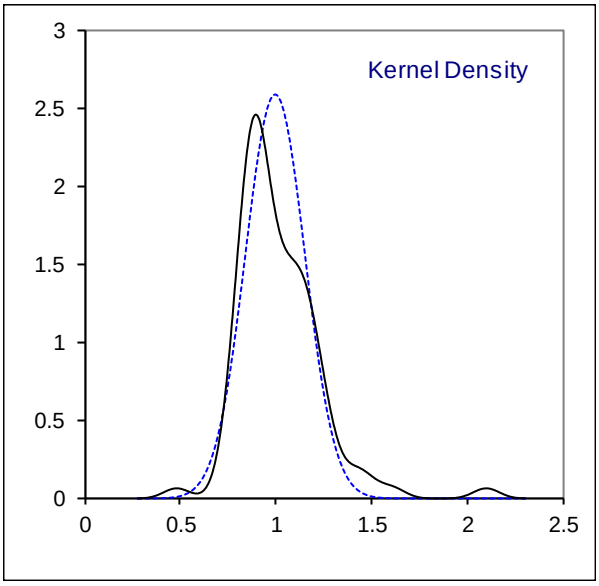


Determination of Fluorene in sample #19502; results in mg/kg

lab	method	value	mark	z(targ)	remarks
230	EPA610	1.118		0.74	
310		-----		-----	
339	In house	1.13		0.82	
551	In house	0.486	C,ex	-3.21	first reported: 0.2969, test result excluded, see §4.1
623	AfPS GS 2014	1.26		1.63	
840	AfPS GS 2014	0.96		-0.25	
841	AfPS GS 2014	1.61	R(0.05)	3.82	
1213	AfPS GS 2014	1.08		0.50	
2115	AfPS GS 2014	1.15		0.94	
2129	AfPS GS 2014	0.87		-0.81	
2146		-----		-----	
2156	AfPS GS 2014	1.05		0.32	
2165	AfPS GS 2014	1.19		1.19	
2172	AfPS GS 2014	0.875		-0.78	
2184	AfPS GS 2014	1.16		1.00	
2190	AfPS GS 2014	1.21		1.32	
2201	AfPS GS 2014	0.88		-0.75	
2241	AfPS GS 2014	1.18		1.13	
2247	ZEK01.4-08	1.08		0.50	
2250	AfPS GS 2014	1.05		0.32	
2256	AfPS GS 2014	0.872		-0.80	
2265	AfPS GS 2014	1.200		1.25	
2267		-----		-----	
2295	AfPS GS 2014	0.98		-0.12	
2297	AfPS GS 2014	0.90		-0.62	
2301		0.88		-0.75	
2310	AfPS GS 2014	0.856		-0.90	
2311	AfPS GS 2014	0.853		-0.92	
2330	AfPS GS 2014	0.927		-0.45	
2347	AfPS GS 2014	1.0		0.00	
2350	AfPS GS 2014	1.280		1.75	
2352	AfPS GS 2014	0.96		-0.25	
2354	AfPS GS 2014	1.07487		0.47	
2355	AfPS GS 2014	0.92		-0.50	
2357	AfPS GS 2014	0.88		-0.75	
2363	AfPS GS 2014	0.96		-0.25	
2365	AfPS GS 2014	0.92		-0.50	
2366	AfPS GS 2014	0.95		-0.31	
2369	AfPS GS 2014	0.9		-0.62	
2370	AfPS GS 2014	0.914		-0.53	
2372		0.980		-0.12	
2374	AfPS GS 2014	1.0		0.00	
2375	AfPS GS 2014	1.18		1.13	
2379	AfPS GS 2014	0.985		-0.09	
2380	AfPS GS 2014	1.19		1.19	
2382	AfPS GS 2014	0.95		-0.31	
2384	AfPS GS 2014	0.85		-0.93	
2386	AfPS GS 2014	0.940		-0.37	
2390		-----		-----	
2481		-----		-----	
2482	AfPS GS 2014	1.24		1.50	
2492	ZEK01.4-08	0.815		-1.15	
2495		-----		-----	
2497	AfPS GS 2014	1.488	ex	3.05	test result excluded, see §4.1
2500		-----		-----	
2504	AfPS GS 2014	1.20		1.25	
2525	AfPS GS 2014	0.81		-1.18	
2532	AfPS GS 2014	1.02		0.13	
2553	In house	ND		-----	
2561	AfPS GS 2014	1.273		1.71	
2563	AfPS GS 2014	0.8		-1.25	
2590	AfPS GS 2014	1.129		0.81	
2612	AfPS GS 2014	0.85	C	-0.93	first reported: 0.47
2674	AfPS GS 2014	1.12		0.75	
2687	ZEK01.4-08	1.415		2.60	
2705	In house	2.1	R(0.01)	6.88	
2713	In house	0.79	C	-1.31	first reported: 1.03
2718	AfPS GS 2014	1.053		0.33	
2730		-----		-----	
2743		-----		-----	
2791	AfPS GS 2014	1.11		0.69	
2803	ZEK01.4-08	0.92	C	-0.50	first reported: 1.77
2807	ZEK01.4-08	0.75		-1.56	
2812	AfPS GS 2014	0.921		-0.49	
2826	AfPS GS 2014	1.1		0.63	
2841	In house	1.055		0.35	

lab	method	value	mark	z(targ)	remarks
2858	In house	0.861	C	-0.87	first reported: 1.042
2863		-----		-----	
2864	AfPS GS 2014	1.045		0.28	
2867	AfPS GS 2014	1.165		1.03	
3100	AfPS GS 2014	0.92		-0.50	
3116		1.04		0.25	
3118	In house	0.797		-1.27	
3146	AfPS GS 2014	0.818		-1.13	
3150	AfPS GS 2014	0.84		-1.00	
3153	AfPS GS 2014	0.90		-0.62	
3154	ZEK01.4-08	1.42		2.63	
3160		0.9		-0.62	
3163		-----		-----	
3172	AfPS GS 2014	1.033		0.21	
3182	AfPS GS 2014	0.75		-1.56	
3185	AfPS GS 2014	0.89		-0.68	
3190	AfPS GS 2014	0.84		-1.00	
3192	AfPS GS 2014	0.82		-1.12	
3197	AfPS GS 2014	1.16		1.00	
3210	AfPS GS 2014	0.9111		-0.55	
3214	AfPS GS 2014	0.89		-0.68	
3218	AfPS GS 2014	0.886		-0.71	
3220	AfPS GS 2014	0.823		-1.10	
3228	AfPS GS 2014	1.12		0.75	
3237	AfPS GS 2014	0.914		-0.53	
3248	In house	1.3		1.88	
	normality	OK			
	n	86			
	outliers	2 +(2ex)			
	mean (n)	0.9995			
	st.dev. (n)	0.15456	RSD=16%		
	R(calc.)	0.4328			
	st.dev.(Horwitz)	0.15994			
	R(Horwitz)	0.4478			

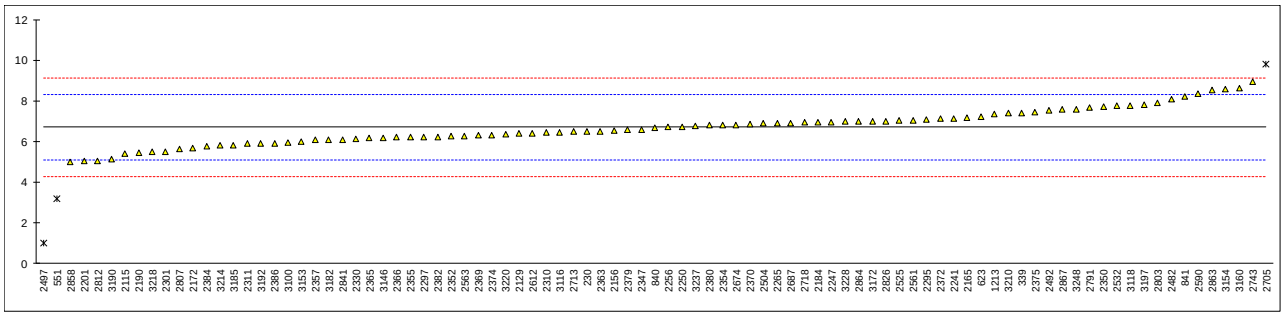


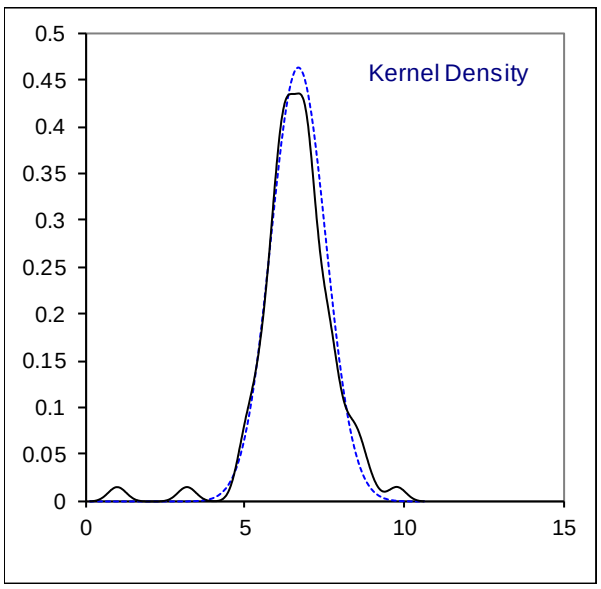


Determination of Phenanthrene in sample #19502; results in mg/kg

lab	method	value	mark	z(targ)	remarks
230	EPA610	6.481		-0.28	
310		-----		-----	
339	In house	7.41		0.88	
551	In house	3.205	C,R(0.05)	-4.34	first reported: 2.4645
623	AfPS GS 2014	7.22		0.64	
840	AfPS GS 2014	6.67		-0.04	
841	AfPS GS 2014	8.20		1.86	
1213	AfPS GS 2014	7.37		0.83	
2115	AfPS GS 2014	5.41	C	-1.61	first reported: 9.50
2129	AfPS GS 2014	6.40		-0.38	
2146		-----		-----	
2156	AfPS GS 2014	6.55		-0.19	
2165	AfPS GS 2014	7.15		0.55	
2172	AfPS GS 2014	5.66		-1.30	
2184	AfPS GS 2014	6.94		0.29	
2190	AfPS GS 2014	5.43.		-----	
2201	AfPS GS 2014	5.02		-2.09	
2241	AfPS GS 2014	7.14		0.54	
2247	ZEK01.4-08	6.96		0.32	
2250	AfPS GS 2014	6.72		0.02	
2256	AfPS GS 2014	6.71		0.01	
2265	AfPS GS 2014	6.895		0.24	
2267		-----		-----	
2295	AfPS GS 2014	7.1		0.49	
2297	AfPS GS 2014	6.22		-0.60	
2301		5.50		-1.49	
2310	AfPS GS 2014	6.426		-0.35	
2311	AfPS GS 2014	5.898		-1.00	
2330	AfPS GS 2014	6.124		-0.72	
2347	AfPS GS 2014	6.6		-0.13	
2350	AfPS GS 2014	7.734		1.28	
2352	AfPS GS 2014	6.25		-0.56	
2354	AfPS GS 2014	6.79750		0.12	
2355	AfPS GS 2014	6.22		-0.60	
2357	AfPS GS 2014	6.09		-0.76	
2363	AfPS GS 2014	6.5		-0.25	
2365	AfPS GS 2014	6.16		-0.68	
2366	AfPS GS 2014	6.20		-0.63	
2369	AfPS GS 2014	6.3		-0.50	
2370	AfPS GS 2014	6.84		0.17	
2372		7.117		0.51	
2374	AfPS GS 2014	6.3		-0.50	
2375	AfPS GS 2014	7.43		0.90	
2379	AfPS GS 2014	6.564		-0.17	
2380	AfPS GS 2014	6.79		0.11	
2382	AfPS GS 2014	6.24		-0.58	
2384	AfPS GS 2014	5.77		-1.16	
2386	AfPS GS 2014	5.919		-0.97	
2390		-----		-----	
2481		-----		-----	
2482	AfPS GS 2014	8.10		1.73	
2492	ZEK01.4-08	7.553		1.05	
2495		-----		-----	
2497	AfPS GS 2014	1.015	R(0.01)	-7.06	
2500		-----		-----	
2504	AfPS GS 2014	6.88		0.22	
2525	AfPS GS 2014	7.03		0.40	
2532	AfPS GS 2014	7.77		1.32	
2553	In house	ND		-----	
2561	AfPS GS 2014	7.055		0.44	
2563	AfPS GS 2014	6.28		-0.53	
2590	AfPS GS 2014	8.366		2.06	
2612	AfPS GS 2014	6.4	C	-0.38	first reported: 3.9
2674	AfPS GS 2014	6.82		0.14	
2687	ZEK01.4-08	6.914		0.26	
2705	In house	9.8	R(0.05)	3.84	
2713	In house	6.47		-0.29	
2718	AfPS GS 2014	6.935		0.29	
2730		-----		-----	
2743	ZEK01.4-08	8.93833		2.77	
2791	AfPS GS 2014	7.67		1.20	
2803	ZEK01.4-08	7.89		1.47	
2807	ZEK01.4-08	5.64		-1.32	
2812	AfPS GS 2014	5.042		-2.06	
2826	AfPS GS 2014	7.0		0.37	
2841	In house	6.105		-0.74	

lab	method	value	mark	z(targ)	remarks
2858	In house	5.01	C	-2.10	first reported: 10.132
2863	AfPS GS 2014	8.51		2.24	
2864	AfPS GS 2014	6.985		0.35	
2867	AfPS GS 2014	7.564		1.07	
3100	AfPS GS 2014	5.94		-0.95	
3116		6.44		-0.33	
3118	In house	7.772		1.33	
3146	AfPS GS 2014	6.182		-0.65	
3150	AfPS GS 2014	<0,2		<-8.07	possibly a false negative test result?
3153	AfPS GS 2014	5.98		-0.90	
3154	ZEK01.4-08	8.57	C	2.32	first reported: 9.73
3160		8.6		2.35	
3163		-----		-----	
3172	AfPS GS 2014	6.986		0.35	
3182	AfPS GS 2014	6.10		-0.75	
3185	AfPS GS 2014	5.83		-1.09	
3190	AfPS GS 2014	5.13		-1.95	
3192	AfPS GS 2014	5.90		-1.00	
3197	AfPS GS 2014	7.79		1.35	
3210	AfPS GS 2014	7.391		0.85	
3214	AfPS GS 2014	5.80		-1.12	
3218	AfPS GS 2014	5.479		-1.52	
3220	AfPS GS 2014	6.350		-0.44	
3228	AfPS GS 2014	6.98		0.34	
3237	AfPS GS 2014	6.779		0.09	
3248	In house	7.6	C	1.11	first reported: 12.6
	normality	OK			
	n	88			
	outliers	3			
	mean (n)	6.7040			
	st.dev. (n)	0.86049	RSD=13%		
	R(calc.)	2.4094			
	st.dev.(Horwitz)	0.80702			
	R(Horwitz)	2.2597			

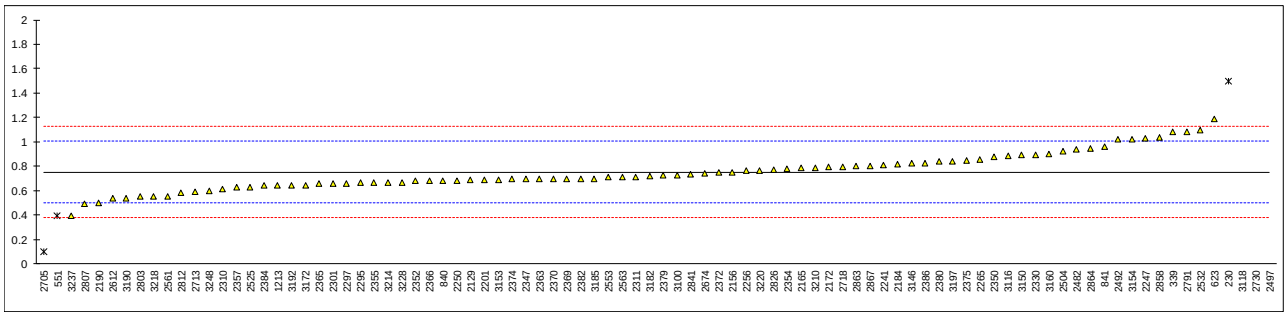


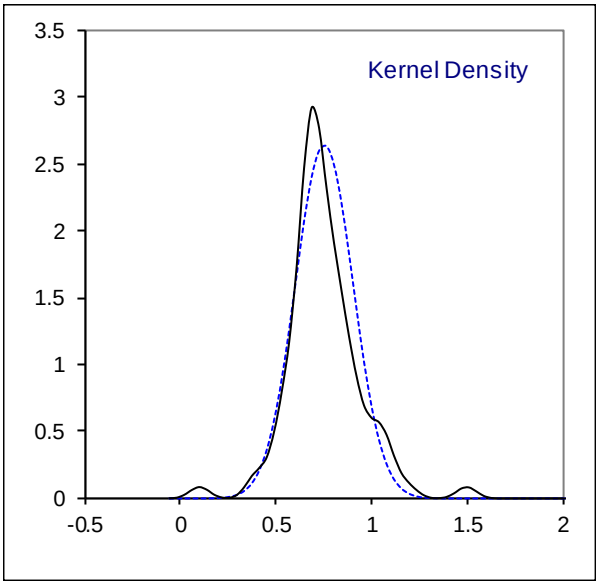


Determination of Anthracene in sample #19502; results in mg/kg

lab	method	value	mark	z(targ)	remarks
230	EPA610	1.497	R(0.01)	5.92	
310		-----		-----	
339	In house	1.08		2.60	
551	In house	0.397	C,ex	-2.83	first reported: 0.1582, test result excluded, see §4.1
623	AfPS GS 2014	1.19		3.48	
840	AfPS GS 2014	0.68		-0.58	
841	AfPS GS 2014	0.96		1.65	
1213	AfPS GS 2014	0.64		-0.90	
2115		-----		-----	
2129	AfPS GS 2014	0.69		-0.50	
2146		-----		-----	
2156	AfPS GS 2014	0.75		-0.02	
2165	AfPS GS 2014	0.79		0.30	
2172	AfPS GS 2014	0.792		0.31	
2184	AfPS GS 2014	0.82		0.53	
2190	AfPS GS 2014	0.50		-2.01	
2201	AfPS GS 2014	0.69		-0.50	
2241	AfPS GS 2014	0.81		0.45	
2247	ZEK01.4-08	1.03		2.20	
2250	AfPS GS 2014	0.68		-0.58	
2256	AfPS GS 2014	0.761		0.06	
2265	AfPS GS 2014	0.855		0.81	
2267		-----		-----	
2295	AfPS GS 2014	0.67		-0.66	
2297	AfPS GS 2014	0.66		-0.74	
2301		0.66		-0.74	
2310	AfPS GS 2014	0.61		-1.14	
2311	AfPS GS 2014	0.7111		-0.33	
2330	AfPS GS 2014	0.896		1.14	
2347	AfPS GS 2014	0.7		-0.42	
2350	AfPS GS 2014	0.877		0.99	
2352	AfPS GS 2014	0.68		-0.58	
2354	AfPS GS 2014	0.78318		0.24	
2355	AfPS GS 2014	0.67		-0.66	
2357	AfPS GS 2014	0.63		-0.98	
2363	AfPS GS 2014	0.7		-0.42	
2365	AfPS GS 2014	0.66		-0.74	
2366	AfPS GS 2014	0.68		-0.58	
2369	AfPS GS 2014	0.7		-0.42	
2370	AfPS GS 2014	0.700		-0.42	
2372		0.746		-0.05	
2374	AfPS GS 2014	0.7		-0.42	
2375	AfPS GS 2014	0.85		0.77	
2379	AfPS GS 2014	0.724		-0.23	
2380	AfPS GS 2014	0.84		0.69	
2382	AfPS GS 2014	0.70		-0.42	
2384	AfPS GS 2014	0.64		-0.90	
2386	AfPS GS 2014	0.824		0.57	
2390		-----		-----	
2481		-----		-----	
2482	AfPS GS 2014	0.939		1.48	
2492	ZEK01.4-08	1.018		2.11	
2495		-----		-----	
2497	AfPS GS 2014	9.766	R(0.01)	71.70	
2500		-----		-----	
2504	AfPS GS 2014	0.92		1.33	
2525	AfPS GS 2014	0.63		-0.98	
2532	AfPS GS 2014	1.1		2.76	
2553	In house	0.71	C	-0.34	first reported: 6.46
2561	AfPS GS 2014	0.556		-1.57	
2563	AfPS GS 2014	0.71		-0.34	
2590		-----		-----	
2612	AfPS GS 2014	0.54	C	-1.69	first reported: 0.3
2674	AfPS GS 2014	0.74		-0.10	
2687	ZEK01.4-08	Not Detected	C	-----	first reported: 1.168
2705	In house	0.1	R(0.01)	-5.19	
2713	In house	0.59	C	-1.30	first reported: 1.43
2718	AfPS GS 2014	0.798		0.36	
2730		6.10	R(0.01)	42.53	
2743		-----		-----	
2791	AfPS GS 2014	1.08		2.60	
2803	ZEK01.4-08	0.55		-1.61	
2807	ZEK01.4-08	0.49		-2.09	
2812	AfPS GS 2014	0.58	C	-1.37	first reported: 0.312
2826	AfPS GS 2014	0.77		0.14	
2841	In house	0.732		-0.17	

lab	method	value	mark	z(targ)	remarks
2858	In house	1.036	C	2.25	first reported: 1.079
2863	AfPS GS 2014	0.80		0.38	
2864	AfPS GS 2014	0.948		1.55	
2867	AfPS GS 2014	0.803		0.40	
3100	AfPS GS 2014	0.73		-0.18	
3116		0.889		1.08	
3118	In house	2.192	C,R(0.01)	11.45	first reported: 1.395
3146	AfPS GS 2014	0.822		0.55	
3150	AfPS GS 2014	0.89		1.09	
3153	AfPS GS 2014	0.69		-0.50	
3154	ZEK01.4-08	1.02		2.13	
3160		0.9		1.17	
3163		-----		-----	
3172	AfPS GS 2014	0.641		-0.89	
3182	AfPS GS 2014	0.72		-0.26	
3185	AfPS GS 2014	0.70		-0.42	
3190	AfPS GS 2014	0.54		-1.69	
3192	AfPS GS 2014	0.64		-0.90	
3197	AfPS GS 2014	0.84		0.69	
3210	AfPS GS 2014	0.7901		0.30	
3214	AfPS GS 2014	0.67		-0.66	
3218	AfPS GS 2014	0.555		-1.57	
3220	AfPS GS 2014	0.765		0.10	
3228	AfPS GS 2014	0.67		-0.66	
3237	AfPS GS 2014	0.397		-2.83	
3248	In house	0.6		-1.22	
	normality	OK			
	n	84			
	outliers	5 +(1ex)			
	mean (n)	0.7528			
	st.dev. (n)	0.15101	RSD=20%		
	R(calc.)	0.4228			
	st.dev.(Horwitz)	0.12571			
	R(Horwitz)	0.3520			

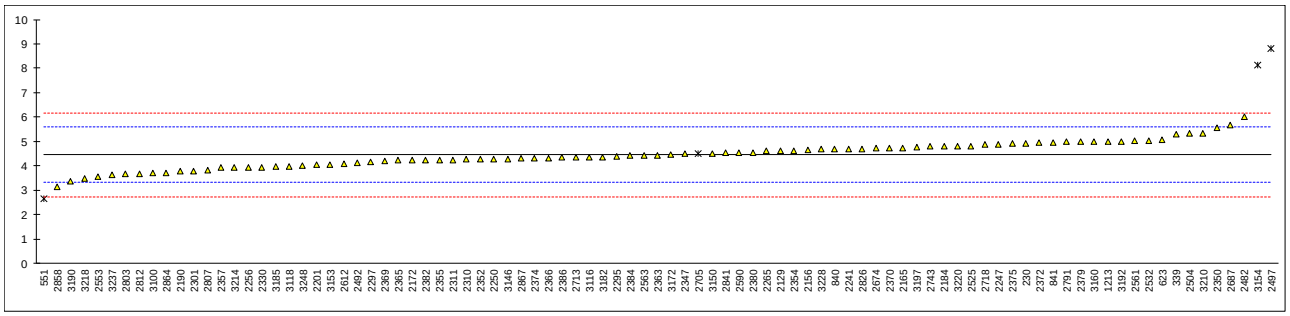


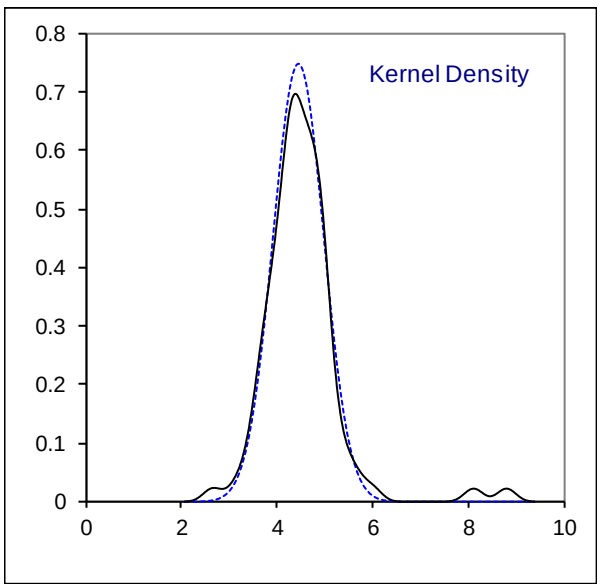


Determination of Fluoranthene in sample #19502; results in mg/kg

lab	method	value	mark	z(targ)	remarks
230	EPA610	4.932		0.84	
310		-----		-----	
339	In house	5.29		1.47	
551	In house	2.651	C,ex	-3.17	first reported: 0.8611, test result excluded, see §4.1
623	AfPS GS 2014	5.06		1.07	
840	AfPS GS 2014	4.69		0.42	
841	AfPS GS 2014	4.97		0.91	
1213	AfPS GS 2014	5.01		0.98	
2115		-----		-----	
2129	AfPS GS 2014	4.61		0.28	
2146		-----		-----	
2156	AfPS GS 2014	4.65		0.35	
2165	AfPS GS 2014	4.74		0.50	
2172	AfPS GS 2014	4.23		-0.39	
2184	AfPS GS 2014	4.79		0.59	
2190	AfPS GS 2014	3.79		-1.17	
2201	AfPS GS 2014	4.04		-0.73	
2241	AfPS GS 2014	4.70		0.43	
2247	ZEK01.4-08	4.89		0.77	
2250	AfPS GS 2014	4.28		-0.30	
2256	AfPS GS 2014	3.94		-0.90	
2265	AfPS GS 2014	4.600		0.26	
2267		-----		-----	
2295	AfPS GS 2014	4.4		-0.09	
2297	AfPS GS 2014	4.15		-0.53	
2301		3.80		-1.15	
2310	AfPS GS 2014	4.258		-0.34	
2311	AfPS GS 2014	4.253		-0.35	
2330	AfPS GS 2014	3.951		-0.88	
2347	AfPS GS 2014	4.5		0.08	
2350	AfPS GS 2014	5.572		1.97	
2352	AfPS GS 2014	4.27		-0.32	
2354	AfPS GS 2014	4.61245		0.28	
2355	AfPS GS 2014	4.25		-0.36	
2357	AfPS GS 2014	3.92		-0.94	
2363	AfPS GS 2014	4.44		-0.02	
2365	AfPS GS 2014	4.23		-0.39	
2366	AfPS GS 2014	4.30		-0.27	
2369	AfPS GS 2014	4.2		-0.45	
2370	AfPS GS 2014	4.74		0.50	
2372		4.958		0.89	
2374	AfPS GS 2014	4.3		-0.27	
2375	AfPS GS 2014	4.92		0.82	
2379	AfPS GS 2014	4.991		0.94	
2380	AfPS GS 2014	4.55		0.17	
2382	AfPS GS 2014	4.25		-0.36	
2384	AfPS GS 2014	4.42		-0.06	
2386	AfPS GS 2014	4.350		-0.18	
2390		-----		-----	
2481		-----		-----	
2482	AfPS GS 2014	6.01		2.74	
2492	ZEK01.4-08	4.140		-0.55	
2495		-----		-----	
2497	AfPS GS 2014	8.823	R(0.01)	7.68	
2500		-----		-----	
2504	AfPS GS 2014	5.32		1.52	
2525	AfPS GS 2014	4.82		0.64	
2532	AfPS GS 2014	5.05		1.05	
2553	In house	3.56		-1.57	
2561	AfPS GS 2014	5.023		1.00	
2563	AfPS GS 2014	4.43		-0.04	
2590	AfPS GS 2014	4.536		0.15	
2612	AfPS GS 2014	4.1	C	-0.62	first reported: 2.5
2674	AfPS GS 2014	4.72		0.47	
2687	ZEK01.4-08	5.678	C	2.15	6.348
2705	In house	4.5	ex	0.08	test result excluded, see §4.1
2713	In house	4.35		-0.18	
2718	AfPS GS 2014	4.876		0.74	
2730		-----		-----	
2743	ZEK01.4-08	4.787667		0.59	
2791	AfPS GS 2014	4.99		0.94	
2803	ZEK01.4-08	3.69	C	-1.34	first reported: 6.2
2807	ZEK01.4-08	3.82		-1.11	
2812	AfPS GS 2014	3.69	C	-1.34	first reported: 6.121
2826	AfPS GS 2014	4.7		0.43	
2841	In house	4.533		0.14	

lab	method	value	mark	z(targ)	remarks
2858	In house	3.137	C	-2.31	first reported: 7.277
2863		-----		-----	
2864	AfPS GS 2014	3.705		-1.31	
2867	AfPS GS 2014	4.298		-0.27	
3100	AfPS GS 2014	3.70		-1.32	
3116		4.35		-0.18	
3118	In house	3.986		-0.82	
3146	AfPS GS 2014	4.292		-0.28	
3150	AfPS GS 2014	4.5		0.08	
3153	AfPS GS 2014	4.04		-0.73	
3154	ZEK01.4-08	8.13	C,R(0.01)	6.46	first reported: 6.96
3160		5.0		0.96	
3163		-----		-----	
3172	AfPS GS 2014	4.447		-0.01	
3182	AfPS GS 2014	4.37		-0.15	
3185	AfPS GS 2014	3.97		-0.85	
3190	AfPS GS 2014	3.37		-1.90	
3192	AfPS GS 2014	5.01		0.98	
3197	AfPS GS 2014	4.78		0.57	
3210	AfPS GS 2014	5.351		1.58	
3214	AfPS GS 2014	3.92		-0.94	
3218	AfPS GS 2014	3.469		-1.73	
3220	AfPS GS 2014	4.812		0.63	
3228	AfPS GS 2014	4.68		0.40	
3237	AfPS GS 2014	3.626		-1.45	
3248	In house	4.0	C	-0.80	first reported: 6.3
	normality	OK			
	n	87			
	outliers	2 +(2ex)			
	mean (n)	4.4533			
	st.dev. (n)	0.53218	RSD=12%		
	R(calc.)	1.4901			
	st.dev.(Horwitz)	0.56907			
	R(Horwitz)	1.5934			

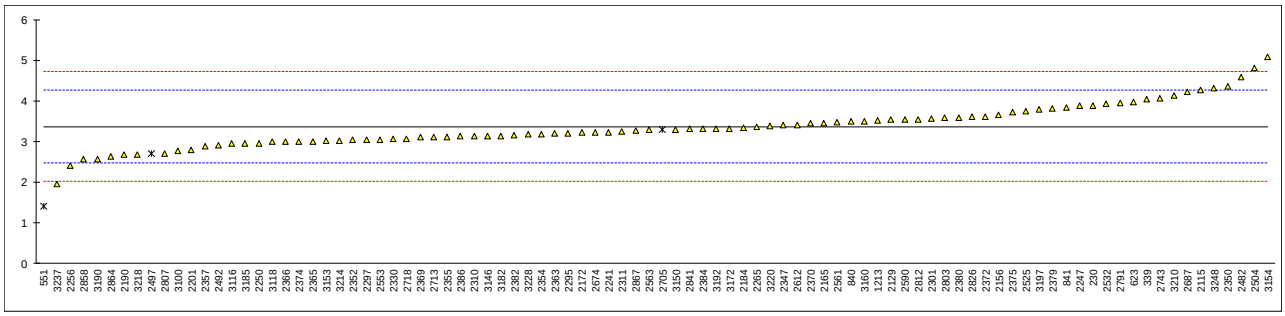


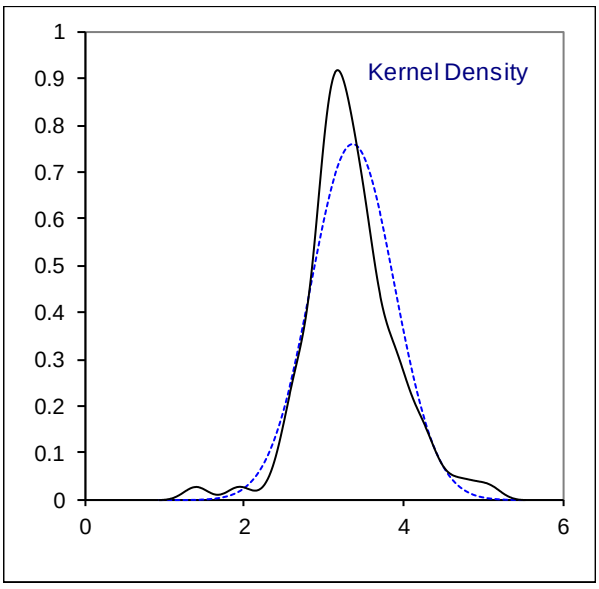


Determination of Pyrene in sample #19502; results in mg/kg

lab	method	value	mark	z(targ)	remarks
230	EPA610	3.881		1.14	
310		-----		-----	
339	In house	4.03		1.47	
551	In house	1.399	C,R(0.05)	-4.39	first reported: 0.7821
623	AfPS GS 2014	3.97		1.34	
840	AfPS GS 2014	3.50		0.29	
841	AfPS GS 2014	3.83		1.03	
1213	AfPS GS 2014	3.51		0.32	
2115	AfPS GS 2014	4.26		1.99	
2129	AfPS GS 2014	3.53		0.36	
2146		-----		-----	
2156	AfPS GS 2014	3.65		0.63	
2165	AfPS GS 2014	3.46		0.20	
2172	AfPS GS 2014	3.22		-0.33	
2184	AfPS GS 2014	3.33		-0.09	
2190	AfPS GS 2014	2.67		-1.56	
2201	AfPS GS 2014	2.80		-1.27	
2241	AfPS GS 2014	3.23		-0.31	
2247	ZEK01.4-08	3.88		1.14	
2250	AfPS GS 2014	2.95		-0.93	
2256	AfPS GS 2014	2.405		-2.15	
2265	AfPS GS 2014	3.35		-0.04	
2267		-----		-----	
2295	AfPS GS 2014	3.2		-0.37	
2297	AfPS GS 2014	3.04		-0.73	
2301		3.57		0.45	
2310	AfPS GS 2014	3.132		-0.53	
2311	AfPS GS 2014	3.254		-0.25	
2330	AfPS GS 2014	3.063		-0.68	
2347	AfPS GS 2014	3.4		0.07	
2350	AfPS GS 2014	4.354		2.20	
2352	AfPS GS 2014	3.04		-0.73	
2354	AfPS GS 2014	3.18136		-0.42	
2355	AfPS GS 2014	3.11		-0.58	
2357	AfPS GS 2014	2.88		-1.09	
2363	AfPS GS 2014	3.19		-0.40	
2365	AfPS GS 2014	3.00		-0.82	
2366	AfPS GS 2014	3.00		-0.82	
2369	AfPS GS 2014	3.1		-0.60	
2370	AfPS GS 2014	3.46		0.20	
2372		3.603		0.52	
2374	AfPS GS 2014	3.0		-0.82	
2375	AfPS GS 2014	3.73		0.81	
2379	AfPS GS 2014	3.815		1.00	
2380	AfPS GS 2014	3.59		0.49	
2382	AfPS GS 2014	3.15		-0.49	
2384	AfPS GS 2014	3.32		-0.11	
2386	AfPS GS 2014	3.127		-0.54	
2390		-----		-----	
2481		-----		-----	
2482	AfPS GS 2014	4.59		2.72	
2492	ZEK01.4-08	2.903		-1.04	
2495		-----		-----	
2497	AfPS GS 2014	2.691	ex	-1.51	test result excluded, see §4.1
2500		-----		-----	
2504	AfPS GS 2014	4.81		3.21	
2525	AfPS GS 2014	3.75		0.85	
2532	AfPS GS 2014	3.92		1.23	
2553	In house	3.05		-0.71	
2561	AfPS GS 2014	3.467		0.22	
2563	AfPS GS 2014	3.3		-0.15	
2590	AfPS GS 2014	3.536		0.37	
2612	AfPS GS 2014	3.4	C	0.07	first reported: 2.0
2674	AfPS GS 2014	3.22		-0.33	
2687	ZEK01.4-08	4.230	C	1.92	first reported: 5.838
2705	In house	3.3	ex	-0.15	test result excluded, see §4.1
2713	In house	3.10		-0.60	
2718	AfPS GS 2014	3.071		-0.66	
2730		-----		-----	
2743	ZEK01.4-08	4.072667		1.57	
2791	AfPS GS 2014	3.95		1.30	
2803	ZEK01.4-08	3.58		0.47	
2807	ZEK01.4-08	2.70		-1.49	
2812	AfPS GS 2014	3.551		0.41	
2826	AfPS GS 2014	3.6		0.52	
2841	In house	3.310		-0.13	

lab	method	value	mark	z(targ)	remarks
2858	In house	2.564	C	-1.79	first reported: 5.763
2863		-----		-----	
2864	AfPS GS 2014	2.625		-1.66	
2867	AfPS GS 2014	3.275		-0.21	
3100	AfPS GS 2014	2.77		-1.33	
3116		2.94		-0.95	
3118	In house	2.989		-0.84	
3146	AfPS GS 2014	3.138		-0.51	
3150	AfPS GS 2014	3.3		-0.15	
3153	AfPS GS 2014	3.01		-0.80	
3154	ZEK01.4-08	5.08	C	3.81	first reported: 4.88
3160		3.5		0.29	
3163		-----		-----	
3172	AfPS GS 2014	3.322		-0.10	
3182	AfPS GS 2014	3.14		-0.51	
3185	AfPS GS 2014	2.94		-0.95	
3190	AfPS GS 2014	2.57		-1.78	
3192	AfPS GS 2014	3.32		-0.11	
3197	AfPS GS 2014	3.79		0.94	
3210	AfPS GS 2014	4.120		1.67	
3214	AfPS GS 2014	3.03		-0.75	
3218	AfPS GS 2014	2.673		-1.55	
3220	AfPS GS 2014	3.382		0.03	
3228	AfPS GS 2014	3.17		-0.44	
3237	AfPS GS 2014	1.944		-3.17	
3248	In house	4.3		2.08	
	normality	suspect			
	n	89			
	outliers	1 +(2ex)			
	mean (n)	3.3682			
	st.dev. (n)	0.52404	RSD=16%		
	R(calc.)	1.4673			
	st.dev.(Horwitz)	0.44888			
	R(Horwitz)	1.2569			

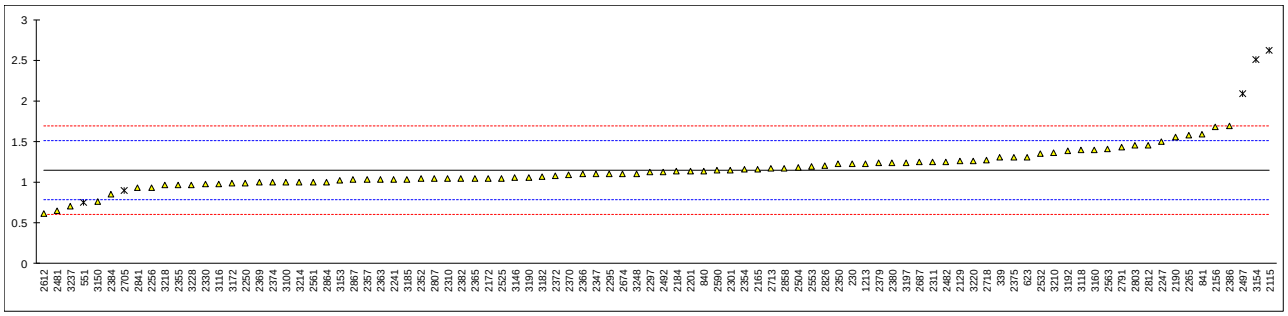


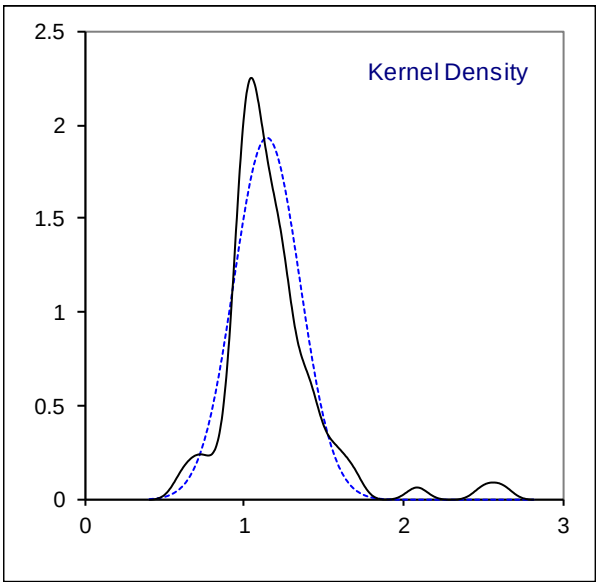


Determination of Benzo[a]anthracene in sample #19502; results in mg/kg

lab	method	value	mark	z(targ)	remarks
230	EPA610	1.227		0.44	
310		-----		-----	
339	In house	1.3		0.84	
551	In house	0.7524	ex	-2.20	test result excluded, see §4.1
623	AfPS GS 2014	1.31		0.90	
840	AfPS GS 2014	1.14		-0.05	
841	AfPS GS 2014	1.59		2.45	
1213	AfPS GS 2014	1.23		0.45	
2115	AfPS GS 2014	2.62	C,R(0.01)	8.18	first reported: 4.14
2129	AfPS GS 2014	1.26		0.62	
2146		-----		-----	
2156	AfPS GS 2014	1.68	C	2.95	first reported: 1.75
2165	AfPS GS 2014	1.16		0.06	
2172	AfPS GS 2014	1.05		-0.55	
2184	AfPS GS 2014	1.14		-0.05	
2190	AfPS GS 2014	1.56		2.29	
2201	AfPS GS 2014	1.14		-0.05	
2241	AfPS GS 2014	1.03		-0.66	
2247	ZEK01.4-08	1.50		1.95	
2250	AfPS GS 2014	0.99		-0.88	
2256	AfPS GS 2014	0.935		-1.19	
2265	AfPS GS 2014	1.575		2.37	
2267		-----		-----	
2295	AfPS GS 2014	1.1		-0.27	
2297	AfPS GS 2014	1.12		-0.16	
2301		1.15		0.01	
2310	AfPS GS 2014	1.046		-0.57	
2311	AfPS GS 2014	1.248		0.55	
2330	AfPS GS 2014	0.975		-0.96	
2347	AfPS GS 2014	1.1		-0.27	
2350	AfPS GS 2014	1.227	C	0.44	first reported: 1.757
2352	AfPS GS 2014	1.04		-0.60	
2354	AfPS GS 2014	1.15523		0.04	
2355	AfPS GS 2014	0.97		-0.99	
2357	AfPS GS 2014	1.03		-0.66	
2363	AfPS GS 2014	1.03		-0.66	
2365	AfPS GS 2014	1.05		-0.55	
2366	AfPS GS 2014	1.10		-0.27	
2369	AfPS GS 2014	1.0		-0.82	
2370	AfPS GS 2014	1.09		-0.32	
2372		1.083		-0.36	
2374	AfPS GS 2014	1.0		-0.82	
2375	AfPS GS 2014	1.31		0.90	
2379	AfPS GS 2014	1.234		0.48	
2380	AfPS GS 2014	1.24		0.51	
2382	AfPS GS 2014	1.05		-0.55	
2384	AfPS GS 2014	0.85		-1.66	
2386	AfPS GS 2014	1.689		3.00	
2390		-----		-----	
2481	In house	0.648		-2.78	
2482	AfPS GS 2014	1.25		0.56	
2492	ZEK01.4-08	1.120		-0.16	
2495		-----		-----	
2497	AfPS GS 2014	2.088	R(0.01)	5.22	
2500		-----		-----	
2504	AfPS GS 2014	1.18		0.18	
2525	AfPS GS 2014	1.05		-0.55	
2532	AfPS GS 2014	1.35		1.12	
2553	In house	1.19		0.23	
2561	AfPS GS 2014	1.001		-0.82	
2563	AfPS GS 2014	1.41		1.45	
2590	AfPS GS 2014	1.147		-0.01	
2612	AfPS GS 2014	0.61		-2.99	
2674	AfPS GS 2014	1.10		-0.27	
2687	ZEK01.4-08	1.246		0.54	
2705	In house	0.9	ex	-1.38	test result excluded, see §4.1
2713	In house	1.17		0.12	
2718	AfPS GS 2014	1.272		0.69	
2730		-----		-----	
2743		-----		-----	
2791	AfPS GS 2014	1.43		1.57	
2803	ZEK01.4-08	1.45	C	1.68	first reported: 1.78
2807	ZEK01.4-08	1.04		-0.60	
2812	AfPS GS 2014	1.451		1.68	
2826	AfPS GS 2014	1.2		0.29	
2841	In house	0.930		-1.21	

lab	method	value	mark	z(targ)	remarks
2858	In house	1.17	C	0.12	first reported: 8.173
2863		-----		-----	
2864	AfPS GS 2014	1.005		-0.80	
2867	AfPS GS 2014	1.029		-0.66	
3100	AfPS GS 2014	1.00		-0.82	
3116		0.978		-0.95	
3118	In house	1.395		1.37	
3146	AfPS GS 2014	1.053		-0.53	
3150	AfPS GS 2014	0.76		-2.16	
3153	AfPS GS 2014	1.02		-0.71	
3154	ZEK01.4-08	2.51	C,R(0.01)	7.57	first reported: 2.16
3160		1.4		1.40	
3163		-----		-----	
3172	AfPS GS 2014	0.989		-0.89	
3182	AfPS GS 2014	1.07		-0.44	
3185	AfPS GS 2014	1.03		-0.66	
3190	AfPS GS 2014	1.06		-0.49	
3192	AfPS GS 2014	1.39		1.34	
3197	AfPS GS 2014	1.24		0.51	
3210	AfPS GS 2014	1.366		1.21	
3214	AfPS GS 2014	1.00		-0.82	
3218	AfPS GS 2014	0.961		-1.04	
3220	AfPS GS 2014	1.265		0.65	
3228	AfPS GS 2014	0.97		-0.99	
3237	AfPS GS 2014	0.708		-2.45	
3248	In house	1.1	C	-0.27	first reported: 2.1
	normality	OK			
	n	87			
	outliers	3 +(2ex)			
	mean (n)	1.1484			
	st.dev. (n)	0.20606	RSD=18%		
	R(calc.)	0.5770			
	st.dev.(Horwitz)	0.17995			
	R(Horwitz)	0.5039			

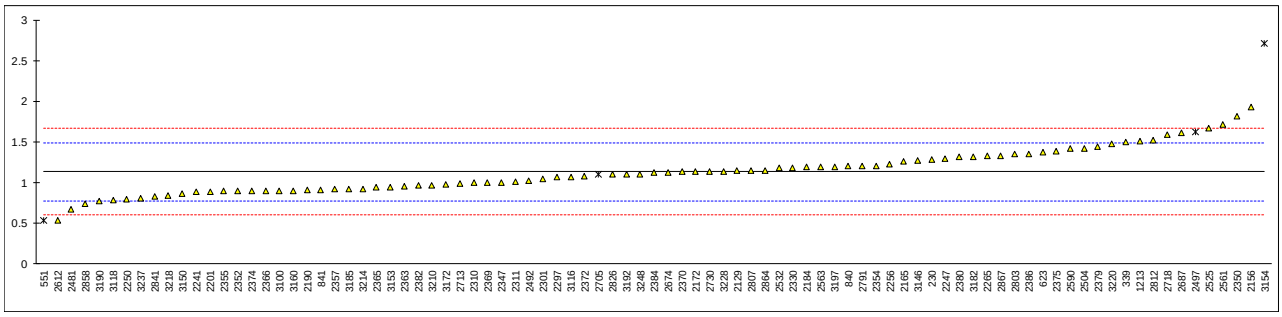


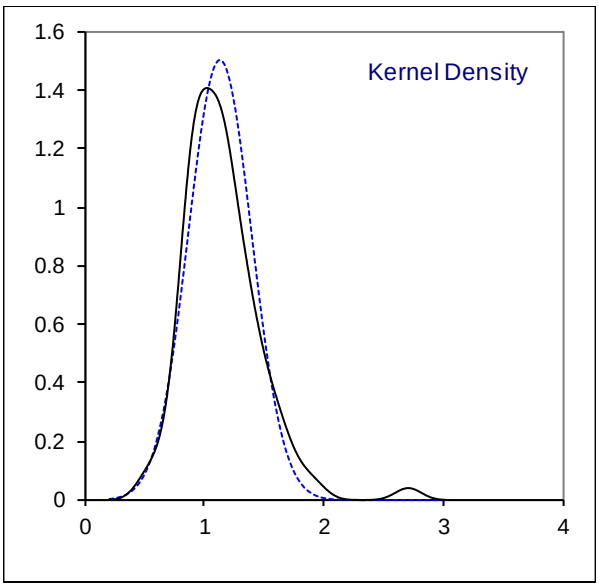


Determination of Chrysene in sample #19502; results in mg/kg

lab	method	value	mark	z(targ)	remarks
230	EPA610	1.286		0.87	
310		-----		-----	
339	In house	1.5		2.08	
551	In house	0.5339	ex	-3.36	test result excluded, see §4.1
623	AfPS GS 2014	1.37		1.34	
840	AfPS GS 2014	1.20		0.39	
841	AfPS GS 2014	0.91		-1.25	
1213	AfPS GS 2014	1.51		2.13	
2115		-----		-----	
2129	AfPS GS 2014	1.15		0.11	
2146		-----		-----	
2156	AfPS GS 2014	1.93	C	4.50	first reported: 2.25
2165	AfPS GS 2014	1.26		0.72	
2172	AfPS GS 2014	1.13		-0.01	
2184	AfPS GS 2014	1.19		0.33	
2190	AfPS GS 2014	0.91		-1.25	
2201	AfPS GS 2014	0.89		-1.36	
2241	AfPS GS 2014	0.89		-1.36	
2247	ZEK01.4-08	1.29		0.89	
2250	AfPS GS 2014	0.79		-1.92	
2256	AfPS GS 2014	1.225		0.53	
2265	AfPS GS 2014	1.330		1.12	
2267		-----		-----	
2295		-----		-----	
2297	AfPS GS 2014	1.07		-0.35	
2301		1.04		-0.51	
2310	AfPS GS 2014	0.999		-0.74	
2311	AfPS GS 2014	1.008		-0.69	
2330	AfPS GS 2014	1.186		0.31	
2347	AfPS GS 2014	1.0		-0.74	
2350	AfPS GS 2014	1.820		3.88	
2352	AfPS GS 2014	0.90		-1.30	
2354	AfPS GS 2014	1.20274		0.40	
2355	AfPS GS 2014	0.90		-1.30	
2357	AfPS GS 2014	0.92		-1.19	
2363	AfPS GS 2014	0.95		-1.02	
2365	AfPS GS 2014	0.94		-1.08	
2366	AfPS GS 2014	0.90		-1.30	
2369	AfPS GS 2014	1.0		-0.74	
2370	AfPS GS 2014	1.13		-0.01	
2372		1.077		-0.31	
2374	AfPS GS 2014	0.9		-1.30	
2375	AfPS GS 2014	1.38		1.40	
2379	AfPS GS 2014	1.442		1.75	
2380	AfPS GS 2014	1.32		1.06	
2382	AfPS GS 2014	0.96		-0.96	
2384	AfPS GS 2014	1.12		-0.06	
2386	AfPS GS 2014	1.352		1.24	
2390		-----		-----	
2481	In house	0.671		-2.59	
2482		-----		-----	
2492	ZEK01.4-08	1.025		-0.60	
2495		-----		-----	
2497	AfPS GS 2014	1.621	ex	2.76	test result excluded, see §4.1
2500		-----		-----	
2504	AfPS GS 2014	1.42		1.62	
2525	AfPS GS 2014	1.67		3.03	
2532	AfPS GS 2014	1.18		0.27	
2553	In house	ND		-----	
2561	AfPS GS 2014	1.708		3.25	
2563	AfPS GS 2014	1.19	C	0.33	first reported: 8.35
2590	AfPS GS 2014	1.416		1.60	
2612	AfPS GS 2014	0.54		-3.33	
2674	AfPS GS 2014	1.12		-0.06	
2687	ZEK01.4-08	1.607		2.68	
2705	In house	1.1	ex	-0.18	test result excluded, see §4.1
2713	In house	0.99		-0.80	
2718	AfPS GS 2014	1.592		2.59	
2730		1.13		-0.01	
2743		-----		-----	
2791	AfPS GS 2014	1.20		0.39	
2803	ZEK01.4-08	1.35		1.23	
2807	ZEK01.4-08	1.15		0.11	
2812	AfPS GS 2014	1.521		2.19	
2826	AfPS GS 2014	1.1		-0.18	
2841	In house	0.824		-1.73	

lab	method	value	mark	z(targ)	remarks
2858	In house	0.734	C	-2.24	first reported: n.d.
2863		-----		-----	
2864	AfPS GS 2014	1.150		0.11	
2867	AfPS GS 2014	1.333		1.14	
3100	AfPS GS 2014	0.90		-1.30	
3116		1.07		-0.35	
3118	In house	0.785		-1.95	
3146	AfPS GS 2014	1.274		0.80	
3150	AfPS GS 2014	0.86		-1.53	
3153	AfPS GS 2014	0.94		-1.08	
3154	ZEK01.4-08	2.71	C,R(0.01)	8.89	first reported: 2.13
3160		0.9		-1.30	
3163		-----		-----	
3172	AfPS GS 2014	0.9813		-0.84	
3182	AfPS GS 2014	1.32		1.06	
3185	AfPS GS 2014	0.92		-1.19	
3190	AfPS GS 2014	0.77		-2.03	
3192	AfPS GS 2014	1.10		-0.18	
3197	AfPS GS 2014	1.19		0.33	
3210	AfPS GS 2014	0.9601		-0.96	
3214	AfPS GS 2014	0.92		-1.19	
3218	AfPS GS 2014	0.839		-1.65	
3220	AfPS GS 2014	1.481		1.97	
3228	AfPS GS 2014	1.14		0.05	
3237	AfPS GS 2014	0.812		-1.80	
3248	In house	1.1	C	-0.18	first reported: 2.3
	normality	OK			
	n	85			
	outliers	1 +(3ex)			
	mean (n)	1.1313			
	st.dev. (n)	0.26502	RSD=23%		
	R(calc.)	0.7420			
	st.dev.(Horwitz)	0.17768			
	R(Horwitz)	0.4975			

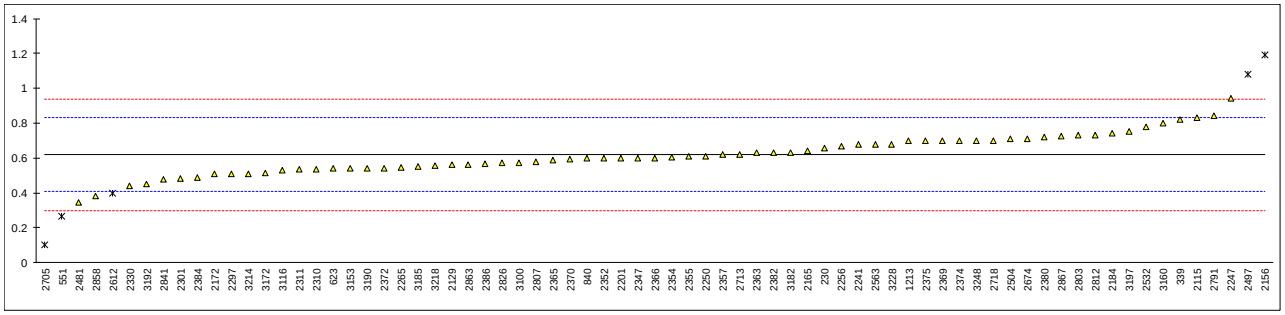


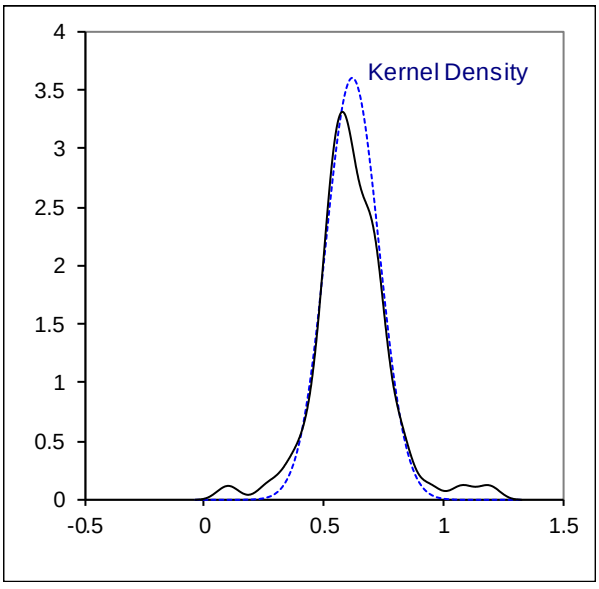


Determination of Benzo[b]fluoranthene in sample #19502; results in mg/kg

lab	method	value	mark	z(targ)	remarks
230	EPA610	0.6572		0.36	
310		-----		-----	
339	In house	0.820		1.89	
551	In house	0.2677	ex	-3.30	test result excluded, see §4.1
623	AfPS GS 2014	0.54		-0.74	
840	AfPS GS 2014	0.60		-0.18	
841	AfPS GS 2014	ND		-----	
1213	AfPS GS 2014	0.70		0.76	
2115	AfPS GS 2014	0.83		1.98	
2129	AfPS GS 2014	0.56		-0.55	
2146		-----		-----	
2156	AfPS GS 2014	1.19	C,R(0.05)	5.36	first reported: 1.00
2165	AfPS GS 2014	0.64		0.20	
2172	AfPS GS 2014	0.509		-1.03	
2184	AfPS GS 2014	0.74		1.14	
2190		-----		-----	
2201	AfPS GS 2014	0.60		-0.18	
2241	AfPS GS 2014	0.68		0.57	
2247	ZEK01.4-08	0.94		3.01	
2250	AfPS GS 2014	0.61		-0.09	
2256	AfPS GS 2014	0.668		0.46	
2265	AfPS GS 2014	0.545		-0.70	
2267		-----		-----	
2295		-----		-----	
2297	AfPS GS 2014	0.51		-1.02	
2301		0.48		-1.31	
2310	AfPS GS 2014	0.534		-0.80	
2311	AfPS GS 2014	0.533		-0.81	
2330	AfPS GS 2014	0.441		-1.67	
2347	AfPS GS 2014	0.6		-0.18	
2350	AfPS GS 2014	N.A.		-----	
2352	AfPS GS 2014	0.60		-0.18	
2354	AfPS GS 2014	0.60140		-0.17	
2355	AfPS GS 2014	0.61		-0.09	
2357	AfPS GS 2014	0.62		0.01	
2363	AfPS GS 2014	0.63		0.10	
2365	AfPS GS 2014	0.59		-0.27	
2366	AfPS GS 2014	0.60		-0.18	
2369	AfPS GS 2014	0.7		0.76	
2370	AfPS GS 2014	0.596		-0.22	
2372		0.542		-0.72	
2374	AfPS GS 2014	0.7		0.76	
2375	AfPS GS 2014	0.70		0.76	
2379	AfPS GS 2014	Not detected		-----	
2380	AfPS GS 2014	0.72		0.95	
2382	AfPS GS 2014	0.63		0.10	
2384	AfPS GS 2014	0.49		-1.21	
2386	AfPS GS 2014	0.568		-0.48	
2390		-----		-----	
2481	In house	0.343		-2.59	
2482		-----		-----	
2492		-----		-----	
2495		-----		-----	
2497	AfPS GS 2014	1.078	R(0.05)	4.31	
2500		-----		-----	
2504	AfPS GS 2014	0.71		0.85	
2525		-----		-----	
2532	AfPS GS 2014	0.78		1.51	
2553	In house	ND		-----	
2561		-----		-----	
2563	AfPS GS 2014	0.68		0.57	
2590		-----		-----	
2612	AfPS GS 2014	0.4	ex	-2.06	Reported sum Benzo[b]fluoranthene + Benzo[j]fluoranthene
2674	AfPS GS 2014	0.71		0.85	
2687	ZEK01.4-08	Not detected	C	-----	first reported: 0.657
2705	In house	0.1	R(0.05)	-4.88	
2713	In house	0.62		0.01	
2718	AfPS GS 2014	0.701		0.77	
2730		-----		-----	
2743		-----		-----	
2791	AfPS GS 2014	0.84		2.08	
2803	ZEK01.4-08	0.73	C	1.04	first reported: 2.01
2807	ZEK01.4-08	0.58		-0.37	
2812	AfPS GS 2014	0.73	C	1.04	first reported: 1.391
2826	AfPS GS 2014	0.57		-0.46	
2841	In house	0.476		-1.34	

lab	method	value	mark	z(targ)	remarks
2858	In house	0.381	C	-2.24	first no test result was reported
2863	AfPS GS 2014	0.56		-0.55	
2864		-----		-----	
2867	AfPS GS 2014	0.726		1.00	
3100	AfPS GS 2014	0.57		-0.46	
3116		0.531		-0.83	
3118		-----		-----	
3146		-----		-----	
3150	AfPS GS 2014	<0,2		<-3.94	possibly a false negative test result?
3153	AfPS GS 2014	0.54		-0.74	
3154		-----		-----	
3160		0.8		1.70	
3163		-----		-----	
3172	AfPS GS 2014	0.516		-0.97	
3182	AfPS GS 2014	0.63		0.10	
3185	AfPS GS 2014	0.55		-0.65	
3190	AfPS GS 2014	0.54		-0.74	
3192	AfPS GS 2014	0.45		-1.59	
3197	AfPS GS 2014	0.75		1.23	
3210		-----		-----	
3214	AfPS GS 2014	0.51		-1.02	
3218	AfPS GS 2014	0.558		-0.57	
3220		-----		-----	
3228	AfPS GS 2014	0.68		0.57	
3237		-----		-----	
3248	In house	0.7	C	0.76	first reported: 1.3
	normality	OK			
	n	68			
	outliers	3 +(2ex)			
	mean (n)	0.6191			
	st.dev. (n)	0.11076	RSD=18%		
	R(calc.)	0.3101			
	st.dev.(Horwitz)	0.10646			
	R(Horwitz)	0.2981			

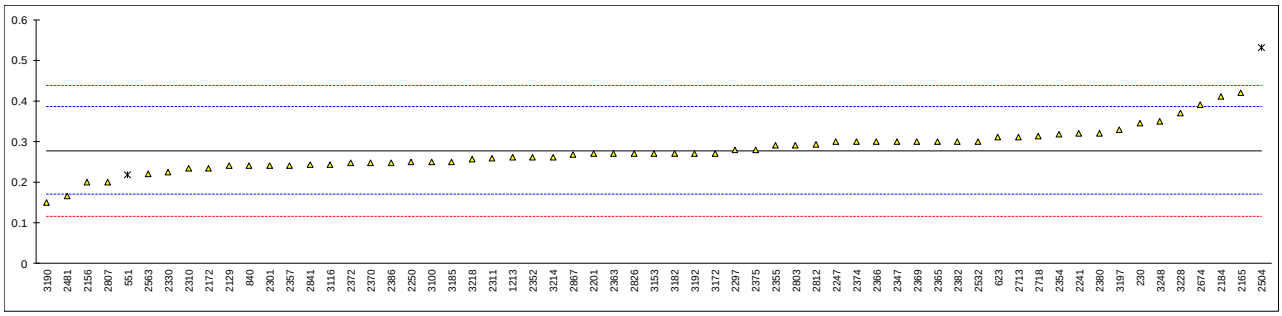


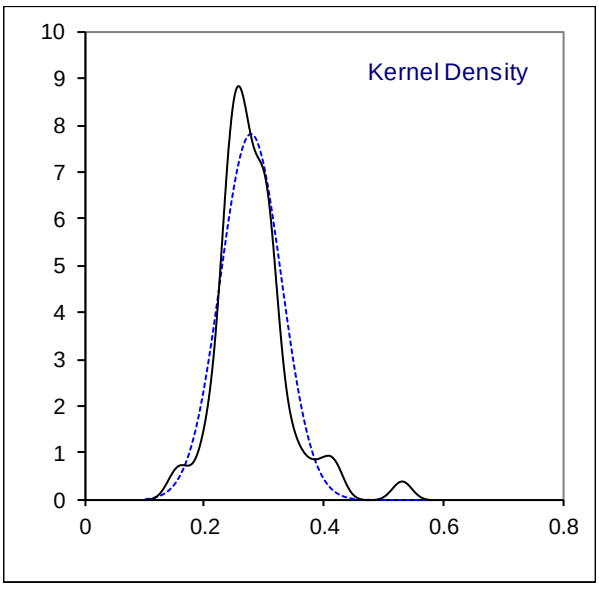


Determination of Benzo[j]fluoranthene in sample #19502; results in mg/kg

lab	method	value	mark	z(targ)	remarks
230	EPA610	0.3451		1.26	
310		-----		-----	
339		-----		-----	
551	In house	0.2177	ex	-1.11	test result excluded, see §4.1
623	AfPS GS 2014	0.31		0.61	
840	AfPS GS 2014	0.24		-0.69	
841	AfPS GS 2014	ND		-----	
1213	AfPS GS 2014	0.26	C	-0.32	first reported: 0.44
2115		-----		-----	
2129	AfPS GS 2014	0.24		-0.69	
2146		-----		-----	
2156	AfPS GS 2014	0.20		-1.44	
2165	AfPS GS 2014	0.42		2.65	
2172	AfPS GS 2014	0.235		-0.79	
2184	AfPS GS 2014	0.41		2.47	
2190		-----		-----	
2201	AfPS GS 2014	0.27		-0.14	
2241	AfPS GS 2014	0.32		0.79	
2247	ZEK01.4-08	0.30	C	0.42	first reported: 0.52
2250	AfPS GS 2014	0.25		-0.51	
2256		-----		-----	
2265	AfPS GS 2014	<0,2		-----	
2267		-----		-----	
2295		-----		-----	
2297	AfPS GS 2014	0.28		0.05	
2301		0.24		-0.69	
2310	AfPS GS 2014	0.234		-0.80	
2311	AfPS GS 2014	0.259		-0.34	
2330	AfPS GS 2014	0.224		-0.99	
2347	AfPS GS 2014	0.3		0.42	
2350	AfPS GS 2014	N.A.		-----	
2352	AfPS GS 2014	0.26		-0.32	
2354	AfPS GS 2014	0.31688		0.74	
2355	AfPS GS 2014	0.29		0.24	
2357	AfPS GS 2014	0.24		-0.69	
2363	AfPS GS 2014	0.27		-0.14	
2365	AfPS GS 2014	0.30		0.42	
2366	AfPS GS 2014	0.30		0.42	
2369	AfPS GS 2014	0.3		0.42	
2370	AfPS GS 2014	0.248		-0.54	
2372		0.247		-0.56	
2374	AfPS GS 2014	0.3		0.42	
2375	AfPS GS 2014	0.28		0.05	
2379	AfPS GS 2014	Not detected		-----	
2380	AfPS GS 2014	0.32		0.79	
2382	AfPS GS 2014	0.30		0.42	
2384	AfPS GS 2014	Not detected[<0.20]		-----	
2386	AfPS GS 2014	0.248		-0.54	
2390		-----		-----	
2481	In house	0.166		-2.07	
2482		-----		-----	
2492		-----		-----	
2495		-----		-----	
2497		-----		-----	
2500		-----		-----	
2504	AfPS GS 2014	0.53	R(0.01)	4.70	
2525		-----		-----	
2532	AfPS GS 2014	0.30		0.42	
2553	In house	ND		-----	
2561		-----		-----	
2563	AfPS GS 2014	0.22		-1.06	
2590		-----		-----	
2612	AfPS GS 2014	<0.2		-----	See results Benzo[b]fluoranthene
2674	AfPS GS 2014	0.39	C	2.09	first reported: 0.42
2687		-----		-----	
2705		-----		-----	
2713	In house	0.31		0.61	
2718	AfPS GS 2014	0.313		0.66	
2730		-----		-----	
2743		-----		-----	
2791	AfPS GS 2014	<0.2		-----	
2803	ZEK01.4-08	0.29	C	0.24	first reported: 0.48
2807	ZEK01.4-08	0.20		-1.44	
2812	AfPS GS 2014	0.293		0.29	
2826	AfPS GS 2014	0.27		-0.14	
2841	In house	0.242		-0.66	

lab	method	value	mark	z(targ)	remarks
2858	In house	n.d		-----	
2863		-----		-----	
2864		-----		-----	
2867	AfPS GS 2014	0.269		-0.15	
3100	AfPS GS 2014	0.25		-0.51	
3116		0.242		-0.66	
3118		-----		-----	
3146		-----		-----	
3150	AfPS GS 2014	<0,2		-----	
3153	AfPS GS 2014	0.27		-0.14	
3154		-----		-----	
3160		-----		-----	
3163		-----		-----	
3172	AfPS GS 2014	0.271		-0.12	
3182	AfPS GS 2014	0.27		-0.14	
3185	AfPS GS 2014	0.25		-0.51	
3190	AfPS GS 2014	0.15		-2.37	
3192	AfPS GS 2014	0.27		-0.14	
3197	AfPS GS 2014	0.33		0.98	
3210		-----		-----	
3214	AfPS GS 2014	0.26		-0.32	
3218	AfPS GS 2014	0.256		-0.40	
3220		-----		-----	
3228	AfPS GS 2014	0.37		1.72	
3237		-----		-----	
3248	In house	0.35	C	1.35	first reported: 0.7
	normality	suspect			
	n	59			
	outliers	1 +(1ex)			
	mean (n)	0.2773			
	st.dev. (n)	0.05096	RSD=18%		
	R(calc.)	0.1427			
	st.dev.(Horwitz)	0.05381			
	R(Horwitz)	0.1507			



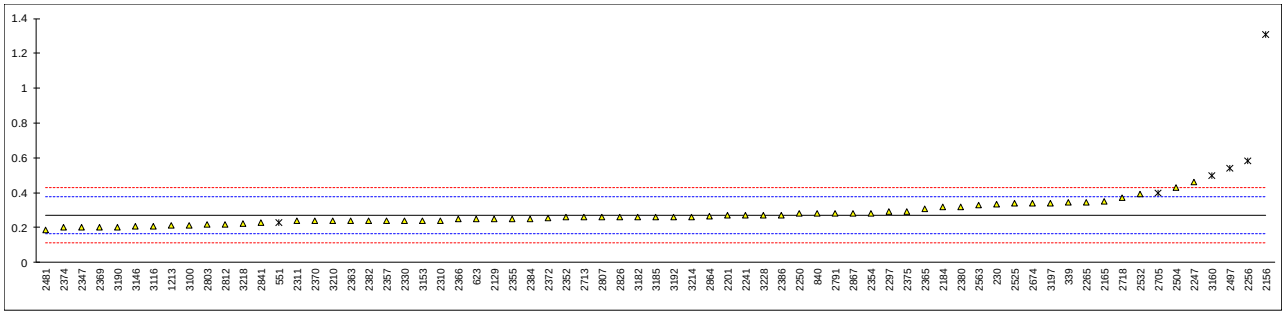


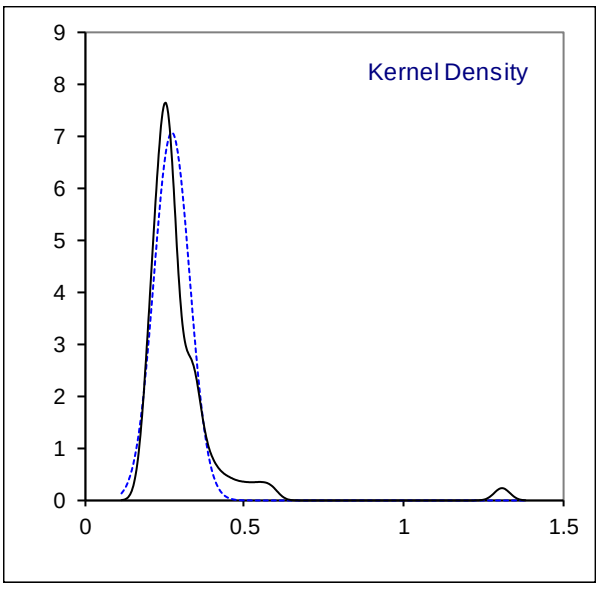
Determination of Benzo[k]fluoranthene in sample #19502; results in mg/kg

lab	method	value	mark	z(targ)	remarks
230	EPA610	0.3351		1.20	
310		-----		-----	
339	In house	0.344		1.37	
551	In house	0.228	C,ex	-0.82	first reported: 0.1486, test result excluded, see §4.1
623	AfPS GS 2014	0.25		-0.41	
840	AfPS GS 2014	0.28		0.16	
841	AfPS GS 2014	ND		-----	
1213	AfPS GS 2014	0.21	C	-1.16	first reported: 0.40
2115		-----		-----	
2129	AfPS GS 2014	0.25		-0.41	
2146		-----		-----	
2156	AfPS GS 2014	1.31	C,R(0.01)	19.64	first reported: 0.95
2165	AfPS GS 2014	0.35		1.48	
2172		-----		-----	
2184	AfPS GS 2014	0.32		0.92	
2190		-----		-----	
2201	AfPS GS 2014	0.27		-0.03	
2241	AfPS GS 2014	0.27		-0.03	
2247	ZEK01.4-08	0.46	C	3.56	first reported: 0.67
2250	AfPS GS 2014	0.28		0.16	
2256	AfPS GS 2014	0.582	R(0.01)	5.87	
2265	AfPS GS 2014	0.345		1.39	
2267		-----		-----	
2295		-----		-----	
2297	AfPS GS 2014	0.29		0.35	
2301		ND		-----	
2310	AfPS GS 2014	0.241		-0.58	
2311	AfPS GS 2014	0.237		-0.65	
2330	AfPS GS 2014	0.240		-0.60	
2347	AfPS GS 2014	0.2		-1.35	
2350	AfPS GS 2014	N.A.		-----	
2352	AfPS GS 2014	0.26		-0.22	
2354	AfPS GS 2014	0.28314		0.22	
2355	AfPS GS 2014	0.25		-0.41	
2357	AfPS GS 2014	0.24		-0.60	
2363	AfPS GS 2014	0.24		-0.60	
2365	AfPS GS 2014	0.31		0.73	
2366	AfPS GS 2014	0.25		-0.41	
2369	AfPS GS 2014	0.2		-1.35	
2370	AfPS GS 2014	0.239		-0.62	
2372		0.254		-0.33	
2374	AfPS GS 2014	0.2		-1.35	
2375	AfPS GS 2014	0.29		0.35	
2379	AfPS GS 2014	Not detected		-----	
2380	AfPS GS 2014	0.32		0.92	
2382	AfPS GS 2014	0.24		-0.60	
2384	AfPS GS 2014	0.25		-0.41	
2386	AfPS GS 2014	0.272		0.01	
2390		-----		-----	
2481	In house	0.187		-1.60	
2482		-----		-----	
2492		-----		-----	
2495		-----		-----	
2497	AfPS GS 2014	0.542	R(0.01)	5.12	
2500		-----		-----	
2504	AfPS GS 2014	0.43		3.00	
2525	AfPS GS 2014	0.34		1.29	
2532	AfPS GS 2014	0.39		2.24	
2553	In house	ND		-----	
2561		-----		-----	
2563	AfPS GS 2014	0.33		1.11	
2590		-----		-----	
2612	AfPS GS 2014	<0.2		-----	
2674	AfPS GS 2014	0.34		1.29	
2687	ZEK01.4-08	Not Detected	C	-----	first reported: 0.657
2705	In house	0.4	ex	2.43	test result excluded, see §4.1
2713	In house	0.26		-0.22	
2718	AfPS GS 2014	0.372		1.90	
2730		-----		-----	
2743		-----		-----	
2791	AfPS GS 2014	0.28		0.16	
2803	ZEK01.4-08	0.22	C	-0.98	first reported: 0.75
2807	ZEK01.4-08	0.26		-0.22	
2812	AfPS GS 2014	0.22	C	-0.98	first reported: 0.762
2826	AfPS GS 2014	0.26		-0.22	
2841	In house	0.226		-0.86	

lab	method	value	mark	z(targ)	remarks
2858	In house	n.d		-----	
2863		-----		-----	
2864	AfPS GS 2014	0.263		-0.16	
2867	AfPS GS 2014	0.283		0.22	
3100	AfPS GS 2014	0.21		-1.16	
3116		0.208		-1.20	
3118		-----		-----	
3146	AfPS GS 2014	0.206		-1.24	
3150	AfPS GS 2014	<0,2		-----	
3153	AfPS GS 2014	0.24		-0.60	
3154		-----		-----	
3160		0.5	R(0.05)	4.32	
3163		-----		-----	
3172	AfPS GS 2014	<0.2		-----	
3182	AfPS GS 2014	0.26		-0.22	
3185	AfPS GS 2014	0.26		-0.22	
3190	AfPS GS 2014	0.20		-1.35	
3192	AfPS GS 2014	0.26		-0.22	
3197	AfPS GS 2014	0.34		1.29	
3210	AfPS GS 2014	0.2391		-0.61	
3214	AfPS GS 2014	0.26		-0.22	
3218	AfPS GS 2014	0.223		-0.92	
3220		-----		-----	
3228	AfPS GS 2014	0.27		-0.03	
3237		-----		-----	
3248		-----		-----	

	normality	not OK
	n	63
	outliers	4 +(2ex)
	mean (n)	0.2715
	st.dev. (n)	0.05632
	R(calc.)	0.1577
	st.dev.(Horwitz)	0.05287
	R(Horwitz)	0.1480

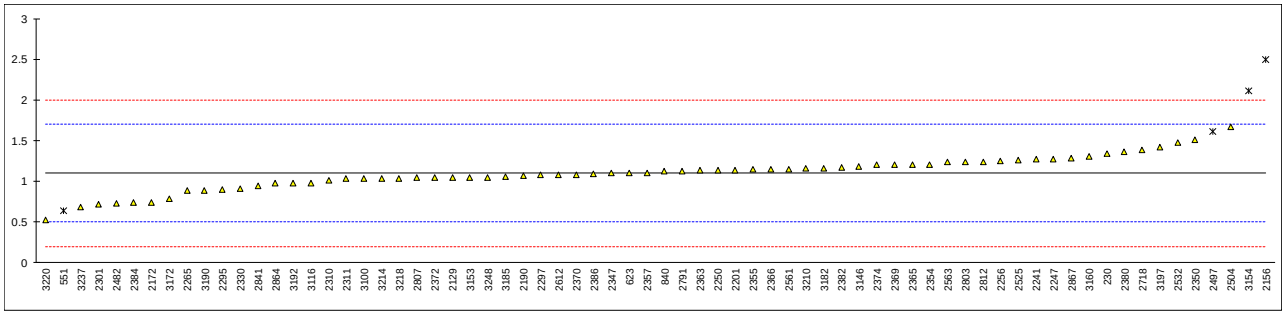


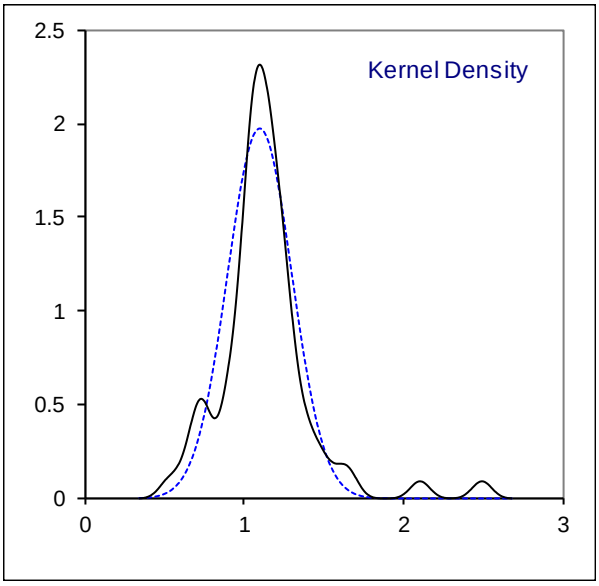


Determination of Sum of [b],[j] and [k] Benzofluoranthenes in sample #19502; results in mg/kg

lab	method	value	mark	z(targ)	remarks
230	EPA610	1.337		0.79	
310		-----		-----	
339		-----		-----	
551	In house	0.6339	E,ex	-1.55	iis calc.0.7134, test result excluded, see §4.1
623	AfPS GS 2014	1.10		0.00	
840	AfPS GS 2014	1.12		0.07	
841	AfPS GS 2014	ND		-----	
1213		-----		-----	
2115		-----		-----	
2129	AfPS GS 2014	1.05		-0.17	
2146		-----		-----	
2156	AfPS GS 2014	2.50	E,C,R(0.01)	4.66	iis calc. 2.70, first reported: 1.95
2165		-----		-----	
2172	AfPS GS 2014	0.744		-1.19	
2184		-----		-----	
2190	AfPS GS 2014	1.07		-0.10	
2201	AfPS GS 2014	1.14		0.13	
2241	AfPS GS 2014	1.27		0.56	
2247	ZEK01.4-08	1.27	E	0.56	iis calc. 1.70
2250	AfPS GS 2014	1.14		0.13	
2256	AfPS GS 2014	1.25		0.50	
2265	AfPS GS 2014	0.890		-0.70	
2267		-----		-----	
2295	AfPS GS 2014	0.9		-0.67	
2297	AfPS GS 2014	1.08		-0.07	
2301		0.72		-1.27	
2310	AfPS GS 2014	1.009		-0.30	
2311	AfPS GS 2014	1.029		-0.24	
2330	AfPS GS 2014	0.905		-0.65	
2347	AfPS GS 2014	1.1		0.00	
2350	AfPS GS 2014	1.515		1.38	
2352		-----		-----	
2354	AfPS GS 2014	1.20142		0.34	
2355	AfPS GS 2014	1.15		0.17	
2357	AfPS GS 2014	1.10		0.00	
2363	AfPS GS 2014	1.14		0.13	
2365	AfPS GS 2014	1.20		0.33	
2366	AfPS GS 2014	1.15		0.17	
2369	AfPS GS 2014	1.2		0.33	
2370	AfPS GS 2014	1.083		-0.06	
2372		1.043		-0.19	
2374	AfPS GS 2014	1.2		0.33	
2375		-----		-----	
2379	AfPS GS 2014	Not detected		-----	
2380	AfPS GS 2014	1.36		0.86	
2382	AfPS GS 2014	1.17		0.23	
2384	AfPS GS 2014	0.74		-1.20	
2386	AfPS GS 2014	1.088		-0.04	
2390		-----		-----	
2481		-----		-----	
2482	AfPS GS 2014	0.731		-1.23	
2492		-----		-----	
2495		-----		-----	
2497	AfPS GS 2014	1.615	ex	1.71	test result excluded, see §4.1
2500		-----		-----	
2504	AfPS GS 2014	1.67		1.90	
2525	AfPS GS 2014	1.26	E	0.53	iis calc. 0.34
2532	AfPS GS 2014	1.47		1.23	
2553	In house	ND		-----	
2561	AfPS GS 2014	1.152		0.17	
2563	AfPS GS 2014	1.24		0.46	
2590		-----		-----	
2612	AfPS GS 2014	1.08	E,C	-0.07	iis calc. 0.4, first reported: 0.4
2674		-----		-----	
2687		-----		-----	
2705		-----		-----	
2713		-----		-----	
2718	AfPS GS 2014	1.386		0.95	
2730		-----		-----	
2743		-----		-----	
2791	AfPS GS 2014	1.12		0.07	
2803	ZEK01.4-08	1.24	C	0.46	first reported: 3.24
2807	ZEK01.4-08	1.04		-0.20	
2812	AfPS GS 2014	1.24	C	0.46	first reported: 2.446
2826		-----		-----	
2841	In house	0.944	C	-0.52	first reported: 0.315

lab	method	value	mark	z(targ)	remarks
2858		-----	W	-----	first reported: 1.969
2863		-----		-----	
2864	AfPS GS 2014	0.978	E	-0.41	iis calc. 0.263
2867	AfPS GS 2014	1.278		0.59	
3100	AfPS GS 2014	1.03		-0.23	
3116		0.981		-0.40	
3118		-----		-----	
3146	AfPS GS 2014	1.186	E	0.29	iis calc. 0.206
3150		-----		-----	
3153	AfPS GS 2014	1.05		-0.17	
3154	ZEK01.4-08	2.11	C, R(0.01)	3.36	first reported: 1.73
3160		1.3		0.66	
3163		-----		-----	
3172	AfPS GS 2014	0.787		-1.04	
3182	AfPS GS 2014	1.16		0.20	
3185	AfPS GS 2014	1.06		-0.13	
3190	AfPS GS 2014	0.89		-0.70	
3192	AfPS GS 2014	0.98		-0.40	
3197	AfPS GS 2014	1.42		1.06	
3210	AfPS GS 2014	1.154	E	0.18	iis calc. 0.2391
3214	AfPS GS 2014	1.03		-0.23	
3218	AfPS GS 2014	1.036		-0.21	
3220	AfPS GS 2014	0.529		-1.90	
3228		-----		-----	
3237	AfPS GS 2014	0.684		-1.39	
3248	In house	1.05	C	-0.17	first reported: 2.0
	normality	suspect			
	n	66			
	outliers	2 +(2ex)			
	mean (n)	1.1003			
	st.dev. (n)	0.20245	RSD=18%		
	R(calc.)	0.5669			
	st.dev.(Horwitz 3 comp.)	0.30057			
	R(Horwitz 3 comp.)	0.8416			

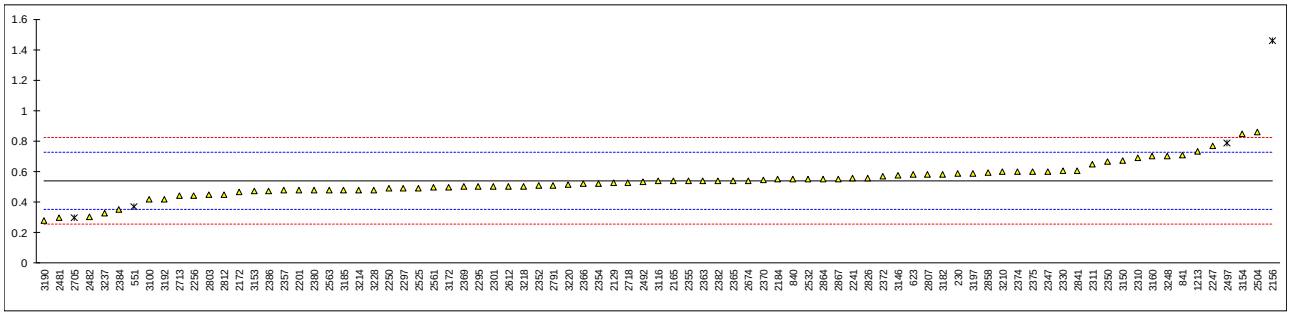


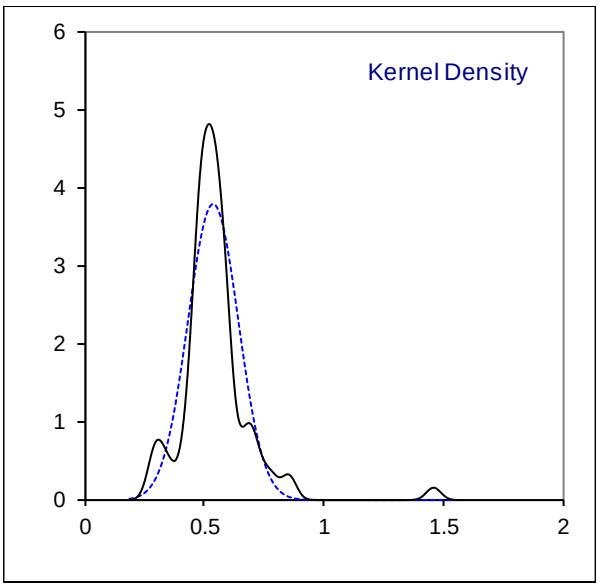


Determination of Benzo[e]pyrene in sample #19502; results in mg/kg

lab	method	value	mark	z(targ)	remarks
230	EPA610	0.5893		0.54	
310		-----		-----	
339		-----		-----	
551	In house	0.367	C,ex	-1.81	first reported: 0.2278, test result excluded, see §4.1
623	AfPS GS 2014	0.58		0.44	
840	AfPS GS 2014	0.55		0.12	
841	AfPS GS 2014	0.71		1.81	
1213	AfPS GS 2014	0.73		2.03	
2115		-----		-----	
2129	AfPS GS 2014	0.53		-0.09	
2146		-----		-----	
2156	AfPS GS 2014	1.46	C,R(0.01)	9.74	first reported: 1.10
2165	AfPS GS 2014	0.54		0.02	
2172	AfPS GS 2014	0.465		-0.78	
2184	AfPS GS 2014	0.55		0.12	
2190	AfPS GS 2014	<0.2		<-3.58	possibly a false negative test result?
2201	AfPS GS 2014	0.48		-0.62	
2241	AfPS GS 2014	0.56		0.23	
2247	ZEK01.4-08	0.77		2.45	
2250	AfPS GS 2014	0.49		-0.51	
2256	AfPS GS 2014	0.444		-1.00	
2265	AfPS GS 2014	<0,2		<-3.58	possibly a false negative test result?
2267		-----		-----	
2295	AfPS GS 2014	0.5		-0.41	
2297	AfPS GS 2014	0.49		-0.51	
2301		0.50		-0.41	
2310	AfPS GS 2014	0.689		1.59	
2311	AfPS GS 2014	0.650		1.18	
2330	AfPS GS 2014	0.603		0.68	
2347	AfPS GS 2014	0.6		0.65	
2350	AfPS GS 2014	0.667		1.36	
2352	AfPS GS 2014	0.51		-0.30	
2354	AfPS GS 2014	0.52351		-0.16	
2355	AfPS GS 2014	0.54		0.02	
2357	AfPS GS 2014	0.48		-0.62	
2363	AfPS GS 2014	0.54		0.02	
2365	AfPS GS 2014	0.54		0.02	
2366	AfPS GS 2014	0.52		-0.20	
2369	AfPS GS 2014	0.5		-0.41	
2370	AfPS GS 2014	0.548		0.10	
2372		0.567		0.30	
2374	AfPS GS 2014	0.6		0.65	
2375	AfPS GS 2014	0.60		0.65	
2379	AfPS GS 2014	Not detected		-----	
2380	AfPS GS 2014	0.48	C	-0.62	first reported: 0.91
2382	AfPS GS 2014	0.54		0.02	
2384	AfPS GS 2014	0.35		-1.99	
2386	AfPS GS 2014	0.471		-0.71	
2390		-----		-----	
2481	In house	0.299		-2.53	
2482	AfPS GS 2014	0.304		-2.48	
2492	ZEK01.4-08	0.533		-0.06	
2495		-----		-----	
2497	AfPS GS 2014	0.786	ex	2.62	test result excluded, see §4.1
2500		-----		-----	
2504	AfPS GS 2014	0.86		3.40	
2525	AfPS GS 2014	0.49		-0.51	
2532	AfPS GS 2014	0.55		0.12	
2553	In house	ND		-----	
2561	AfPS GS 2014	0.495		-0.46	
2563	AfPS GS 2014	0.48		-0.62	
2590		-----		-----	
2612	AfPS GS 2014	0.5	C	-0.41	first reported: 0.25
2674	AfPS GS 2014	0.54		0.02	
2687		-----		-----	
2705	In house	0.3	ex	-2.52	test result excluded, see §4.1
2713	In house	0.44		-1.04	
2718	AfPS GS 2014	0.530		-0.09	
2730		-----		-----	
2743		-----		-----	
2791	AfPS GS 2014	0.51		-0.30	
2803	ZEK01.4-08	0.45	C	-0.94	first reported: 1.47
2807	ZEK01.4-08	0.58		0.44	
2812	AfPS GS 2014	0.45	C	-0.94	first reported: 0.963
2826	AfPS GS 2014	0.56		0.23	
2841	In house	0.603		0.68	

lab	method	value	mark	z(targ)	remarks
2858	In house	0.592	C	0.57	first reported: 1.281
2863		-----		-----	
2864	AfPS GS 2014	0.550		0.12	
2867	AfPS GS 2014	0.553		0.15	
3100	AfPS GS 2014	0.42		-1.25	
3116		0.537		-0.02	
3118		-----		-----	
3146	AfPS GS 2014	0.574		0.38	
3150	AfPS GS 2014	0.67		1.39	
3153	AfPS GS 2014	0.47		-0.72	
3154	ZEK01.4-08	0.85	C	3.29	first reported: 0.91
3160		0.7		1.71	
3163		-----		-----	
3172	AfPS GS 2014	0.496		-0.45	
3182	AfPS GS 2014	0.58		0.44	
3185	AfPS GS 2014	0.48		-0.62	
3190	AfPS GS 2014	0.28		-2.73	
3192	AfPS GS 2014	0.42		-1.25	
3197	AfPS GS 2014	0.59		0.55	
3210	AfPS GS 2014	0.5971		0.62	
3214	AfPS GS 2014	0.48		-0.62	
3218	AfPS GS 2014	0.503		-0.37	
3220	AfPS GS 2014	0.516		-0.24	
3228	AfPS GS 2014	0.48		-0.62	
3237	AfPS GS 2014	0.329		-2.21	
3248	In house	0.7		1.71	
	normality	suspect			
	n	79			
	outliers	1 +(3ex)			
	mean (n)	0.5385			
	st.dev. (n)	0.10511	RSD=20%		
	R(calc.)	0.2943			
	st.dev.(Horwitz)	0.09457			
	R(Horwitz)	0.2648			





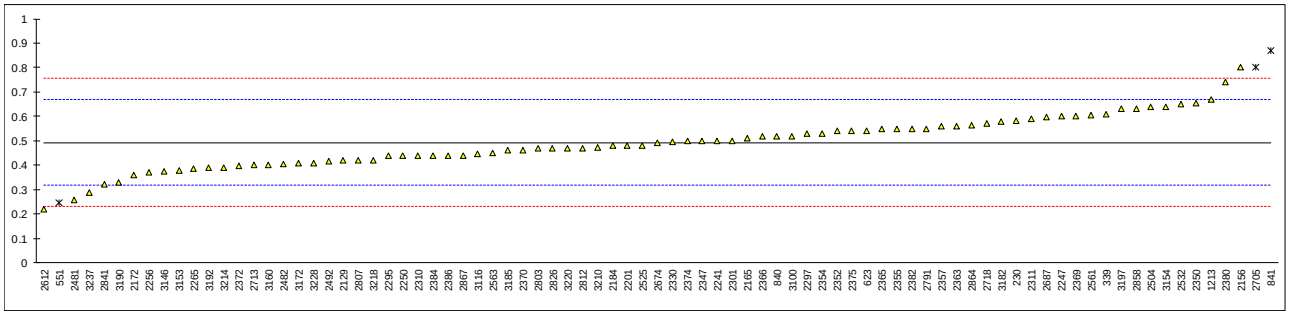
Determination of Benzo[a]pyrene in sample #19502; results in mg/kg

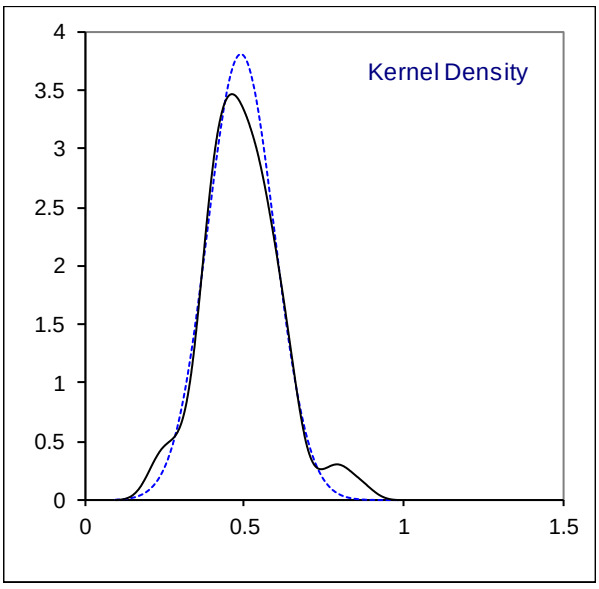
lab	method	value	mark	z(targ)	remarks
230	EPA610	0.5831		1.03	
310		-----		-----	
339	In house	0.610		1.33	
551	In house	0.2477	ex	-2.80	test result excluded, see §4.1
623	AfPS GS 2014	0.54		0.54	
840	AfPS GS 2014	0.52		0.31	
841	AfPS GS 2014	0.87	R(0.05)	4.30	
1213	AfPS GS 2014	0.67		2.02	
2115		-----		-----	
2129	AfPS GS 2014	0.42		-0.83	
2146		-----		-----	
2156	AfPS GS 2014	0.80		3.50	
2165	AfPS GS 2014	0.51		0.19	
2172	AfPS GS 2014	0.359		-1.53	
2184	AfPS GS 2014	0.48		-0.15	
2190	AfPS GS 2014	<0.2		<-3.34	possibly a false negative test result?
2201	AfPS GS 2014	0.48		-0.15	
2241	AfPS GS 2014	0.50		0.08	
2247	ZEK01.4-08	0.60		1.22	
2250	AfPS GS 2014	0.44		-0.60	
2256	AfPS GS 2014	0.370		-1.40	
2265	AfPS GS 2014	0.385		-1.23	
2267		-----		-----	
2295	AfPS GS 2014	0.44		-0.60	
2297	AfPS GS 2014	0.53		0.42	
2301		0.50		0.08	
2310	AfPS GS 2014	0.44		-0.60	
2311	AfPS GS 2014	0.5896		1.10	
2330	AfPS GS 2014	0.495		0.02	
2347	AfPS GS 2014	0.5		0.08	
2350	AfPS GS 2014	0.655		1.85	
2352	AfPS GS 2014	0.54		0.54	
2354	AfPS GS 2014	0.53061		0.43	
2355	AfPS GS 2014	0.55		0.65	
2357	AfPS GS 2014	0.56		0.76	
2363	AfPS GS 2014	0.56		0.76	
2365	AfPS GS 2014	0.55		0.65	
2366	AfPS GS 2014	0.52		0.31	
2369	AfPS GS 2014	0.6		1.22	
2370	AfPS GS 2014	0.462		-0.35	
2372		0.399		-1.07	
2374	AfPS GS 2014	0.5		0.08	
2375	AfPS GS 2014	0.54		0.54	
2379	AfPS GS 2014	Not detected		-----	
2380	AfPS GS 2014	0.74		2.82	
2382	AfPS GS 2014	0.55		0.65	
2384	AfPS GS 2014	0.44		-0.60	
2386	AfPS GS 2014	0.440		-0.60	
2390		-----		-----	
2481	In house	0.257		-2.69	
2482	AfPS GS 2014	0.405		-1.00	
2492	ZEK01.4-08	0.418		-0.85	
2495		-----		-----	
2497		-----		-----	
2500		-----		-----	
2504	AfPS GS 2014	0.64		1.68	
2525	AfPS GS 2014	0.48		-0.15	
2532	AfPS GS 2014	0.65		1.79	
2553	In house	ND		-----	
2561	AfPS GS 2014	0.606		1.29	
2563	AfPS GS 2014	0.45		-0.49	
2590		-----		-----	
2612	AfPS GS 2014	0.22		-3.11	
2674	AfPS GS 2014	0.49		-0.03	
2687	ZEK01.4-08	0.599		1.21	
2705	In house	0.8	ex	3.50	test result excluded, see §4.1
2713	In house	0.40		-1.06	
2718	AfPS GS 2014	0.572		0.90	
2730		-----		-----	
2743		-----		-----	
2791	AfPS GS 2014	0.55		0.65	
2803	ZEK01.4-08	0.47	C	-0.26	first reported: 1.35
2807	ZEK01.4-08	0.42		-0.83	
2812	AfPS GS 2014	0.471		-0.25	
2826	AfPS GS 2014	0.47		-0.26	
2841	In house	0.322		-1.95	

lab	method	value	mark	z(targ)	remarks
2858	In house	0.631	C	1.57	first reported: 1.195
2863		-----		-----	
2864	AfPS GS 2014	0.565		0.82	
2867	AfPS GS 2014	0.440		-0.60	
3100	AfPS GS 2014	0.52		0.31	
3116		0.446		-0.53	
3118		-----		-----	
3146	AfPS GS 2014	0.373		-1.37	
3150	AfPS GS 2014	<0,2		<-3.34	possibly a false negative test result?
3153	AfPS GS 2014	0.38		-1.29	
3154	ZEK01.4-08	0.64		1.68	
3160		0.4		-1.06	
3163		-----		-----	
3172	AfPS GS 2014	0.408		-0.97	
3182	AfPS GS 2014	0.58		0.99	
3185	AfPS GS 2014	0.46		-0.37	
3190	AfPS GS 2014	0.33		-1.86	
3192	AfPS GS 2014	0.39		-1.17	
3197	AfPS GS 2014	0.63		1.56	
3210	AfPS GS 2014	0.4742		-0.21	
3214	AfPS GS 2014	0.39		-1.17	
3218	AfPS GS 2014	0.420		-0.83	
3220	AfPS GS 2014	0.470		-0.26	
3228	AfPS GS 2014	0.41		-0.94	
3237	AfPS GS 2014	0.286		-2.36	
3248		-----		-----	

normality	OK
n	80
outliers	1 +(2ex)
mean (n)	0.4929
st.dev. (n)	0.10477
R(calc.)	0.2934
st.dev.(Horwitz)	0.08772
R(Horwitz)	0.2456

RSD=21%

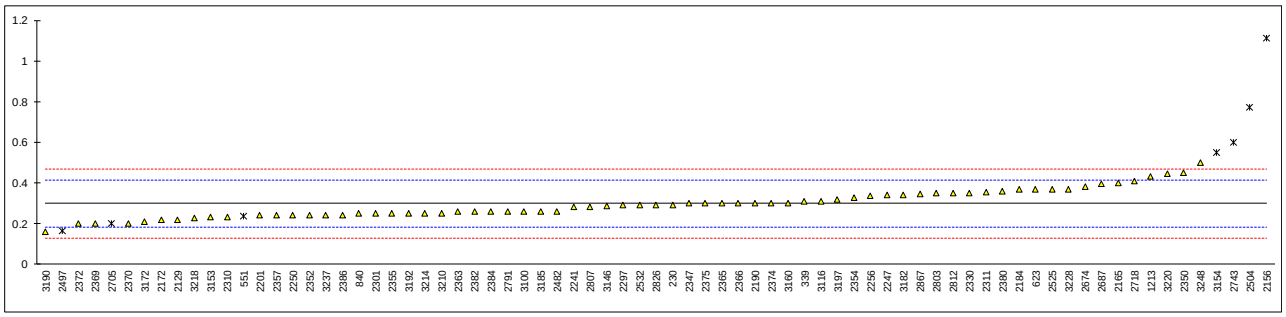


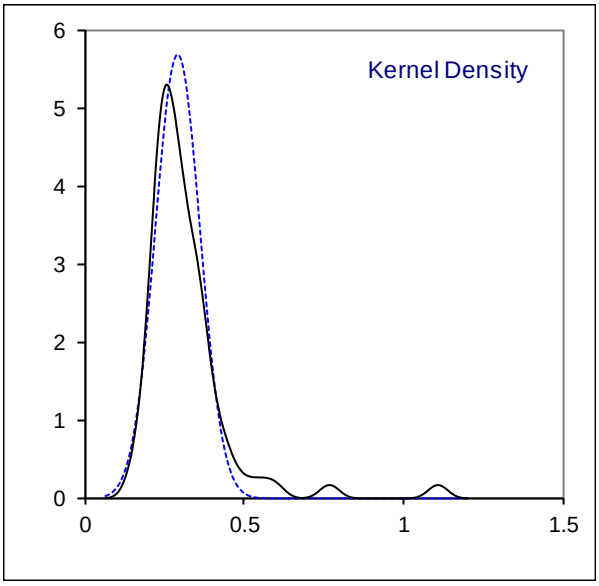


Determination of Indeno[1,2,3-c,d]pyrene in sample #19502; results in mg/kg

lab	method	value	mark	z(targ)	remarks
230	EPA610	0.2933		-0.08	
310		-----		-----	
339	In house	0.308		0.18	
551	In house	0.2377	ex	-1.05	test result excluded, see §4.1
623	AfPS GS 2014	0.37		1.26	
840	AfPS GS 2014	0.25		-0.84	
841	AfPS GS 2014	ND		-----	
1213	AfPS GS 2014	0.43		2.31	
2115		-----		-----	
2129	AfPS GS 2014	0.22		-1.36	
2146		-----		-----	
2156	AfPS GS 2014	1.11	C,R(0.01)	14.20	first reported: 0.95
2165	AfPS GS 2014	0.40		1.78	
2172	AfPS GS 2014	0.218		-1.40	
2184	AfPS GS 2014	0.37		1.26	
2190	AfPS GS 2014	0.30		0.04	
2201	AfPS GS 2014	0.24		-1.01	
2241	AfPS GS 2014	0.28		-0.31	
2247	ZEK01.4-08	0.34	C	0.73	first reported: 0.54
2250	AfPS GS 2014	0.24		-1.01	
2256	AfPS GS 2014	0.336		0.66	
2265	AfPS GS 2014	<0,2		-----	
2267		-----		-----	
2295		-----		-----	
2297	AfPS GS 2014	0.29		-0.14	
2301		0.25		-0.84	
2310	AfPS GS 2014	0.232		-1.15	
2311	AfPS GS 2014	0.355		1.00	
2330	AfPS GS 2014	0.352		0.94	
2347	AfPS GS 2014	0.3		0.04	
2350	AfPS GS 2014	0.451		2.68	
2352	AfPS GS 2014	0.24		-1.01	
2354	AfPS GS 2014	0.32574		0.49	
2355	AfPS GS 2014	0.25		-0.84	
2357	AfPS GS 2014	0.24		-1.01	
2363	AfPS GS 2014	0.26		-0.66	
2365	AfPS GS 2014	0.30		0.04	
2366	AfPS GS 2014	0.30		0.04	
2369	AfPS GS 2014	0.2		-1.71	
2370	AfPS GS 2014	0.202		-1.68	
2372		0.200		-1.71	
2374	AfPS GS 2014	0.3		0.04	
2375	AfPS GS 2014	0.30		0.04	
2379	AfPS GS 2014	Not detected		-----	
2380	AfPS GS 2014	0.36		1.08	
2382	AfPS GS 2014	0.26		-0.66	
2384	AfPS GS 2014	0.26		-0.66	
2386	AfPS GS 2014	0.243		-0.96	
2390		-----		-----	
2481		-----		-----	
2482	AfPS GS 2014	0.261		-0.65	
2492		-----		-----	
2495		-----		-----	
2497	AfPS GS 2014	0.162	ex	-2.38	test result excluded, see §4.1
2500		-----		-----	
2504	AfPS GS 2014	0.77	R(0.01)	8.25	
2525	AfPS GS 2014	0.37		1.26	
2532	AfPS GS 2014	0.29		-0.14	
2553	In house	ND		-----	
2561		-----		-----	
2563	AfPS GS 2014	<0,2		-----	
2590		-----		-----	
2612	AfPS GS 2014	<0.2		-----	
2674	AfPS GS 2014	0.38		1.43	
2687	ZEK01.4-08	0.395		1.70	
2705	In house	0.2	ex	-1.71	test result excluded, see §4.1
2713		-----		-----	
2718	AfPS GS 2014	0.411		1.98	
2730		-----		-----	
2743	ZEK01.4-08	0.5985	C,R(0.05)	5.25	first reported: 1.267333
2791	AfPS GS 2014	0.26		-0.66	
2803	ZEK01.4-08	0.35	C	0.91	first reported: 1.08
2807	ZEK01.4-08	0.28		-0.31	
2812	AfPS GS 2014	0.350		0.91	
2826	AfPS GS 2014	0.29		-0.14	
2841	In house	<0.5		-----	

lab	method	value	mark	z(targ)	remarks
2858	In house	n.d		-----	
2863		-----		-----	
2864		-----		-----	
2867	AfPS GS 2014	0.345		0.82	
3100	AfPS GS 2014	0.26		-0.66	
3116		0.310		0.21	
3118		-----		-----	
3146	AfPS GS 2014	0.285		-0.23	
3150	AfPS GS 2014	<0,2		-----	
3153	AfPS GS 2014	0.23		-1.19	
3154	ZEK01.4-08	0.55	R(0.05)	4.41	
3160		0.3		0.04	
3163		-----		-----	
3172	AfPS GS 2014	0.211		-1.52	
3182	AfPS GS 2014	0.34		0.73	
3185	AfPS GS 2014	0.26		-0.66	
3190	AfPS GS 2014	0.16		-2.41	
3192	AfPS GS 2014	0.25		-0.84	
3197	AfPS GS 2014	0.32		0.39	
3210	AfPS GS 2014	0.2513		-0.82	
3214	AfPS GS 2014	0.25		-0.84	
3218	AfPS GS 2014	0.227		-1.24	
3220	AfPS GS 2014	0.447		2.61	
3228	AfPS GS 2014	0.37		1.26	
3237	AfPS GS 2014	0.242		-0.98	
3248	In house	0.5		3.53	
	normality	OK			
	n	68			
	outliers	4 +(3ex)			
	mean (n)	0.2980			
	st.dev. (n)	0.06845	RSD=23%		
	R(calc.)	0.1917			
	st.dev.(Horwitz)	0.05720			
	R(Horwitz)	0.1602			

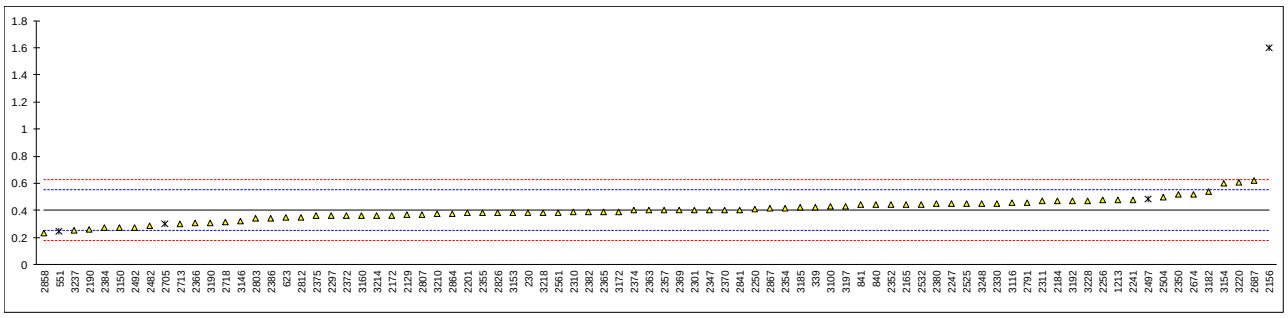


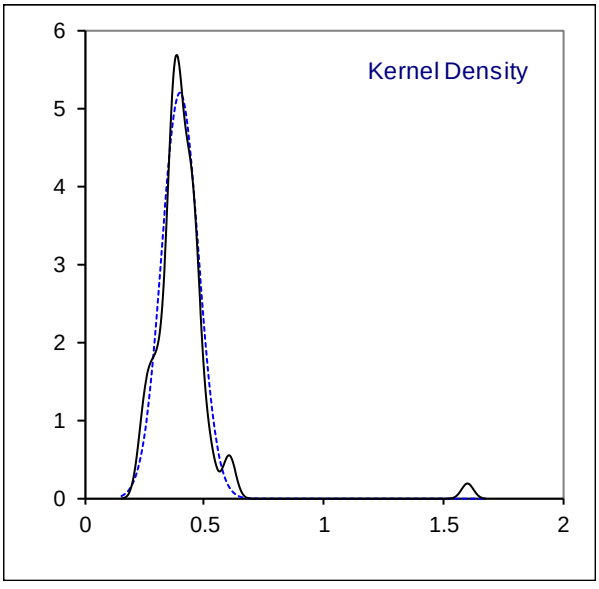


Determination of Benzo[g,h,i]perylene in sample #19502; results in mg/kg

lab	method	value	mark	z(targ)	remarks
230	EPA610	0.3804		-0.30	
310		-----		-----	
339	In house	0.424		0.29	
551	In house	0.2477	ex	-2.10	test result excluded, see §4.1
623	AfPS GS 2014	0.35		-0.71	
840	AfPS GS 2014	0.44		0.50	
841	AfPS GS 2014	0.44		0.50	
1213	AfPS GS 2014	0.48		1.05	
2115		-----		-----	
2129	AfPS GS 2014	0.37		-0.44	
2146		-----		-----	
2156	AfPS GS 2014	1.60	C,R(0.01)	16.20	first reported: 1.10
2165	AfPS GS 2014	0.44		0.50	
2172	AfPS GS 2014	0.364		-0.52	
2184	AfPS GS 2014	0.47		0.91	
2190	AfPS GS 2014	0.26		-1.93	
2201	AfPS GS 2014	0.38		-0.31	
2241	AfPS GS 2014	0.48		1.05	
2247	ZEK01.4-08	0.45	C	0.64	first reported: 0.64
2250	AfPS GS 2014	0.41		0.10	
2256	AfPS GS 2014	0.478		1.02	
2265	AfPS GS 2014	<0,2		-----	
2267		-----		-----	
2295		-----		-----	
2297	AfPS GS 2014	0.36		-0.58	
2301		0.40		-0.04	
2310	AfPS GS 2014	0.389		-0.19	
2311	AfPS GS 2014	0.468		0.88	
2330	AfPS GS 2014	0.453		0.68	
2347	AfPS GS 2014	0.4		-0.04	
2350	AfPS GS 2014	0.519		1.57	
2352	AfPS GS 2014	0.44		0.50	
2354	AfPS GS 2014	0.417357		0.20	
2355	AfPS GS 2014	0.38		-0.31	
2357	AfPS GS 2014	0.40		-0.04	
2363	AfPS GS 2014	0.4		-0.04	
2365	AfPS GS 2014	0.39		-0.17	
2366	AfPS GS 2014	0.31		-1.25	
2369	AfPS GS 2014	0.4		-0.04	
2370	AfPS GS 2014	0.402		-0.01	
2372		0.360		-0.58	
2374	AfPS GS 2014	0.4		-0.04	
2375	AfPS GS 2014	0.36		-0.58	
2379	AfPS GS 2014	ND	C	-----	first reported: 0.736
2380	AfPS GS 2014	0.45		0.64	
2382	AfPS GS 2014	0.39		-0.17	
2384	AfPS GS 2014	0.27		-1.80	
2386	AfPS GS 2014	0.342		-0.82	
2390		-----		-----	
2481		-----		-----	
2482	AfPS GS 2014	0.286		-1.58	
2492	ZEK01.4-08	0.275		-1.73	
2495		-----		-----	
2497	AfPS GS 2014	0.482	ex	1.07	test result excluded, see §4.1
2500		-----		-----	
2504	AfPS GS 2014	0.50		1.32	
2525	AfPS GS 2014	0.45		0.64	
2532	AfPS GS 2014	0.44		0.50	
2553	In house	ND		-----	
2561	AfPS GS 2014	0.384		-0.25	
2563	AfPS GS 2014	<0,2		-----	
2590		-----		-----	
2612	AfPS GS 2014	<0.2		-----	
2674	AfPS GS 2014	0.52		1.59	
2687	ZEK01.4-08	0.620		2.94	
2705	In house	0.3	ex	-1.39	test result excluded, see §4.1
2713	In house	0.30		-1.39	
2718	AfPS GS 2014	0.314		-1.20	
2730		-----		-----	
2743		-----		-----	
2791	AfPS GS 2014	0.46		0.78	
2803	ZEK01.4-08	0.34	C	-0.85	first reported: 0.86
2807	ZEK01.4-08	0.37		-0.44	
2812	AfPS GS 2014	0.350		-0.71	
2826	AfPS GS 2014	0.38		-0.31	
2841	In house	0.405		0.03	

lab	method	value	mark	z(targ)	remarks
2858	In house	0.234	C	-2.28	first reported: 2.352
2863		-----		-----	
2864	AfPS GS 2014	0.378		-0.33	
2867	AfPS GS 2014	0.415		0.17	
3100	AfPS GS 2014	0.43		0.37	
3116		0.456		0.72	
3118		-----		-----	
3146	AfPS GS 2014	0.324		-1.07	
3150	AfPS GS 2014	0.27		-1.80	
3153	AfPS GS 2014	0.38		-0.31	
3154	ZEK01.4-08	0.60		2.67	
3160		0.36	C	-0.58	first reported: 0.72
3163		-----		-----	
3172	AfPS GS 2014	0.391		-0.16	
3182	AfPS GS 2014	0.54		1.86	
3185	AfPS GS 2014	0.42		0.23	
3190	AfPS GS 2014	0.31		-1.25	
3192	AfPS GS 2014	0.47		0.91	
3197	AfPS GS 2014	0.43		0.37	
3210	AfPS GS 2014	0.3723		-0.41	
3214	AfPS GS 2014	0.36		-0.58	
3218	AfPS GS 2014	0.383		-0.27	
3220	AfPS GS 2014	0.604		2.72	
3228	AfPS GS 2014	0.47		0.91	
3237	AfPS GS 2014	0.254		-2.01	
3248	In house	0.45	C	0.64	first reported: 0.7
	normality	OK			
	n	78			
	outliers	1 +(3ex)			
	mean (n)	0.4027			
	st.dev. (n)	0.07681	RSD=19%		
	R(calc.)	0.2151			
	st.dev.(Horwitz)	0.07389			
	R(Horwitz)	0.2069			



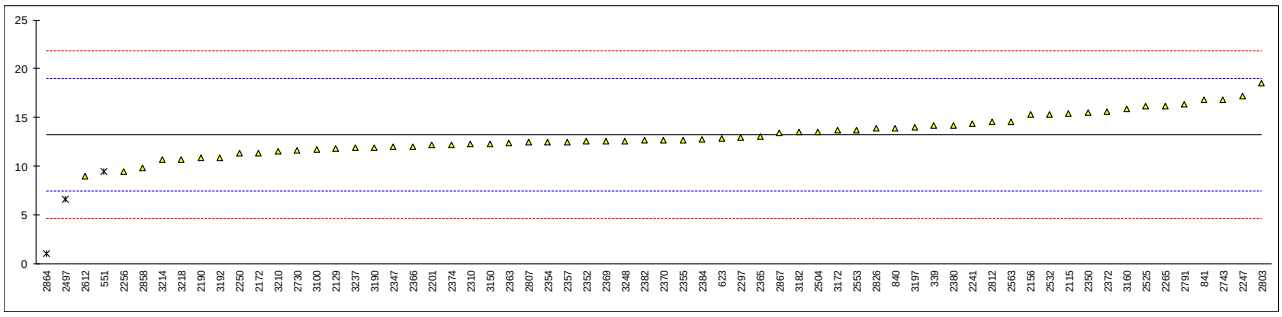


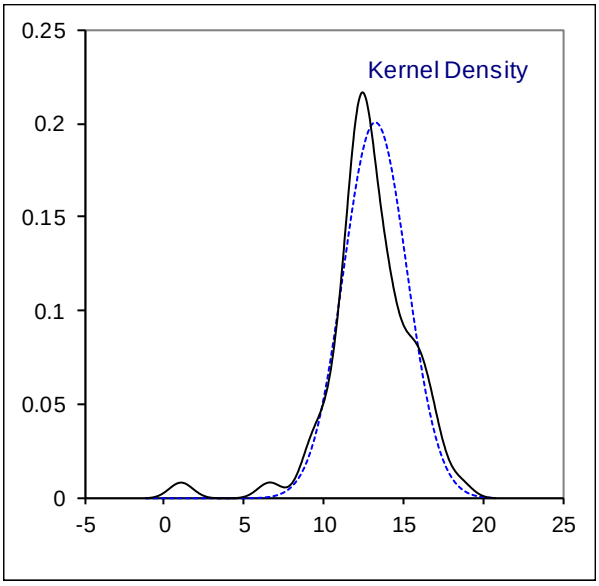
Determination of Total PAH in sample #19503; results in mg/kg

lab	method	value	mark	z(targ)	iis calc.*)	mark	remarks
230		-----		-----	13.98		
310		-----		-----	-----		
339	In house	14.14		0.31	14.14		
551	In house	9.4458	ex	-1.32	10.22		see §4.1
623	AfPS GS 2014	12.86		-0.13	12.86		
840	AfPS GS 2014	13.94		0.24	13.94		
841	AfPS GS 2014	16.81		1.24	16.68		
1213		-----		-----	14.77		
2115	AfPS GS 2014	15.4		0.75	13.05		
2129	AfPS GS 2014	11.78		-0.51	11.79		
2146		-----		-----	-----		
2156	AfPS GS 2014	15.30		0.72	15.15		
2165		-----		-----	12.79		
2172	AfPS GS 2014	11.37		-0.65	11.37		
2184		-----		-----	12.45		
2190	AfPS GS 2014	10.9		-0.81	8.66		
2201	AfPS GS 2014	12.19		-0.37	12.19		
2241	AfPS GS 2014	14.40		0.40	14.40		
2247	ZEK01.4-08	17.20		1.38	14.17		
2250	AfPS GS 2014	11.32		-0.67	11.33		
2256	AfPS GS 2014	9.46		-1.32	9.46		
2265	AfPS GS 2014	16.20		1.03	16.20		
2267		-----		-----	-----		
2295		-----		-----	12.55		
2297	AfPS GS 2014	12.92		-0.11	12.92		
2301		-----		-----	12.25		
2310	AfPS GS 2014	12.281		-0.33	12.28		
2311		-----		-----	12.63		
2330		-----		-----	13.95		
2347	AfPS GS 2014	12		-0.43	12.00		
2350	AfPS GS 2014	15.504		0.79	15.50		
2352	AfPS GS 2014	12.57		-0.23	12.57		
2354	AfPS GS 2014	12.4755		-0.27	12.48		
2355	AfPS GS 2014	12.72		-0.18	12.72		
2357	AfPS GS 2014	12.49		-0.26	12.49		
2363	AfPS GS 2014	12.4		-0.29	12.40		
2365	AfPS GS 2014	13.02		-0.08	13.02		
2366	AfPS GS 2014	12.00		-0.43	12.00		
2369	AfPS GS 2014	12.6		-0.22	12.60		
2370	AfPS GS 2014	12.68		-0.19	12.68		
2372		15.621		0.83	12.01		
2374	AfPS GS 2014	12.2		-0.36	12.20		
2375		-----		-----	13.78		
2379		-----		-----	-----		
2380	AfPS GS 2014	14.23		0.34	14.23		
2382	AfPS GS 2014	12.67		-0.20	12.67		
2384	AfPS GS 2014	12.78		-0.16	12.78		
2386		-----		-----	12.80		
2390		-----		-----	-----		
2481		-----		-----	5.89		
2482		-----		-----	9.46		
2492		-----		-----	11.17		
2495		-----		-----	-----		
2497	AfPS GS 2014	6.632	ex	-2.30	6.63		see §4.1
2500		-----		-----	-----		
2504	AfPS GS 2014	13.52		0.10	13.52		
2525	AfPS GS 2014	16.13		1.01	17.99		
2532	AfPS GS 2014	15.32		0.72	15.32		
2553	In house	13.67	C	0.15	13.67		first reported: 21.76
2561		-----		-----	6.92		
2563	AfPS GS 2014	14.57		0.46	14.57		
2590		-----		-----	15.04		
2612	AfPS GS 2014	9.0		-1.48	9.00		
2674		-----		-----	12.44		
2687		-----		-----	13.34		
2705		-----		-----	5.50		
2713		-----		-----	15.37		
2718		-----		-----	12.28		
2730		11.66		-0.55	11.66		
2743	ZEK01.4-08	16.85000		1.26	19.07		
2791	AfPS GS 2014	16.35		1.08	16.36		
2803	ZEK01.4-08	18.53		1.84	12.99		
2807	ZEK01.4-08	12.46		-0.27	12.47		
2812	AfPS GS 2014	14.531		0.45	10.26		
2826		13.9		0.23	14.00		
2841		-----		-----	12.15		

lab	method	value	mark	z(targ)	iis calc.*)	mark	remarks
2858	In house	9.873	C	-1.17	9.87		first reported: 19.191
2863		-----		-----	8.31		
2864	AfPS GS 2014	1.093	R(0.01)	-4.23	0.57	R(0.01)	
2867	AfPS GS 2014	13.412		0.06	13.41		
3100	AfPS GS 2014	11.70		-0.54	11.70		
3116		-----		-----	11.57		
3118		-----		-----	10.21		
3146		-----		-----	8.58		
3150	AfPS GS 2014	12.3		-0.33	9.70		
3153		-----		-----	11.16		
3154		-----		-----	12.02		
3160		15.9		0.93	15.90		
3163		-----		-----	17.00		
3172		13.667		0.15	13.67		
3182	AfPS GS 2014	13.50		0.09	13.50		
3185		-----		-----	12.13		
3190	AfPS GS 2014	11.95		-0.45	11.95		
3192	AfPS GS 2014	10.92		-0.81	10.92		
3197	AfPS GS 2014	13.99		0.26	13.99		
3210	AfPS GS 2014	11.561		-0.58	8.26		
3214	AfPS GS 2014	10.66		-0.90	10.66		
3218	AfPS GS 2014	10.714		-0.88	10.71		
3220		-----		-----	9.70		
3228		-----		-----	12.83		
3237	AfPS GS 2014	11.938		-0.45	7.93		
3248	In house	12.6	C	-0.22	12.60		first reported: 25.9
	normality	OK			OK		
	n	61			94		
	outliers	1 +(2ex)			1		
	mean (n)	13.2395			12.3664		
	st.dev. (n)	1.98328	RSD=15%		2.46169	RSD=20%	
	R(calc.)	5.5532			6.8927		
	st.dev.(Horwitz 4 comp.)	2.87185			2.71016		
	R(Horwitz 4 comp.)	8.0412			7.5885		

*) iis calculated the total of 18 PAH whose level in the material is found to exceed 0.2 mg/kg according to AfPS GS 2014

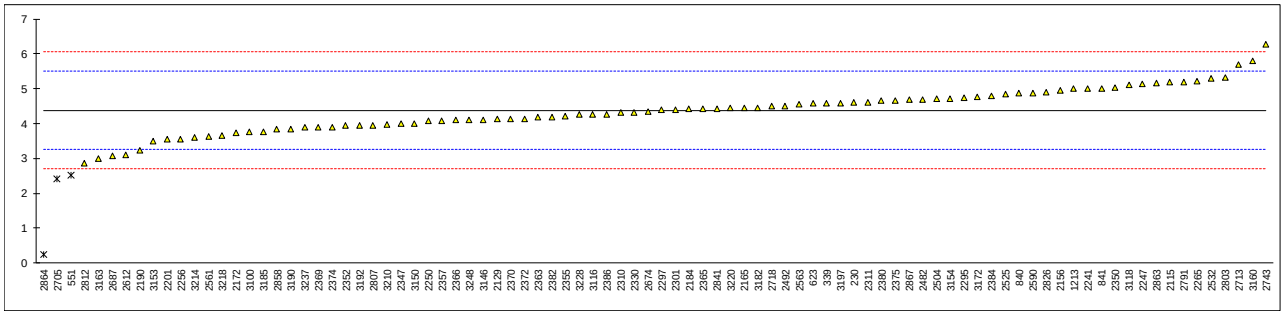


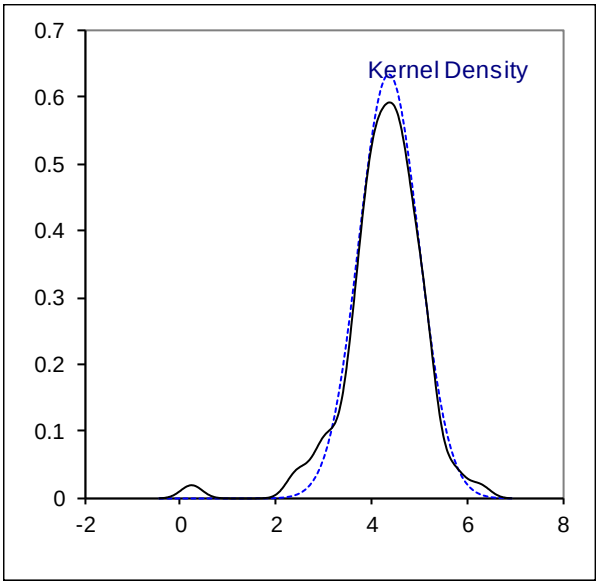


Determination of Phenanthrene in sample #19503; results in mg/kg

lab	method	value	mark	z(targ)	remarks
230	EPA610	4.611		0.42	
310		-----		-----	
339	In house	4.58		0.37	
551	In house	2.518	C,ex	-3.31	first reported: 1.9254, test result excluded, see §4.1
623	AfPS GS 2014	4.58		0.37	
840	AfPS GS 2014	4.87		0.88	
841	AfPS GS 2014	5.01		1.13	
1213	AfPS GS 2014	5.00		1.12	
2115	AfPS GS 2014	5.20		1.47	
2129	AfPS GS 2014	4.12		-0.45	
2146		-----		-----	
2156	AfPS GS 2014	4.95		1.03	
2165	AfPS GS 2014	4.46		0.15	
2172	AfPS GS 2014	3.74		-1.13	
2184	AfPS GS 2014	4.42		0.08	
2190	AfPS GS 2014	3.22		-2.06	
2201	AfPS GS 2014	3.55		-1.47	
2241	AfPS GS 2014	5.01		1.13	
2247	ZEK01.4-08	5.14		1.36	
2250	AfPS GS 2014	4.08		-0.53	
2256	AfPS GS 2014	3.56		-1.45	
2265	AfPS GS 2014	5.220		1.51	
2267		-----		-----	
2295	AfPS GS 2014	4.75		0.67	
2297	AfPS GS 2014	4.39		0.03	
2301	ZEK01.4-08	4.40		0.04	
2310	AfPS GS 2014	4.303		-0.13	
2311	AfPS GS 2014	4.615		0.43	
2330	AfPS GS 2014	4.322		-0.09	
2347	AfPS GS 2014	4.0		-0.67	
2350	AfPS GS 2014	5.042		1.19	
2352	AfPS GS 2014	3.94		-0.78	
2354	AfPS GS 2014	ND		-----	
2355	AfPS GS 2014	4.22		-0.28	
2357	AfPS GS 2014	4.08		-0.53	
2363	AfPS GS 2014	4.19		-0.33	
2365	AfPS GS 2014	4.42		0.08	
2366	AfPS GS 2014	4.10		-0.49	
2369	AfPS GS 2014	3.9		-0.85	
2370	AfPS GS 2014	4.12		-0.45	
2372		4.127		-0.44	
2374	AfPS GS 2014	3.9		-0.85	
2375	AfPS GS 2014	4.66		0.51	
2379		-----		-----	
2380	AfPS GS 2014	4.65		0.49	
2382	AfPS GS 2014	4.19		-0.33	
2384	AfPS GS 2014	4.80		0.76	
2386		4.274		-0.18	
2390		-----		-----	
2481		-----		-----	
2482	AfPS GS 2014	4.69		0.56	
2492	ZEK01.4-08	4.513		0.25	
2495		-----		-----	
2497		-----		-----	
2500		-----		-----	
2504	AfPS GS 2014	4.71		0.60	
2525	AfPS GS 2014	4.85		0.85	
2532	AfPS GS 2014	5.29		1.63	
2553	In house	ND		-----	
2561	AfPS GS 2014	3.636		-1.32	
2563	AfPS GS 2014	4.56		0.33	
2590	AfPS GS 2014	4.882		0.90	
2612	AfPS GS 2014	3.1		-2.27	
2674	AfPS GS 2014	4.34		-0.06	
2687	ZEK01.4-08	3.068		-2.33	
2705	In house	2.4	ex	-3.52	test result excluded, see §4.1
2713	In house	5.70		2.36	
2718	AfPS GS 2014	4.509		0.24	
2730		-----		-----	
2743	ZEK01.4-08	6.27600		3.39	
2791	AfPS GS 2014	5.20		1.47	
2803	ZEK01.4-08	5.33		1.70	
2807	ZEK01.4-08	3.95		-0.76	
2812	AfPS GS 2014	2.850		-2.72	
2826		4.9		0.94	
2841	In house	4.420		0.08	

lab	method	value	mark	z(targ)	remarks
2858	In house	3.827	C	-0.98	first reported: 6.116
2863	AfPS GS 2014	5.15		1.38	
2864	AfPS GS 2014	0.235	R(0.01)	-7.39	
2867	AfPS GS 2014	4.683		0.55	
3100	AfPS GS 2014	3.75		-1.11	
3116		4.26		-0.20	
3118	In house	5.098		1.29	
3146	AfPS GS 2014	4.114		-0.47	
3150	AfPS GS 2014	4.0		-0.67	
3153	AfPS GS 2014	3.50		-1.56	
3154	ZEK01.4-08	4.71		0.60	
3160		5.8		2.54	
3163		3		-2.45	
3172		4.759		0.69	
3182	AfPS GS 2014	4.46		0.15	
3185	AfPS GS 2014	3.77		-1.08	
3190	AfPS GS 2014	3.84		-0.95	
3192	AfPS GS 2014	3.94		-0.78	
3197	AfPS GS 2014	4.58		0.37	
3210	AfPS GS 2014	3.9621		-0.74	
3214	AfPS GS 2014	3.60		-1.38	
3218	AfPS GS 2014	3.646		-1.30	
3220	AfPS GS 2014	4.447		0.13	
3228	AfPS GS 2014	4.25		-0.22	
3237	AfPS GS 2014	3.883		-0.88	
3248	In house	4.1	C	-0.49	first reported: 8.9
	normality	OK			
	n	87			
	outliers	1 +(2ex)			
	mean (n)	4.3749			
	st.dev. (n)	0.63006	RSD=14%		
	R(calc.)	1.7642			
	st.dev.(Horwitz)	0.56055			
	R(Horwitz)	1.5695			

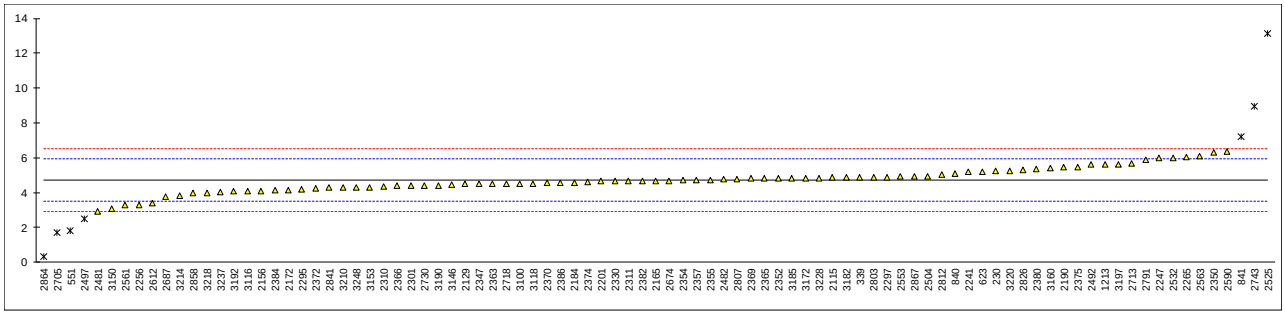


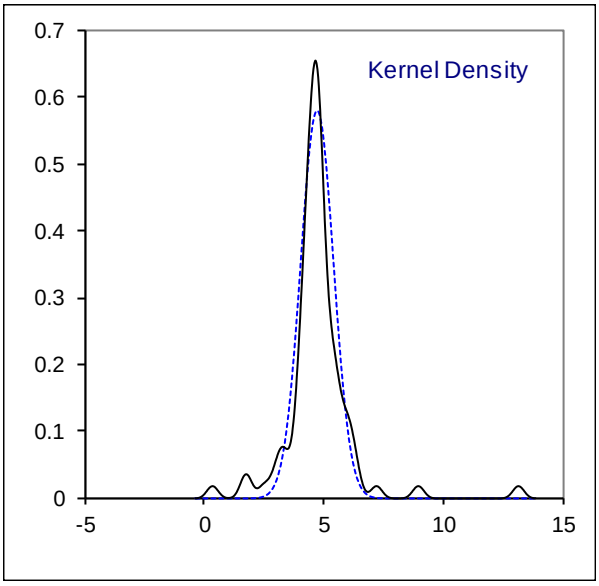


Determination of Benzo[a]anthracene in sample #19503; results in mg/kg

lab	method	value	mark	z(targ)	remarks
230	EPA610	5.224		0.85	
310		-----		-----	
339	In house	4.86		0.24	
551	In house	1.791	C,R(0.05)	-4.90	first reported: 2.2926
623	AfPS GS 2014	5.18		0.78	
840	AfPS GS 2014	5.11		0.66	
841	AfPS GS 2014	7.20	R(0.05)	4.16	
1213	AfPS GS 2014	5.60		1.48	
2115	AfPS GS 2014	4.85	C	0.22	first reported: 7.20
2129	AfPS GS 2014	4.49		-0.38	
2146		-----		-----	
2156	AfPS GS 2014	4.10		-1.03	
2165	AfPS GS 2014	4.67		-0.08	
2172	AfPS GS 2014	4.16		-0.93	
2184	AfPS GS 2014	4.58		-0.23	
2190	AfPS GS 2014	5.44		1.21	
2201	AfPS GS 2014	4.64		-0.13	
2241	AfPS GS 2014	5.17		0.76	
2247	ZEK01.4-08	5.97		2.10	
2250		-----		-----	
2256	AfPS GS 2014	3.29		-2.39	
2265	AfPS GS 2014	6.065		2.26	
2267		-----		-----	
2295	AfPS GS 2014	4.2		-0.86	
2297	AfPS GS 2014	4.88		0.28	
2301	ZEK01.4-08	4.40		-0.53	
2310	AfPS GS 2014	4.343		-0.62	
2311	AfPS GS 2014	4.652		-0.11	
2330	AfPS GS 2014	4.651		-0.11	
2347	AfPS GS 2014	4.5		-0.36	
2350	AfPS GS 2014	6.296		2.65	
2352	AfPS GS 2014	4.81		0.16	
2354	AfPS GS 2014	4.70769		-0.01	
2355	AfPS GS 2014	4.72		0.01	
2357	AfPS GS 2014	4.71		-0.01	
2363	AfPS GS 2014	4.51		-0.34	
2365	AfPS GS 2014	4.80		0.14	
2366	AfPS GS 2014	4.40		-0.53	
2369	AfPS GS 2014	4.8		0.14	
2370	AfPS GS 2014	4.56		-0.26	
2372		4.262		-0.76	
2374	AfPS GS 2014	4.6		-0.19	
2375	AfPS GS 2014	5.44		1.21	
2379		-----		-----	
2380	AfPS GS 2014	5.35		1.06	
2382	AfPS GS 2014	4.66		-0.09	
2384	AfPS GS 2014	4.15		-0.95	
2386		4.561		-0.26	
2390		-----		-----	
2481	In house	2.925		-3.00	
2482	AfPS GS 2014	4.77		0.09	
2492	ZEK01.4-08	5.595		1.47	
2495		-----		-----	
2497	AfPS GS 2014	2.487	ex	-3.73	test result excluded, see §4.1
2500		-----		-----	
2504	AfPS GS 2014	4.95		0.39	
2525	AfPS GS 2014	13.14	C,R(0.01)	14.10	first reported: 7.03
2532	AfPS GS 2014	5.98		2.12	
2553	In house	4.91		0.33	
2561	AfPS GS 2014	3.287		-2.39	
2563	AfPS GS 2014	6.1		2.32	
2590	AfPS GS 2014	6.358		2.75	
2612	AfPS GS 2014	3.4		-2.20	
2674	AfPS GS 2014	4.68		-0.06	
2687	ZEK01.4-08	3.768		-1.59	
2705	In house	1.7	R(0.05)	-5.05	
2713	In house	5.68		1.61	
2718	AfPS GS 2014	4.510		-0.34	
2730		4.40		-0.53	
2743	ZEK01.4-08	8.9500	C,R(0.01)	7.09	first reported: 6.734333
2791	AfPS GS 2014	5.86		1.92	
2803	ZEK01.4-08	4.86	C	0.24	first reported: 6.80
2807	ZEK01.4-08	4.78		0.11	
2812	AfPS GS 2014	5.011		0.49	
2826		5.3		0.98	
2841	In house	4.269		-0.75	

lab	method	value	mark	z(targ)	remarks
2858	In house	3.966	C	-1.25	first reported: 9.340
2863		-----		-----	
2864	AfPS GS 2014	0.338	R(0.01)	-7.33	
2867	AfPS GS 2014	4.918		0.34	
3100	AfPS GS 2014	4.51		-0.34	
3116		4.08		-1.06	
3118	In house	4.510		-0.34	
3146	AfPS GS 2014	4.464		-0.42	
3150	AfPS GS 2014	3.1		-2.70	
3153	AfPS GS 2014	4.32		-0.66	
3154		-----		-----	
3160		5.4		1.15	
3163		-----		-----	
3172		4.82		0.17	
3182	AfPS GS 2014	4.85		0.22	
3185	AfPS GS 2014	4.81		0.16	
3190	AfPS GS 2014	4.40		-0.53	
3192	AfPS GS 2014	4.07		-1.08	
3197	AfPS GS 2014	5.60		1.48	
3210	AfPS GS 2014	4.2981		-0.70	
3214	AfPS GS 2014	3.84		-1.47	
3218	AfPS GS 2014	3.968		-1.25	
3220	AfPS GS 2014	5.253		0.90	
3228	AfPS GS 2014	4.84		0.21	
3237	AfPS GS 2014	4.046		-1.12	
3248	In house	4.3	C	-0.70	first reported: 8.6
	normality	OK			
	n	84			
	outliers	6 +(1ex)			
	mean (n)	4.7157			
	st.dev. (n)	0.68798	RSD=15%		
	R(calc.)	1.9263			
	st.dev.(Horwitz)	0.59743			
	R(Horwitz)	1.6728			





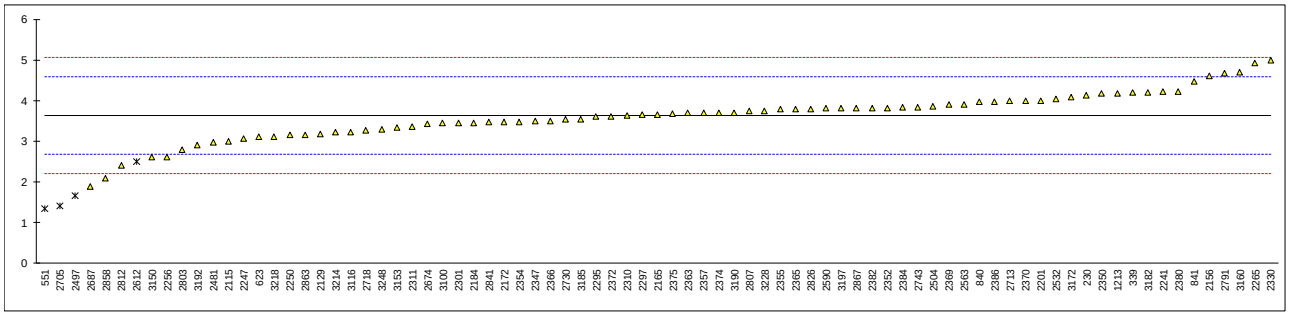
Determination of Benzo[b]fluoranthene in sample #19503; results in mg/kg

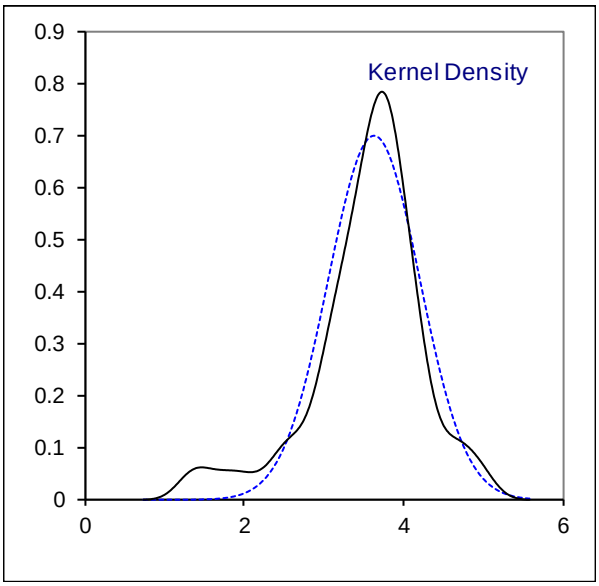
lab	method	value	mark	z(targ)	remarks
230	EPA610	4.141		1.07	
310		-----		-----	
339	In house	4.19		1.17	
551	In house	1.343	C,R(0.05)	-4.78	first reported: 0.5656
623	AfPS GS 2014	3.1		-1.11	
840	AfPS GS 2014	3.96		0.69	
841	AfPS GS 2014	4.47		1.75	
1213	AfPS GS 2014	4.17		1.13	
2115	AfPS GS 2014	3.0		-1.32	
2129	AfPS GS 2014	3.18		-0.94	
2146		-----		-----	
2156	AfPS GS 2014	4.60		2.02	
2165	AfPS GS 2014	3.66		0.06	
2172	AfPS GS 2014	3.47		-0.34	
2184	AfPS GS 2014	3.45		-0.38	
2190		-----		-----	
2201	AfPS GS 2014	4.00		0.77	
2241	AfPS GS 2014	4.22		1.23	
2247	ZEK01.4-08	3.06	C	-1.19	first reported: 6.09
2250	AfPS GS 2014	3.16		-0.98	
2256	AfPS GS 2014	2.605		-2.14	
2265	AfPS GS 2014	4.915		2.68	
2267		-----		-----	
2295	AfPS GS 2014	3.6		-0.06	
2297	AfPS GS 2014	3.65		0.04	
2301	ZEK01.4-08	3.45		-0.38	
2310	AfPS GS 2014	3.635		0.01	
2311	AfPS GS 2014	3.361		-0.56	
2330	AfPS GS 2014	4.980		2.82	
2347	AfPS GS 2014	3.5		-0.27	
2350	AfPS GS 2014	4.166		1.12	
2352	AfPS GS 2014	3.82		0.39	
2354	AfPS GS 2014	3.47476		-0.33	
2355	AfPS GS 2014	3.78		0.31	
2357	AfPS GS 2014	3.70		0.14	
2363	AfPS GS 2014	3.70		0.14	
2365	AfPS GS 2014	3.80		0.35	
2366	AfPS GS 2014	3.50		-0.27	
2369	AfPS GS 2014	3.9		0.56	
2370	AfPS GS 2014	4.00		0.77	
2372		3.616		-0.03	
2374	AfPS GS 2014	3.7		0.14	
2375	AfPS GS 2014	3.68		0.10	
2379		-----		-----	
2380	AfPS GS 2014	4.23		1.25	
2382	AfPS GS 2014	3.82		0.39	
2384	AfPS GS 2014	3.83		0.42	
2386		3.964		0.70	
2390		-----		-----	
2481	In house	2.965		-1.39	
2482		-----		-----	
2492		-----		-----	
2495		-----		-----	
2497	AfPS GS 2014	1.661	ex	-4.12	test result excluded, see §4.1
2500		-----		-----	
2504	AfPS GS 2014	3.86		0.48	
2525		-----		-----	
2532	AfPS GS 2014	4.05		0.88	
2553	In house	ND		-----	
2561		-----		-----	
2563	AfPS GS 2014	3.91		0.58	
2590	AfPS GS 2014	3.804		0.36	
2612	AfPS GS 2014	2.5	ex	-2.36	Reported sum Benzo[b]fluoranthene + Benzo[j]fluoranthene
2674	AfPS GS 2014	3.42		-0.44	
2687	ZEK01.4-08	1.877		-3.67	
2705	In house	1.4	R(0.05)	-4.66	
2713	In house	3.99		0.75	
2718	AfPS GS 2014	3.259		-0.78	
2730		3.55		-0.17	
2743	ZEK01.4-08	3.839667		0.44	
2791	AfPS GS 2014	4.68		2.19	
2803	ZEK01.4-08	2.8	C	-1.74	first reported: 6.40
2807	ZEK01.4-08	3.74		0.23	
2812	AfPS GS 2014	2.4	C	-2.57	first reported: 6.671
2826		3.8		0.35	
2841	In house	3.463		-0.35	

lab	method	value	mark	z(targ)	remarks
2858	In house	2.08	C	-3.24	first no test result was reported
2863	AfPS GS 2014	3.16		-0.98	
2864		-----		-----	
2867	AfPS GS 2014	3.811		0.38	
3100	AfPS GS 2014	3.44		-0.40	
3116		3.23		-0.84	
3118		-----		-----	
3146		-----		-----	
3150	AfPS GS 2014	2.6		-2.15	
3153	AfPS GS 2014	3.34		-0.61	
3154		-----		-----	
3160		4.7		2.23	
3163		-----		-----	
3172		4.088		0.95	
3182	AfPS GS 2014	4.19		1.17	
3185	AfPS GS 2014	3.55		-0.17	
3190	AfPS GS 2014	3.71		0.16	
3192	AfPS GS 2014	2.91		-1.51	
3197	AfPS GS 2014	3.81		0.37	
3210		-----		-----	
3214	AfPS GS 2014	3.22		-0.86	
3218	AfPS GS 2014	3.100		-1.11	
3220		-----		-----	
3228	AfPS GS 2014	3.74		0.23	
3237		-----		-----	
3248	In house	3.3	C	-0.69	first reported: 7.5

normality	suspect
n	77
outliers	2 +(2ex)
mean (n)	3.6311
st.dev. (n)	0.57143
R(calc.)	1.6000
st.dev.(Horwitz)	0.47848
R(Horwitz)	1.3397

RSD=16%

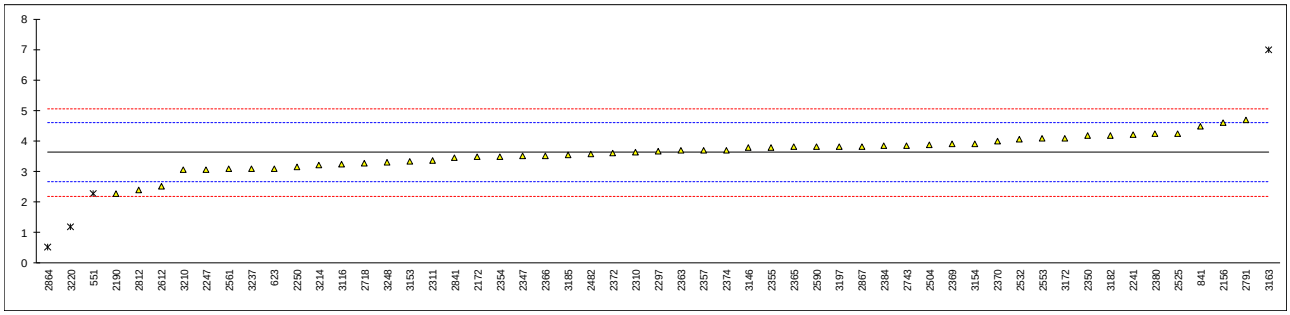


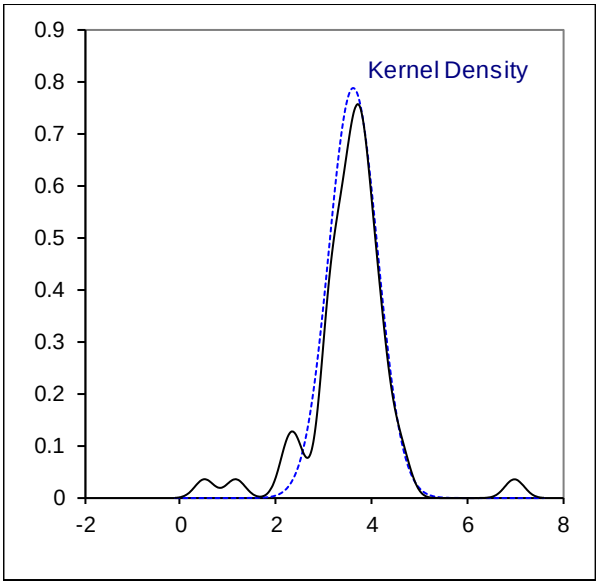


Determination of Sum of [b],[j] and [k] Benzofluoranthenes in sample #19503; results in mg/kg

lab	method	value	mark	z(targ)	remarks
230		-----		-----	
310		-----		-----	
339		-----		-----	
551	In house	2.258	C,ex	-2.87	first reported: 1.5579, iis calc. 2.34, test ex. see §4.1
623	AfPS GS 2014	3.1		-1.11	
840	AfPS GS 2014	not detected		-----	
841	AfPS GS 2014	4.47		1.76	
1213		-----		-----	
2115		-----		-----	
2129		-----		-----	
2146		-----		-----	
2156	AfPS GS 2014	4.60		2.03	iis calc. 5.0
2165		-----		-----	
2172	AfPS GS 2014	3.47		-0.33	
2184		-----		-----	
2190	AfPS GS 2014	2.27		-2.84	
2201	AfPS GS 2014	ND		-----	
2241	AfPS GS 2014	4.22		1.24	
2247	ZEK01.4-08	3.06	C	-1.19	first reported: 6.09
2250	AfPS GS 2014	3.16		-0.98	
2256		-----		-----	
2265		-----		-----	
2267		-----		-----	
2295		-----		-----	
2297	AfPS GS 2014	3.65		0.04	
2301		-----		-----	
2310	AfPS GS 2014	3.635		0.01	
2311	AfPS GS 2014	3.361		-0.56	
2330	AfPS GS 2014	ND		-----	
2347	AfPS GS 2014	3.5		-0.27	
2350	AfPS GS 2014	4.166		1.12	
2352		-----		-----	
2354	AfPS GS 2014	3.47476		-0.32	
2355	AfPS GS 2014	3.78		0.32	
2357	AfPS GS 2014	3.70		0.15	
2363	AfPS GS 2014	3.70		0.15	
2365	AfPS GS 2014	3.80		0.36	
2366	AfPS GS 2014	3.50		-0.27	
2369	AfPS GS 2014	3.9		0.57	
2370	AfPS GS 2014	4.00		0.78	
2372		3.616		-0.03	
2374	AfPS GS 2014	3.7		0.15	
2375		-----		-----	
2379		-----		-----	
2380	AfPS GS 2014	4.23		1.26	
2382		-----		-----	
2384	AfPS GS 2014	3.83		0.42	
2386		-----		-----	
2390		-----		-----	
2481		-----		-----	
2482	AfPS GS 2014	3.56		-0.14	
2492		-----		-----	
2495		-----		-----	
2497		-----		-----	
2500		-----		-----	
2504	AfPS GS 2014	3.86		0.48	
2525	AfPS GS 2014	4.25		1.30	
2532	AfPS GS 2014	4.05		0.88	
2553	In house	4.08	C	0.94	first reported: n.d.
2561	AfPS GS 2014	3.086		-1.14	
2563	AfPS GS 2014	n.d.		-----	
2590	AfPS GS 2014	3.804		0.37	
2612	AfPS GS 2014	2.5		-2.36	
2674		-----		-----	
2687		-----		-----	
2705		-----		-----	
2713		-----		-----	
2718	AfPS GS 2014	3.259		-0.77	
2730		-----		-----	
2743	ZEK01.4-08	3.839667		0.44	
2791	AfPS GS 2014	4.68		2.20	
2803		-----		-----	
2807	ZEK01.4-08	ND		-----	
2812	AfPS GS 2014	2.4	C	-2.57	first reported: 6.671
2826		-----		-----	
2841	In house	3.463		-0.35	

lab	method	value	mark	z(targ)	remarks
2858	In house	-----	C	-----	first reported: 3.735
2863		-----		-----	
2864	AfPS GS 2014	0.520	R(0.01)	-6.50	
2867	AfPS GS 2014	3.811		0.38	
3100	AfPS GS 2014	<0.20		<7.17	possibly a false negative test result?
3116		3.23		-0.83	
3118		-----		-----	
3146	AfPS GS 2014	3.777		0.31	
3150		-----		-----	
3153	AfPS GS 2014	3.34		-0.60	
3154	ZEK01.4-08	3.90		0.57	
3160		-----		-----	
3163		7	R(0.01)	7.05	
3172		4.088		0.96	
3182	AfPS GS 2014	4.19		1.17	
3185	AfPS GS 2014	3.55		-0.17	
3190		-----		-----	
3192		-----		-----	
3197	AfPS GS 2014	3.81		0.38	
3210	AfPS GS 2014	3.0581		-1.19	
3214	AfPS GS 2014	3.22		-0.86	
3218		-----		-----	
3220	AfPS GS 2014	1.172	C,R(0.01)	-5.14	first reported: 1.331
3228		-----		-----	
3237	AfPS GS 2014	3.095		-1.12	
3248	In house	3.3	C	-0.69	first reported: 7.5
	normality	OK			
	n	51			
	outliers	3 +(1ex)			
	mean (n)	3.6293			
	st.dev. (n)	0.50722	RSD=14%		
	R(calc.)	1.4202			
	st.dev.(Horwitz 1 comp.)	0.47828			
	R(Horwitz 1 comp.)	1.3392			





APPENDIX 2

Other reported PAH in sample #19502; results in mg/kg

lab	Acenaphthylene	Triphenylene	Sum of Chrysene+Triphenylene	Dibenzo [a,h]anthracene	Cyclopenta [c,d]pyrene
230	-----	-----	-----	-----	-----
310	-----	-----	-----	-----	-----
339	0.137	-----	-----	0.113	-----
551	N.D.	-----	-----	0.1982	-----
623	n.d.	-----	-----	n.d.	n.d.
840	notdetected	-----	-----	not detected	not detected
841	ND	-----	-----	ND	ND
1213	ND	NA	-----	ND C	NA
2115	-----	-----	-----	-----	-----
2129	-----	-----	-----	-----	0.23
2146	-----	-----	-----	-----	-----
2156	0.20	-----	2.25	1.15	-----
2165	n.d.	-----	-----	n.d.	-----
2172	-----	-----	1.13	-----	-----
2184	n.d.	-----	-----	n.d.	-----
2190	<0.2	-----	-----	<0.2	/
2201	ND	NA	NA	ND	ND
2241	<0.1	-----	-----	<0.1	<0.1
2247	<0.2	-----	-----	<0.2	-----
2250	-----	0.47	1.26	-----	-----
2256	-----	-----	1.225	-----	-----
2265	<0,2	not tested	-----	<0,2	0.790
2267	-----	-----	-----	-----	-----
2295	-----	-----	-----	-----	-----
2297	<0.2	-----	-----	<0.2	-----
2301	ND	-----	-----	-----	-----
2310	NOT DETECTED	-----	-----	NOT DETECTED	NOT DETECTED
2311	Not Detected	-----	-----	Not Detected	Not Detected
2330	ND	-----	-----	0.228	-----
2347	<0.1	-----	-----	<0.1	-----
2350	<0.2	N.A.	N.A.	<0.2	<0.2
2352	-----	-----	0.90	-----	-----
2354	ND	-----	-----	ND	-----
2355	<0.1	-----	-----	<0.1	-----
2357	ND	-----	-----	ND	-----
2363	ND	NA	NA	ND	NA
2365	ND	-----	-----	ND	-----
2366	<0.10	OUT OF CAP	OUT OF CAP	<0.10	OUT OF CAP
2369	<0.1	-----	-----	<0.1	-----
2370	n.d.	N/A	N/A	n.d.	n.d.
2372	n.d.	N/A	N/A	n.d.	N/A
2374	-----	-----	-----	-----	-----
2375	-----	-----	-----	-----	-----
2379	Not detected	-----	-----	Not detected	Not detected
2380	N.D.	-----	-----	N.D.	N.D.
2382	-----	-----	0.96	-----	-----
2384	Not detected[<0.20]	-----	-----	Not detected[<0.20]	-----
2386	-----	-----	-----	-----	-----
2390	-----	-----	-----	-----	-----
2481	-----	-----	-----	-----	-----
2482	-----	-----	1.34	-----	-----
2492	-----	-----	-----	-----	0.353
2495	-----	-----	-----	-----	-----
2497	-----	0.768	2.389	0.058	-----
2500	-----	-----	-----	-----	-----
2504	<0.2	n.a.	n.a.	n.d.	n.a.
2525	<0,20	-----	-----	<0,20	-----
2532	<0.1	Not Reported	Not Reported	<0.1	<0.1
2553	ND	ND	ND	ND	ND
2561	-----	-----	-----	-----	-----
2563	n.d.	-----	-----	n.d.	-----
2590	-----	-----	-----	-----	-----
2612	<0.2	-----	-----	<0.2	-----
2674	n.d.	n.a.	n.a.	n.d.	n.a.
2687	<0,2	-----	-----	nd	-----
2705	0.1	-----	-----	0.0	-----
2713	-----	-----	-----	-----	-----
2718	0	-----	-----	0.090	-----
2730	-----	-----	-----	-----	-----
2743	-----	-----	-----	-----	-----
2791	<0.2	-----	1.20	<0.2	<0.2
2803	1.22	-----	-----	0.86	-----
2807	0.13	-----	-----	ND	-----
2812	-----	-----	1.521	0.350	-----
2826	-----	-----	-----	-----	-----

lab	Acenaphthylene	Triphenylene	Sum of Chrysene+Triphenylene	Dibenzo [a,h]anthracene	Cyclopenta [c,d]pyrene
2841	0.093	-----	-----	<0.5	0.135
2858	n.d	n.d	-----	n.d	n.d
2863	-----	-----	-----	<0,20	-----
2864	-----	-----	-----	-----	-----
2867	<0.1	-----	-----	0.124	-----
3100	<0.20	-----	-----	<0.20	/
3116	-----	-----	-----	-----	-----
3118	-----	-----	-----	-----	-----
3146	-----	-----	-----	-----	-----
3150	<0,2	-----	-----	<0,2	<0,2
3153	<0.20	0.35	1.29	<0.20	-----
3154	-----	-----	-----	-----	-----
3160	-----	-----	0.9	-----	-----
3163	-----	-----	-----	-----	-----
3172	<0.2	-----	-----	<0.2	0.36
3182	<0.20	-----	-----	<0.20	-
3185	<0.2	-----	-----	<0.2	/
3190	-----	-----	-----	-----	/
3192	<0,2	-----	-----	-----	-----
3197	<0,1	NA	NA	<0,1	<0,1
3210	<0.1	-----	-----	0.1081	0.2034
3214	<0.2	-----	0.92	<0.2	-----
3218	-----	-----	-----	-----	-----
3220	ND	-----	-----	0.307	-----
3228	n.d.	-----	-----	n.d.	-----
3237	-----	-----	-----	-----	-----
3248	-----	-----	-----	-----	-----

Lab 1213 first reported: 0.28

Other reported PAH in sample #19503; results in mg/kg

lab	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Anthracene
230	-----	-----	-----	-----	-----
310	-----	-----	-----	-----	<0.1
339	<0.1	<0.1	0.508	<0.1	N.D.
551	3.5707	N.D.	N.D.	0.0992	n.d.
623	n.d.	n.d.	n.d.	n.d.	not detected
840	not detected	not detected	not detected	not detected	ND
841	0.13	ND	ND	ND	ND
1213	ND	ND	ND	ND	-----
2115	-----	-----	-----	-----	-----
2129	-----	-----	-----	-----	-----
2146	-----	-----	-----	-----	0.15
2156	0.20	0.20	0.20	0.20	n.d.
2165	n.d.	n.d.	n.d.	n.d.	-----
2172	-----	-----	-----	-----	n.d.
2184	n.d.	n.d.	n.d.	n.d.	<0.2
2190	<0.2	<0.2	<0.2	<0.2	ND
2201	ND	ND	ND	ND	<0.1
2241	<0.1	<0.1	<0.1	<0.1	<0.2
2247	<0.2	<0.2	<0.2	<0.2	-----
2250	-----	-----	-----	-----	-----
2256	-----	-----	-----	-----	<0,2
2265	<0,2	<0,2	<0,2	<0,2	-----
2267	-----	-----	-----	-----	-----
2295	-----	-----	-----	-----	<0.2
2297	<0.2	<0.2	<0.2	<0.2	-----
2301	-----	-----	-----	-----	NOT DETECTED
2310	NOT DETECTED	NOT DETECTED	NOT DETECTED	NOT DETECTED	Not Detected
2311	Not Detected	Not Detected	Not Detected	Not Detected	ND
2330	ND	ND	ND	ND	<0.1
2347	<0.1	<0.1	<0.1	<0.1	<0.2
2350	<0.2	<0.2	<0.2	<0.2	-----
2352	-----	-----	-----	-----	4.29301
2354	ND	ND	ND	ND	<0.1
2355	<0.1	<0.1	<0.1	<0.1	ND
2357	ND	ND	ND	ND	ND
2363	ND	ND	ND	ND	ND
2365	ND	ND	ND	ND	<0.10
2366	<0.10	<0.10	<0.10	<0.10	<0.1
2369	<0.1	<0.1	<0.1	<0.1	n.d.
2370	n.d.	n.d.	n.d.	n.d.	n.d.
2372	n.d.	n.d.	n.d.	n.d.	-----
2374	-----	-----	-----	-----	-----
2375	-----	-----	-----	-----	-----
2379	-----	-----	-----	-----	N.D.
2380	N.D.	N.D.	N.D.	N.D.	-----
2382	-----	-----	-----	-----	Not detected[<0.20]
2384	Not detected[<0.20]	Not detected[<0.20]	Not detected[<0.20]	Not detected[<0.20]	-----
2386	-----	-----	-----	-----	-----
2390	-----	-----	-----	-----	-----
2481	-----	-----	-----	-----	-----
2482	-----	-----	-----	-----	-----
2492	-----	-----	-----	-----	-----
2495	-----	-----	-----	-----	2.485
2497	-----	-----	-----	-----	-----
2500	-----	-----	-----	-----	n.d.
2504	n.d.	n.d.	n.d.	n.d.	<0,20
2525	<0,20	<0,20	<0,20	<0,20	<0.1
2532	<0.1	<0.1	<0.1	<0.1	4.68
2553	ND	ND	ND	ND	-----
2561	-----	-----	-----	-----	n.d.
2563	n.d.	n.d.	n.d.	n.d.	-----
2590	-----	-----	-----	-----	<0.2
2612	<0.2	<0.2	<0.2	<0.2	n.d.
2674	n.d.	n.d.	n.d.	n.d.	2.487
2687	<0,2	nd	0.259	nd	0.0
2705	-----	0.1	0.1	0.1	-----
2713	-----	-----	-----	-----	0
2718	0	0	0	0	3.71
2730	-----	-----	-----	-----	-----
2743	-----	-----	-----	-----	0.62
2791	<0.2	<0.2	<0.2	<0.2	-----
2803	-----	-----	-----	-----	ND
2807	ND	ND	ND	ND	-----
2812	-----	-----	-----	-----	-----
2826	-----	-----	-----	-----	<0.05
2841	<0.05	<0.15	<0.05	<0.15	n.d

lab	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Anthracene
2858	n.d	n.d	n.d	n.d	<0,20
2863	-----	-----	-----	-----	-----
2864	-----	-----	-----	-----	<0.1
2867	<0.1	<0.1	<0.1	<0.1	<0.20
3100	<0.20	<0.20	<0.20	<0.20	-----
3116	-----	-----	-----	-----	-----
3118	-----	-----	0.598	-----	-----
3146	-----	-----	-----	-----	<0,2
3150	<0,2	<0,2	<0,2	<0,2	<0.20
3153	<0.20	<0.20	<0.20	<0.20	-----
3154	0.32	-----	-----	-----	-----
3160	-----	-----	-----	-----	2
3163	-----	-----	-----	-----	<0.2
3172	<0.2	<0.2	<0.2	<0.2	<0.20
3182	<0.20	<0.20	<0.20	<0.20	<0.2
3185	<0.2	<0.2	<0.2	<0.2	-----
3190	-----	-----	-----	-----	-----
3192	<0,2	-----	-----	<0,2	<0,1
3197	<0,1	<0,1	<0,1	<0,1	ND
3210	<0.1	ND	ND	<0.1	<0.2
3214	<0.2	<0.2	<0.2	<0.2	-----
3218	-----	-----	-----	-----	ND
3220	ND	ND	ND	ND	n.d.
3228	n.d.	n.d.	n.d.	n.d.	-----
3237	-----	-----	-----	-----	0.9
3248	-----	-----	-----	-----	

Other reported PAH in sample #19503; results in mg/kg -- continued –

lab	Fluoranthene	Pyrene	Chrysene	Triphenylene	Sum of Chrysene+Triphenylene
230	-----	-----	-----	-----	-----
310	-----	-----	-----	-----	-----
339	<0.1	<0.1	<0.1	-----	-----
551	N.D.	N.D.	N.D.	-----	-----
623	n.d.	n.d.	n.d.	-----	-----
840	not detected	not detected	not detected	-----	-----
841	ND	ND	ND	-----	-----
1213	ND	ND	ND	NA	-----
2115	-----	-----	-----	-----	-----
2129	-----	-----	-----	-----	-----
2146	-----	-----	-----	-----	-----
2156	0.20	0.55	0.95	-----	0.95
2165	n.d.	n.d.	n.d.	-----	-----
2172	-----	-----	-----	-----	-----
2184	n.d.	n.d.	n.d.	-----	-----
2190	<0.2	<0.2	<0.2	-----	-----
2201	ND	ND	ND	ND	ND
2241	<0.1	<0.1	<0.1	-----	-----
2247	<0.2	<0.2	<0.2	-----	-----
2250	-----	4.09	-----	-----	-----
2256	-----	-----	-----	-----	-----
2265	<0,2	<0,2	<0,2	not tested	-----
2267	-----	-----	-----	-----	-----
2295	-----	-----	-----	-----	-----
2297	<0.2	<0.2	<0.2	-----	-----
2301	-----	-----	-----	-----	-----
2310	NOT DETECTED	NOT DETECTED	NOT DETECTED	-----	-----
2311	Not Detected	Not Detected	Not Detected	-----	-----
2330	ND	ND	ND	ND	ND
2347	<0.1	<0.1	<0.1	-----	-----
2350	<0.2	<0.2	<0.2	N.A.	N.A.
2352	-----	-----	-----	-----	-----
2354	ND	ND	ND	-----	-----
2355	<0.1	<0.1	<0.1	-----	-----
2357	ND	ND	ND	-----	-----
2363	ND	ND	ND	NA	NA
2365	ND	ND	ND	-----	-----
2366	<0.10	<0.10	<0.10	out of cap	out of cap
2369	<0.1	<0.1	<0.1	-----	-----
2370	n.d.	n.d.	n.d.	N/A	N/A
2372	n.d.	n.d.	n.d.	N/A	N/A
2374	-----	-----	-----	-----	-----
2375	-----	-----	-----	-----	-----
2379	-----	-----	-----	-----	-----
2380	N.D.	N.D.	N.D.	-----	-----
2382	-----	-----	-----	-----	-----
2384	Not detected[<0.20]	Not detected[<0.20]	Not detected[<0.20]	Not detected[<0.20]	-----
2386	-----	-----	-----	-----	-----
2390	-----	-----	-----	-----	-----
2481	-----	-----	-----	-----	-----
2482	-----	-----	-----	-----	-----
2492	-----	-----	1.065	-----	-----
2495	-----	-----	-----	-----	-----
2497	-----	-----	-----	-----	-----
2500	-----	-----	-----	-----	-----
2504	n.d.	n.d.	n.d.	n.a.	n.a.
2525	<0,20	<0,20	<0,20	-----	-----
2532	<0.1	<0.1	<0.1	Not reported	Not reported
2553	ND	ND	ND	ND	ND
2561	-----	-----	-----	-----	-----
2563	n.d.	n.d.	n.d.	-----	-----
2590	-----	-----	-----	-----	-----
2612	<0.2	<0.2	<0.2	-----	-----
2674	n.d.	n.d.	n.d.	n.a.	n.a.
2687	nd	nd	nd	-----	-----
2705	0.0	0.0	0.0	-----	-----
2713	-----	-----	-----	-----	-----
2718	0	0	0	-----	-----
2730	-----	-----	-----	-----	-----
2743	-----	-----	-----	-----	-----
2791	<0.2	<0.2	<0.2	-----	<0.2
2803	-----	-----	-----	-----	-----
2807	ND	ND	ND	-----	-----
2812	-----	-----	-----	-----	-----
2826	-----	-----	-----	-----	-----

lab	Fluoranthene	Pyrene	Chrysene	Triphenylene	Sum of Chrysene+Triphenylene
2841	<0.05	<0.10	<0.05	-----	-----
2858	n.d	n.d	n.d	n.d	n.d
2863	-----	-----	-----	-----	-----
2864	-----	-----	-----	-----	-----
2867	<0.1	<0.1	<0.1	-----	-----
3100	<0.20	<0.20	<0.20	<0.20	<0.20
3116	-----	-----	-----	-----	-----
3118	-----	-----	-----	-----	-----
3146	-----	-----	-----	-----	-----
3150	<0,2	<0,2	<0,2	-----	-----
3153	<0.20	<0.20	<0.20	<0.20	<0.20
3154	-----	-----	6.99	-----	-----
3160	-----	-----	-----	-----	-----
3163	-----	-----	12	-----	-----
3172	<0.2	<0.2	<0.2	-----	-----
3182	<0.20	<0.20	<0.20	-----	-----
3185	<0.2	<0.2	<0.2	-----	-----
3190	-----	-----	-----	-----	-----
3192	<0,2	<0,2	-----	-----	-----
3197	<0,1	<0,1	<0,1	NA	NA
3210	<0.1	<0.1	ND	-----	-----
3214	<0.2	<0.2	<0.2	-----	<0.2
3218	-----	-----	-----	-----	-----
3220	ND	ND	ND	-----	-----
3228	n.d.	n.d.	n.d.	-----	-----
3237	-----	-----	-----	-----	-----
3248	-----	-----	-----	-----	-----

Determination of Other PAH in sample #19503; results in mg/kg -- continued --

lab	Benzo [j]fluoranthene	Benzo [k]fluoranthene	Benzo[e]pyrene	Benzo[a]pyrene	Indeno [1,2,3-c,d]pyrene
230	-----	-----	-----	-----	-----
310	-----	-----	-----	-----	-----
339	-----	<0.1	-----	<0.1	<0.1
551	0.9923	N.D.	N.D.	N.D.	N.D.
623	n.d.	n.d.	n.d.	n.d.	n.d.
840	not detected	not detected	not detected	not detected	not detected
841	ND	ND	ND	ND	ND
1213	ND	ND	ND	ND	ND
2115	-----	-----	-----	-----	-----
2129	-----	-----	-----	-----	-----
2146	-----	-----	-----	-----	-----
2156	0.20	0.20	0.20	0.20	0.20
2165	n.d.	n.d.	n.d.	n.d.	n.d.
2172	-----	-----	-----	-----	-----
2184	n.d.	n.d.	n.d.	n.d.	n.d.
2190	-----	-----	<0.2	<0.2	<0.2
2201	ND	ND	ND	ND	ND
2241	<0.1	<0.1	<0.1	<0.1	<0.1
2247	<0.2	<0.2	<0.2	<0.2	<0.2
2250	-----	-----	-----	-----	-----
2256	-----	-----	-----	-----	-----
2265	<0,2	<0,2	<0,2	<0,2	<0,2
2267	-----	-----	-----	-----	-----
2295	-----	-----	-----	-----	-----
2297	<0.2	<0.2	<0.2	<0.2	<0.2
2301	-----	-----	-----	-----	-----
2310	NOT DETECTED	NOT DETECTED	NOT DETECTED	NOT DETECTED	NOT DETECTED
2311	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
2330	ND	ND	ND	ND	ND
2347	<0.1	<0.1	<0.1	<0.1	<0.1
2350	N.A.	N.A.	<0.2	<0.2	<0.2
2352	-----	-----	-----	-----	-----
2354	ND	ND	ND	ND	ND
2355	<0.1	<0.1	<0.1	<0.1	<0.1
2357	ND	ND	ND	ND	ND
2363	ND	ND	ND	ND	ND
2365	ND	ND	ND	ND	ND
2366	<0.10	<0.10	<0.10	<0.10	<0.10
2369	<0.1	<0.1	<0.1	<0.1	<0.1
2370	n.d.	n.d.	n.d.	n.d.	n.d.
2372	n.d.	n.d.	n.d.	n.d.	n.d.
2374	-----	-----	-----	-----	-----
2375	-----	-----	-----	-----	-----
2379	-----	-----	-----	-----	-----
2380	N.D.	N.D.	N.D.	N.D.	N.D.
2382	-----	-----	-----	-----	-----
2384	Not detected[<0.20]	Not detected[<0.20]	Not detected[<0.20]	Not detected[<0.20]	Not detected[<0.20]
2386	-----	-----	-----	-----	-----
2390	-----	-----	-----	-----	-----
2481	-----	-----	-----	-----	-----
2482	-----	-----	-----	-----	-----
2492	-----	-----	-----	-----	-----
2495	-----	-----	-----	-----	-----
2497	-----	-----	-----	-----	-----
2500	-----	-----	-----	-----	-----
2504	n.d.	n.d.	n.d.	n.d.	n.d.
2525	-----	<0,20	<0,20	<0,20	<0,20
2532	<0.1	<0.1	<0.1	<0.1	<0.1
2553	ND	4.08	ND	ND	ND
2561	-----	-----	-----	-----	-----
2563	n.d.	n.d.	n.d.	n.d.	n.d.
2590	-----	-----	-----	-----	-----
2612	<0.2	<0.2	<0.2	<0.2	<0.2
2674	n.d.	n.d.	n.d.	n.d.	n.d.
2687	-----	1.877	-----	nd	nd
2705	-----	0.0	0.0	0.0	0.0
2713	-----	-----	-----	-----	-----
2718	0	0	0	0	0
2730	-----	-----	-----	-----	-----
2743	-----	-----	-----	-----	-----
2791	<0.2	<0.2	<0.2	<0.2	<0.2
2803	-----	-----	-----	-----	-----
2807	ND	ND	ND	ND	ND
2812	-----	-----	-----	-----	-----
2826	-----	-----	-----	-----	-----

lab	Benzo [j]fluoranthene	Benzo [k]fluoranthene	Benzo[e]pyrene	Benzo[a]pyrene	Indeno [1,2,3-c,d]pyrene
2841	<0.10	<0.10	<0.05	<0.05	<0.10
2858	-----	-----	n.d	n.d	n.d
2863	-----	-----	-----	-----	-----
2864	-----	-----	-----	-----	-----
2867	<0.1	<0.1	<0.1	<0.1	<0.1
3100	<0.20	<0.20	<0.20	<0.20	<0.20
3116	-----	-----	-----	-----	-----
3118	-----	-----	-----	-----	-----
3146	-----	-----	-----	-----	-----
3150	<0,2	<0,2	<0,2	<0,2	<0,2
3153	<0.20	<0.20	<0.20	<0.20	<0.20
3154	-----	-----	-----	-----	-----
3160	-----	-----	-----	-----	-----
3163	-----	-----	-----	-----	-----
3172	<0.2	<0.2	<0.2	<0.2	<0.2
3182	<0.20	<0.20	<0.20	<0.20	<0.20
3185	<0.2	<0.2	<0.2	<0.2	<0.2
3190	-----	-----	-----	-----	-----
3192	-----	-----	-----	-----	-----
3197	<0,1	<0,1	<0,1	<0,1	<0,1
3210	-----	ND	ND	ND	ND
3214	<0.2	<0.2	<0.2	<0.2	<0.2
3218	-----	-----	-----	-----	-----
3220	-----	-----	ND	ND	ND
3228	n.d.	n.d.	n.d.	n.d.	n.d.
3237	-----	-----	-----	-----	-----
3248	-----	-----	-----	-----	-----

Determination of other PAH in sample #19503; results in mg/kg -- continued --

lab	Dibenzo[a,h]anthracene	Benzo[g,h,i]perylene	Cyclopentac[c,d]pyrene
230	-----	-----	-----
310	-----	-----	-----
339	<0.1	<0.1	-----
551	N.D.	N.D.	-----
623	n.d.	n.d.	n.d.
840	not detected	not detected	not detected
841	ND	ND	ND
1213	ND	ND	NA
2115	-----	-----	-----
2129	-----	-----	-----
2146	-----	-----	-----
2156	0.20	0.20	-----
2165	n.d.	n.d.	-----
2172	-----	-----	-----
2184	n.d.	n.d.	-----
2190	<0.2	<0.2	/
2201	ND	ND	ND
2241	<0.1	<0.1	<0.1
2247	<0.2	<0.2	-
2250	-----	-----	-----
2256	-----	-----	-----
2265	<0,2	<0,2	<0,2
2267	-----	-----	-----
2295	-----	-----	-----
2297	<0.2	<0.2	-----
2301	-----	-----	-----
2310	NOT DETECTED	NOTDETECTED	NOTDETECTED
2311	Not Detected	NotDetected	NotDetected
2330	ND	ND	ND
2347	<0.1	<0.1	-----
2350	<0.2	<0.2	<0.2
2352	-----	-----	-----
2354	ND	ND	-----
2355	<0.1	<0.1	-----
2357	ND	ND	-----
2363	ND	ND	NA
2365	ND	ND	-----
2366	<0.10	<0.10	outofcap
2369	<0.1	<0.1	/
2370	n.d.	n.d.	n.d.
2372	n.d.	n.d.	N/A
2374	-----	-----	-----
2375	-----	-----	-----
2379	-----	-----	-----
2380	N.D.	N.D.	N.D.
2382	-----	-----	-----
2384	Not detected[<0.20]	Notdetected[<0.20]	-----
2386	-----	-----	-----
2390	-----	-----	-----
2481	-----	-----	-----
2482	-----	-----	1.72
2492	-----	-----	-----
2495	-----	-----	-----
2497	-----	-----	-----
2500	-----	-----	-----
2504	n.d.	n.d.	n.a.
2525	<0,20	<0,20	-----
2532	<0.1	<0.1	<0.1
2553	ND	ND	ND
2561	-----	-----	-----
2563	n.d.	n.d.	-----
2590	-----	-----	-----
2612	<0.2	<0.2	-----
2674	n.d.	n.d.	n.a.
2687	nd	nd	-----
2705	0.0	0.0	-----
2713	-----	-----	-----
2718	0	0	-----
2730	-----	-----	-----
2743	-----	-----	-----
2791	<0.2	<0.2	<0.2
2803	-----	-----	-----
2807	ND	ND	-----
2812	-----	-----	-----
2826	-----	-----	-----
2841	<0.10	<0.05	<0.05

lab	Dibenzo[a,h]anthracene	Benzo[g,h,i]perylene	Cyclopentac[c,d]pyrene
2858	n.d	n.d	n.d
2863	<0,20	-----	-----
2864	-----	-----	-----
2867	<0.1	<0.1	-----
3100	<0.20	<0.20	<0.20
3116	-----	-----	-----
3118	-----	-----	-----
3146	-----	-----	-----
3150	<0,2	<0,2	<0,2
3153	<0.20	<0.20	-----
3154	-----	-----	-----
3160	-----	-----	-----
3163	-----	-----	-----
3172	<0.2	<0.2	<0.2
3182	<0.20	<0.20	-
3185	<0.2	<0.2	/
3190	-----	-----	/
3192	-----	<0,2	-----
3197	<0,1	<0,1	<0,1
3210	ND	ND	ND
3214	<0.2	<0.2	-----
3218	-----	-----	-----
3220	ND	ND	-----
3228	n.d.	n.d.	-----
3237	-----	-----	0.793
3248	-----	-----	-----

APPENDIX 3 Summary of reported analytical details

lab	ISO/IEC 17025 accredited	Sample preparation	Final particle size	Release/ Extraction technique	Extraction solvent	Extraction time and temperature
230	---	---		---		
310	---	---		---		
339	No	Used as received	#19502 : powder #19503 : 5mm x 5mm	Ultrasonic	Toluene	60,60
551	Yes	Used as received		Ultrasonic	Toluene	60,60
623	Yes	Further Cut	2 mm x 2mm	Ultrasonic	Toluene	60, 60
840	Yes	Further Cut	3X3mm	Ultrasonic	toluen	60, 60
841	---	---		---		
1213	Yes	Further Grinded	2-3mm	Ultrasonic	toluene	60 mins, 60°C
2115	Yes	Used as received	pellets	Ultrasonic	Toluene	60 min, 60°C
2129	Yes	Used as received		Ultrasonic	toluene	60 min, 60 °C
2146	---	---		---		
2156	Yes	Used as received	Sample 19502 used as received; sample 19503 was further cut into size 1 to 2mm.	Ultrasonic	Toluene	60 min, 60°C
2165	Yes	Used as received	3mm*3mm	Ultrasonic	Toluene	60, 60
2172	Yes	Used as received	2mm*2mm*2mm	Ultrasonic	Toluene	60 min, 60°C
2184	Yes	Used as received	3mm x 3mm	Ultrasonic	Toluene	60 min, 60°C
2190	---	---		---		
2201	Yes	Further Cut	2mm * 2mm	Ultrasonic	Toluene	60, 60
2241	Yes	Further Cut	19502: test directly 19503: cut to <2mm	Ultrasonic	Toluene	60, 60
2247	Yes	Used as received	< 2mm	Ultrasonic	Toluene	60mim, 60.0
2250	Yes	Used as received		Ultrasonic	toluene with internal standard	60, 60
2256	Yes	Used as received		Ultrasonic	Toluene	1 hour, 60°C
2265	Yes	Further Cut	2-4 mm	Ultrasonic	Toluene	60 min, 60°C
2267	---	---		---		
2295	Yes	Further Cut		Ultrasonic	toluene	60 min, 60°C
2297	Yes	Used as received		Ultrasonic	toluene	60mins, 60
2301	Yes	Used as received	5 mm x 5 mm	Ultrasonic	Toluene	60, 60
2310	Yes	Further Cut	< 3mm	Ultrasonic	Toluene	1 hr, 60°C
2311	Yes	Other, please mention in the remarks	<1mm	Ultrasonic	Toluene	1hour, 60
2330	No	Used as received		Ultrasonic	Toluene	60 min, 60°C
2347	Yes	Further Grinded	2*2*2mm	Ultrasonic	toluene	60min, 60°C
2350	No	Further Cut	< 2mm	Ultrasonic	toluene	60 min, 60°C
2352	Yes	Further Cut	2mm x 2mm x 2mm	Ultrasonic	Toluene	60min, 60°C
2354	Yes	Used as received	2mm x 2mm	Ultrasonic	Toluene	60mins, 60°C
2355	Yes	Further Cut	2mm*2mm	Ultrasonic	Toluene	60min, 60°C
2357	Yes	Further Cut	2mm*2mm*2mm	Ultrasonic	toluene	60, 60
2363	Yes	Used as received	2mm*2mm	Ultrasonic	Tolune	60min, 60°C
2365	Yes	Further Cut	2mm*2mm	Ultrasonic	Toluene	60min, 60°C
2366	Yes	Other, please mention in the remarks	as reveived	Ultrasonic	toluene	60min, 60°C
2369	Yes	Used as received		Ultrasonic	Tolune	60min, 60°C
2370	No	Used as received	powder	Ultrasonic	Toluene	60 mins, 60°C
2372	Yes	Used as received	0.1mm	Ultrasonic	Toluene	60, 60
2374	Yes	Further Cut	¡¶2*2mm	Ultrasonic	toluene	60 min, 60°C
2375	Yes	Used as received		Ultrasonic	Toluene	60 minutes
2379	No	Further Cut	2x2 mm	Ultrasonic	Toluene	60, 60
2380	Yes	Used as received	19502-Powder Sample 19503- 2mm x 2mm	Ultrasonic	Toluene	60, 60
2382	Yes	Further Cut	#19503 2*2mm	Ultrasonic	toluene	60min, 60°C

lab	ISO/IEC 17025 accredited	Sample preparation	Final particle size	Release/ Extraction technique	Extraction solvent	Extraction time and temperature
2384	Yes	Further Grinded	<500um	Ultrasonic	Toluene	1 hour, 60
2386	Yes	Further Cut	2*2mm	Ultrasonic	toluene	60, 60
2390	---	---		---		
2481	Yes	Used as received	<4mm	Ultrasonic	Toluene cas 108-88-3	60, 60
2482	Yes	Used as received		Ultrasonic	Toluene	60 min, 60°C
2492	Yes	Used as received		Ultrasonic	Toluene	
2495	---	---		---		
2497	---	---		---		
2500						
2504	Yes	Other, please mention in the remarks	2 x 2 mm	Ultrasonic	Toluene	60 min, 60°C
2525	Yes	Used as received		Ultrasonic	Toluene	60 min, 60°C
2532	Yes	Further Cut	2mm *2mm	Ultrasonic	Toluene	60 min, 60°C
2553	Yes	Used as received	2mm x 2mm x 2mm	Ultrasonic	n- hexane	60, 60
2561	Yes	Used as received	Tested as received.	Ultrasonic	Toluene	60, 60
2563	Yes	Used as received		Ultrasonic	Toluol	60, 60
2590	Yes	Used as received		Ultrasonic	Toluene	60 min, 60°C
2612	Yes	Used as received	3x3mm	Ultrasonic	toluene	60 min, 60°C
2674	Yes	Further Cut	3*3mm	Ultrasonic	Toluene	60 min, 60°C
2687	Yes	Used as received		Ultrasonic	Toluene	60,60
2705	Yes	Used as received		ASE	Hexane/Aceton	15, 160
2713	Yes	Further Cut	3mmx3mm	Ultrasonic	toluene	60 min, 60°C
2718	Yes	Used as received		Ultrasonic	Toluene	60, 60
2730	No	Used as received		Ultrasonic	n-hexane	1 h, 60°C
2743	Yes	Used as received		Ultrasonic	Toluene	60, 60
2791	Yes	Used as received	2-3mm	Ultrasonic	Toluene	60min, 60°C
2803	Yes	Used as received	3mm x 3mm	Ultrasonic	toluen	60 min
2807	No	Further Cut	1mm	Ultrasonic	Toluen	60min, 55°C
2812	No	Further Cut	5 mm x 5 mm	Ultrasonic	toluene	1 hour, 60
2826	Yes	Used as received		Ultrasonic	toluene	60, 60
2841	Yes	Used as received		Other	Toluene	24 hours, 105°C
2858	---	---		---		
2863	No	Used as received		Ultrasonic	toluene	60 min, 60
2864	Yes	Used as received		Ultrasonic	toluene	60, 60
2867	Yes	Other, please mention in the remarks	3*3mm	Ultrasonic	toluene	60min, 60°C
3100	Yes	Other, please mention in the remarks	#19503 cut into 2~3mm before analysis. #19502 test used as received before analysis.	Ultrasonic	toluene	60min, 60°C
3116	No	Used as received		Ultrasonic	toluene	60, 60
3118	Yes	Used as received	2 - 3 mm	Ultrasonic	Toluene	1 hours, 60°C
3146	Yes	Further Cut	2 * 2 mm	Ultrasonic	Toluene	60, 60
3150	Yes	Used as received		Ultrasonic	Toluol	60, 60
3153	Yes	Used as received	#19502->grinded (<1mm x 1mm); #19503 (3mm x 3mm)	Ultrasonic	Toluene	60 min, 60°C
3154	Yes	Used as received		Ultrasonic		
3160	No	Used as received	3mm x 3mm	Ultrasonic	n-hexane	60 min, 60°C
3163	No	Further Cut	0.0003g	Thermal Desorption	x	x
3172	Yes	Used as received		Ultrasonic	Toluene	60, 60
3182	No	Further Cut	2-3 millimeters	Ultrasonic	toluene	60 min, 60°C
3185	Yes	Further Cut	#19502:Powder #19503:2mm*1mm	Ultrasonic	Toluene	60 min, 60°C

lab	ISO/IEC 17025 accredited	Sample preparation	Final particle size	Release/ Extraction technique	Extraction solvent	Extraction time and temperature
3190	Yes	Used as received	Used as received	Ultrasonic	Toluene	60 min, 60°C
3192	No	Used as received	As received	Ultrasonic	Toluol	60 min, 60°C
3197	Yes	Further Cut	19503; 2 mm x 2 mm 19502; used as received	Ultrasonic	Toluene	60, 60
3210	No	Used as received		Ultrasonic	Toluene	60 min, 60°C
3214	Yes	Further Cut	< 3mm*3mm	Thermal Desorption	Toluene	60, 60
3218	Yes	Used as received	3*3mm	Ultrasonic	Toluene	60min, 60°C
3220	Yes	Used as received		Ultrasonic	Toluene	60 min, 60°C
3228	Yes	Further Cut	2mm*2mm only for #19503 further cut only for #19503 used as received for #19502	Ultrasonic	Toluene	60 min, 60°C
3237	Yes	Used as received	Used as received	Ultrasonic	Toluene	60 min, 60°C
3248	Yes	Used as received	Used as received	Ultrasonic	Toluene	120, 70

APPENDIX 4

Number of participants per country

1 lab in AUSTRIA
2 labs in BANGLADESH
1 lab in BRAZIL
1 lab in CAMBODIA
1 lab in FINLAND
5 labs in FRANCE
13 labs in GERMANY
7 labs in HONG KONG
6 labs in INDIA
3 labs in INDONESIA
6 labs in ITALY
1 lab in JAPAN
1 lab in KOREA
1 lab in LUXEMBOURG
2 labs in MALAYSIA
1 lab in MAURITIUS
24 labs in P.R. of CHINA
1 lab in PAKISTAN
1 lab in POLAND
1 lab in SPAIN
1 lab in SRI LANKA
4 labs in TAIWAN R.O.C.
3 labs in THAILAND
3 labs in THE NETHERLANDS
8 labs in TURKEY
1 lab in UNITED KINGDOM
3 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
fr.	= first reported

Literature:

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