NISTIR 7819

Interlaboratory Analytical Comparison Study to Support Deepwater Horizon Natural Resource Damage Assessment: Description and Results for Mussel Tissue QA10TIS01

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September 2011

U.S. Department of Commerce
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ABSTRACT

To support natural resource damage assessment (NRDA) in response to the Deepwater Horizon (DWH) oil spill in the Gulf of Mexico, a large number of coastal sediment and tissue (i.e., oysters) samples have been collected outside of the spill zone to define baseline environmental conditions prior to being exposed to oil. Analysis of oiled sediments and oil-exposed oysters will continue for the foreseeable future. To support these efforts, NOAA will require additional analytical laboratories to perform NRDA sample analyses in addition to the commercial laboratories currently providing analyses in support of NRDA. To compare the data among these laboratories, inter-laboratory comparison studies have been initiated with the results from the third exercise, mussel tissue QA10TIS01 reported here. In this exercise, selected polycyclic aromatic hydrocarbons (PAHs), alkylated PAHs, hopanes, and steranes were determined in the exercise material, which consisted of a cryogenically homogenized mussel tissue sample, and in SRM 1974b Organics in Mussel Tissue (*Mytilus edulis*). The results from this third exercise are reported along with a summary of the analytical methods used.

INTRODUCTION

On April 20, 2010, a fatal explosion, fire, and sinking of BP's Deepwater Horizon drilling rig occurred approximately 40 miles off the Louisiana coast. The disaster resulted in the discharge of tens of thousands of barrels of oil per day from the seafloor into the Gulf of Mexico. In what has become the worst offshore oil spill in U.S. history, a wide expanse and variety of natural resources have become exposed and potentially impacted by oil and other consequences of the spill. Under the Oil Pollution Act, those responsible for an oil spill are liable for clean-up and for natural resource damages. Several federal and state agencies are conducting a natural resource damage assessment (NRDA) to determine what resources have been injured and what uses of the resources have been lost due to the spill.

To support this NRDA, the trustees and BP's representatives have been collecting and analyzing tens of thousands of environmental samples to characterize both pre-spill and post-spill environmental conditions. A broad range of sample types have been collected including oil in various forms, water, sediment, and biota. For the foreseeable future, subsequent sampling and analysis will be required. In addition, numerous other entities have collected environmental samples for hydrocarbon analysis and submitted them to different laboratories throughout the country.

In the past the National Institute of Standards and Technology (NIST) has helped benchmark and improve the quality of analytical data gathered on the marine environment by administering interlaboratory comparison exercises. To compare the data among the many laboratories analyzing samples from this spill, the National Oceanic and Atmospheric Administration (NOAA) has requested that NIST coordinate interlaboratory comparison studies with sediment, crude oil, and bivalve tissue being the three matrices of interest. These studies are performance-based with each laboratory using its current methods for analysis of similar matrices that it would use for its program customers. The target analytes for each study are selected polycyclic aromatic hydrocarbons (PAHs), alkylated PAHs, hopanes, and steranes. More than three dozen laboratory facilities were contacted by NOAA and invited to participate in the studies; for all three matrix studies a large number of laboratories agreed to receive samples and report their analytical results to NIST.
The data received from 34 laboratories for the mussel tissue QA10TIS01 are summarized in this report along with summaries of the analytical methods used by each laboratory. Numerical indices, z- and p-

scores, are used to assess and track laboratory performances for accuracy and precision, respectively, and to provide a mechanism for assessing the comparability of data produced by the participating laboratories for the target analytes.

SOURCE OF MATERIAL

A previous tissue control material (NIST/NOAA NS&T QA Program Tissue Control Material III QC90TC Prepared Summer 90) was relabeled for use as the unknown material in this exercise. The new labels read:

Intercomparison Exercise to Support DWH NRDA
Sample: QA10TIS01 Mussel Tissue
Bottle # ---
Prepared Nov 2010

The mussels used for preparation of QC90TC were collected and stored at one of the NOAA NS&T laboratories prior to being shucked and shipped to NIST. QC90TC was prepared by NIST in 1990 as a frozen bivalve tissue homogenate still containing its endogenous water. The material was used by the NS&T laboratories in an interlaboratory study in 1991 [3].

SAMPLE DISTRIBUTION

Three bottles of QA10TIS01 Mussel Tissue each containing approximately 15 g of frozen mussel tissue were distributed to each of 45 laboratories during the week of February 21, 2011. Each laboratory was requested to analyze three samples of QA10TIS01 mussel tissue and at least one or more samples of SRM 1974b Organics in Mussel Tissue (*Mytilus edulis*) [4] (not provided to the laboratories) with their laboratory's and/or program's current analytical protocols being used for the determination of the concentrations (mass fractions) of the parent polycyclic aromatic hydrocarbon (PAH) compounds, alkylated PAH compounds, hopanes, and steranes.

The instructions including the list of target analytes sent to participants are attached in Appendix A.

EVALUATION OF EXERCISE RESULTS

Establishment of the Assigned Values

Laboratory data submission: Each participating laboratory was asked to submit data from three replicate determinations of the "unknown" material QA10TIS01 and was requested to report results of concurrent analyses of NIST SRM 1974b Organics in Mussel Tissue (*Mytilus edulis*). Laboratories were requested to report these results to three significant figures and to provide brief descriptions of their cleanup and analytical procedures.

Determination of laboratory analyte means: For each laboratory, the laboratory analyte mean of the three sample results (S1, S2, and S3) was calculated for each analyte. Non-numerical data were treated

as follows: A mean "<value" was used when three "<values" were reported; NA (not analyzed/determined) was used for three reported NAs; and, if the reported results were of mixed type, e.g., S1 and S2 were numerical values and S3 was reported as “<value”, the two similar "types" were used to either determine the mean or to set a non-numerical descriptor.

Determination of assigned values: The assigned values are the means of the acceptable data as defined here. For a particular analyte, the performance on the reference material, SRM 1974b, was initially deemed acceptable for the purpose of this exercise if the laboratory result was within 30 % of the upper and lower limits of the confidence interval for analytes listed in the Certificate of Analysis for SRM 974b [4]. The criterion of 30 % is the same as the one that was used for the National Oceanic and Atmospheric Administration (NOAA) Mussel Watch and National Status and Trends Quality Assurance Programs [5]. If a laboratory demonstrated acceptable performance on a particular analyte in the reference material, that laboratory’s results for that analyte in the corresponding “unknown” exercise material was then used in the calculation of the analyte’s exercise assigned value, unless it was deemed an outlier. For evaluation of potential outliers, statistical tests and expert analyst judgment were used after viewing both normal and log-normal plots of the data. This judgment utilized knowledge of potential coeluters based on the laboratory's reported methods. In instances for which the analyte concentration was below the detection limit of most participating laboratories, no exercise assigned value was calculated. In data sets where a number of laboratories report results as "not detected" at various detection limits, there is no consensus as to what numerical value should be assigned to these results in the computation of consensus means and other values.

REPORTED RESULTS

Laboratories were assigned numerical identification codes in order of receipt of data with the exception of the two NIST laboratories which are Lab 1 and 14 in this exercise. The laboratory mean replicate data are shown in Tables 1 to 3 for QA10TIS01. Included in these tables are the exercise assigned mean values and the standard deviation of the assigned mean values along with the exercise assigned median values. Summaries of the methods used by each laboratory are in Appendix B, and notes included by a laboratory with its data are listed in Appendix C. In Appendix D, charts of the mean numerical results reported by each laboratory for each analyte are shown for the exercise material and the corresponding reference material, SRM 1974b.

Performance Scores

The exercise coordinators recognize that different environmental monitoring programs have different data quality objectives and needs. The acceptability of the results submitted by a particular laboratory will be decided by the individual program(s) for which the laboratory provides data. Typically, each program will use these exercise results in conjunction with the laboratory's performance in the analysis of certified reference materials and/or control materials, and of other quality assurance samples. These exercise results are exhibited in a number of ways in this report to facilitate their use by most environmental monitoring programs in their acceptability assessments.

IUPAC guidelines describe the use of z-scores and p-scores for assessment of accuracy and precision in intercomparison exercises such as those described in this report. These indices assess the difference between the result of the laboratory and the exercise assigned value and can be used to compare the

performance of different laboratories among the participants on different analytes and on different materials.

Accuracy Assessment (z-score)

$$\text{z-score} = (\text{bias estimate})/(\text{performance criterion}) = (x - X)/\sigma$$

where x is the individual laboratory result, X is the "Exercise Assigned Value," and σ is the target value for standard deviation.

The choice of σ is dependent upon data quality objectives of a particular program, or as ISO 17043 suggests "a fitness for purpose goal for performance as determined by expert judgement" [6]. It can be "fixed" and arrived at by perception, prescription, or referenced to validated methodology (e.g., σ = 0.025 X; X is the exercise assigned value,), or it can be an estimate of the actual variation (e.g., the calculated sample standard deviation, *s*, from the exercise data). The "fixed" performance criterion is more useful in the comparison of a laboratory's performance on different materials while the use of the actual variation may be more useful within a given exercise, for example, if the determination of a particular analyte is exceptionally problematic. The measurement of analytes targeted in this study is not particularly problematic.

We have calculated and reported z-scores using the fixed performance criterion for each analyte for each laboratory using "25 % of the exercise assigned value" as the fixed target value for standard deviation for this program. The use of z-score (25 % X) is also taken from the NOAA Mussel Watch and National Status and Trends Quality Assurance Programs [5]. The z-scores calculated for these exercises can thus be interpreted as shown in the following examples:

z-score (25 % X):

+1 ⇒ laboratory result is 25 % higher than the assigned value
-2 ⇒ laboratory result is 50 % lower than the assigned value.

A common classification of z-scores is [7]:

$\lvert z \rvert \leq 2$	Satisfactory
$2 < \lvert z \rvert < 3$	Questionable
$\lvert z \rvert \geq 3$	Unsatisfactory.

This classification has been deemed acceptable within the measurement community.

Tables 4 through 6 summarize the z-scores (25 %) for each laboratory for each reported analyte in QA10TIS01.

Precision Assessment (p-score)

$$\text{p-score} = \sigma_{lab} / \sigma_{target}$$

For the calculation of p-scores for this program, the σ values used are coefficients of variation (CV calculated as relative standard deviations) with the current target σ (CV) for the three replicates being

15 %. Tables 7 through 9 summarize the relative standard deviations (RSDs) calculated from the three concentrations reported by the laboratory for each analyte quantified while Tables 10 through 12 summarize the p-scores (15%). A p-score of 1 indicates that the laboratory's CV was 15%, and a p-score of 2 indicates that the laboratory's CV was 30%.

DISCUSSION

NOAA's NRDA office solicited laboratories involved in the analysis of samples shortly after the DWH disaster for their interest in participating in this interlaboratory study for analytes of interest in bivalve tissue. The participation by the laboratories was voluntary, and samples of QA10TIS01 were provided free of charge. Laboratories were provided with information for ordering SRM 1974b (See Appendix A). Interested laboratories were requested to quantify selected PAHs, alkylated PAHs (some individual and some as groups), and biomarkers (hopanes and steranes) in three aliquots of QA10TIS01 and SRM 1974b using their laboratories' analytical protocols for these analyses. A total of 45 laboratories received samples of which 34 laboratories submitted data. The 34 participating laboratories are listed in alphabetical order in Appendix E.

Tables 1 through 3 summarize the laboratory means and exercise assigned values for the PAHs, alkylated PAHs, and hopanes and steranes, respectively. The consensus value for a given compound in QA10TIS01 was derived by combining data where corresponding values in SRM 1974b were within 30 % of the expanded uncertainty of the SRM value. In the absence of a corresponding SRM value, individual results were screened using outlier tests and included in the consensus value if values were shown not to be statistical outliers. Appendix D contains the charts of the QA10TIS01 and SRM 1974b data by analyte. In these charts, the analytes that are not included on the Certificate of Analysis for SRM 1974b are shown with no target value; however, a median value calculated from the data submitted is included in each chart. Note that laboratory 24 submitted two sets of data, 24a and 24b. The differences in the two sets of data included the extraction method, accelerated solvent extraction (ASE) for 24a versus QuEChERS for 24b, and final analysis step, gas chromatography with mass spectrometric detection (GC/MS) for 24a and liquid chromatography with fluorescence detection (LC-FLD) for 24b.

No assigned values were calculated for chrysene, triphenylene, or benzo[*j*]fluoranthene in QA10TIS01. Chrysene and triphenylene coelute when using a 5% phenyl phase in GC analysis as do several of the benzofluoranthene isomers. Although several laboratories recognized and reported coelutions for chrysene with triphenylene and among the benzofluoranthenes using this phase, several did not, thus reporting the combined value for chrysene and triphenylene as only the chrysene peak and in a similar fashion for the benzofluoranthenes.

The spread in the PAH data for QA10TIS01 among the laboratories is highest for biphenyl, acenaphthylene, anthracene, benzo[*a*]fluoranthene and dibenz[*a,h*]anthracene, analytes that are either relatively volatile (biphenyl and acenaphthylene) or at relatively low mass fractions and determined by fewer laboratories. The range in mass fractions for the PAHs in the mussel tissue QA10TIS01 is from 3 ng/g for benzo[*a*]fluoranthene and dibenz[*a,h*]anthracene to 220 ng/g for fluorene. The agreement among the data for the PAHs was better in the previous crude oil study [2] than in this study or in the previous sediment study [1] suggesting that extraction and sample concentration may be issues.

The alkylated PAH data for crude oil QA10 OIL01 [2] do not show as much spread among the laboratories as for the mussel tissue reported here or the sediment material QA10SED01 [1]. As for the previous studies, there are issues with the choice of the representative compound used for quantification of the alkylated PAHs, as well as the interpretation of the chromatograms as to what peaks should and should not be included in the summation for the alkylated groups. For an alkylated group of PAHs, the mass spectra are different based on where the PAH is alkylated (or if it is alkylated) thus resulting in different response factors for isomers in a homolog group. These issues need to be explored in more detail in future discussions.

Fewer laboratories reported data for the selected biomarkers with seven or fewer laboratories reporting quantitative results. The largest spread in the data seen for 5α(H),14α(H),17α(H)-cholestane 20R while very good agreement was seen for 17α(H),21β(H)-hopane (an RSD of 12%). The quantification issues for the hopanes and steranes include the lack of authentic calibration standards.

A range of extraction methods was used in this study as summarized in Appendix B by laboratory: nine data sets used Soxhlet extraction (Figure 1), five used QuEChERS (Figure 2), six used sonication (Figure 3), ten used ASE (Figure 4), three used a tissumizer (Figure 5), one used base digestion (Figure 5), and one used microwave extraction (Figure 5). Figures 1 through 5 show the comparison among laboratories using the same extraction method for selected compounds along with the median for the data sets. Figure 6 compares the medians for each extraction method for the same selection of compounds. The data for all of the compounds are summarized by extraction method in Tables 13, 14, and 15 for the PAHs, alkylated PAHs, and hopanes and steranes, respectively. No concrete conclusions can be drawn from comparing the data obtained by the different extraction methods as there is a large spread in the data (see table below) from each extraction method, with the tissumizer results (from three laboratories being the least variable. This table summarizes the number of laboratories who performed each extraction method (not necessarily reporting data for each analyte), the average relative standard deviations (avg RSD in %) for each class of compounds, and the number of compounds in each class for which more than one data set was received by the indicated extraction method (for n=). No data were excluded when calculating the RSDs shown.

						alkylated			hopanes/	
Extraction Method	# labs		PAHs	total n=34		PAHs	total n=40		steranes	total n=18
	reporting		avg rsd (%)	for n=		avg rsd (%)	for n=		avg rsd (%)	for n=
Soxhlet	9		50	27		50	31		35	2
QuEChERS	5		51	13			0			0
Tissumizer	3		18	24		27	38		27	17
Sonication	6		116	17		123	15			0
ASE	10		32	24		44	29			0
Base digestion	1			20			27			8
Microwave extraction	1			5			8			0

Caution should be used when interpreting these data as for the sonication method, one laboratory (17) reported high values for many of the analytes. These high values are probably not a result of the extraction method since their data for the corresponding analytes in SRM 1974b generally fell within the 30% criterion mentioned in the "*Determination of assigned values"* section. See Appendix D for the charts of the individual analytes.

The majority of the z-scores based on 25 % (Tables 4 through 6) are within ± 2 while the majority of the p-scores based on 15 % (Tables 10 through 12) are within ± 1. This indicates that the laboratories are internally consistent, but there is still a fair amount of spread in the data among the laboratories.

It is important to evaluate the non-quantitative results reported by each laboratory as well. Although these results are not easily presented or numerically evaluated, they are included in Tables 1 through 3 of this report. The laboratory and its data users should closely examine these non-quantitative results. Decisions based on false negative or false positive results from a laboratory can lead to significant environmental and/or economic consequences. Some laboratories reported detection limits in the exercise material that may be too high for the data quality objectives and needs of their program(s), and these issues should be assessed as well.

Intercomparison exercises provide an important mechanism for assessing the comparability, repeatability, and trueness of data being produced by the participating laboratories. Exercise materials similar in matrix, form, and analyte concentration to typical samples routinely analyzed by the laboratories are most useful for demonstrating the level of comparability and for revealing potential measurement and method problems. Minimizing the among-laboratory biases so that the analytical variability is significantly less than the field sampling variability should be an achievable goal in environmental monitoring.

Acknowledgments

The time and effort of the analysts and management of the participating laboratories are gratefully acknowledged.

Disclaimer

Certain commercial equipment, instruments, or materials are identified in this report to specify adequately the experimental procedure. Such identification does not imply recommendation or endorsement by the National Institute of Standards and Technology, nor does it imply that the materials or equipment identified are the best available for the purpose.

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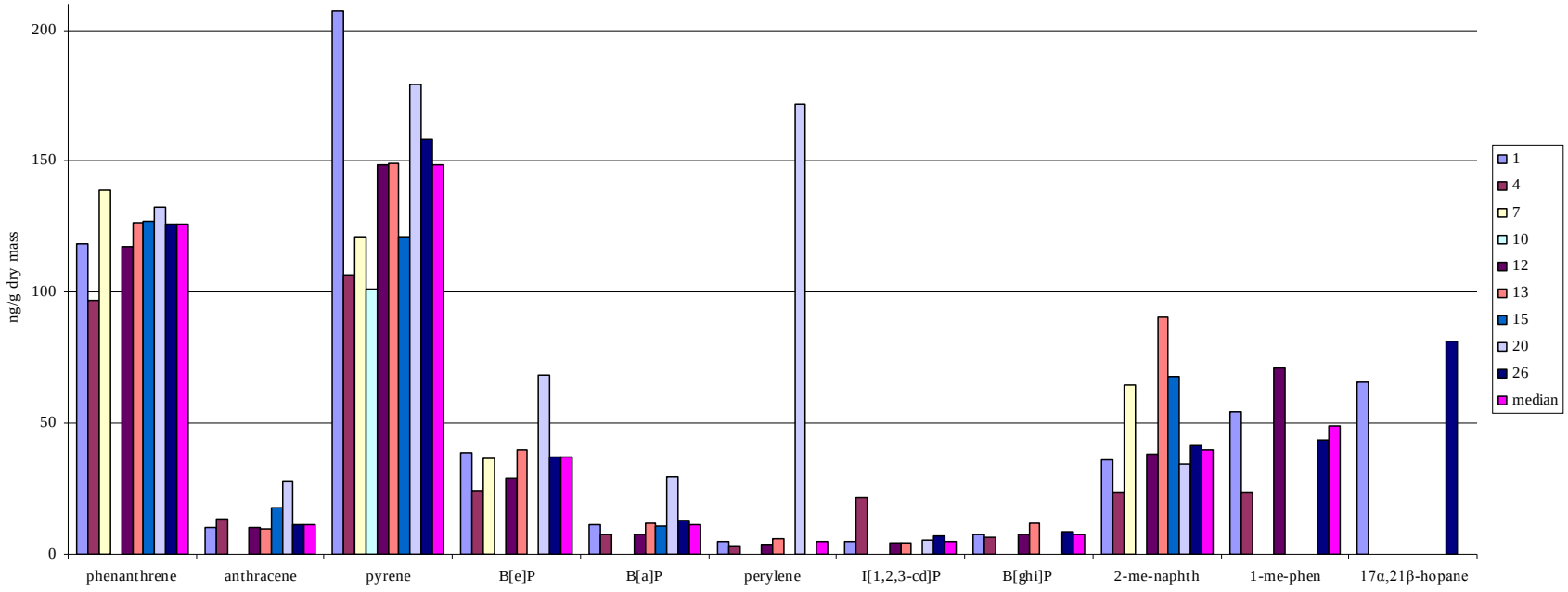

Figure 1. Data from laboratories performing Soxhlet extraction. Medians are not calculated when there are two or fewer sets of data.

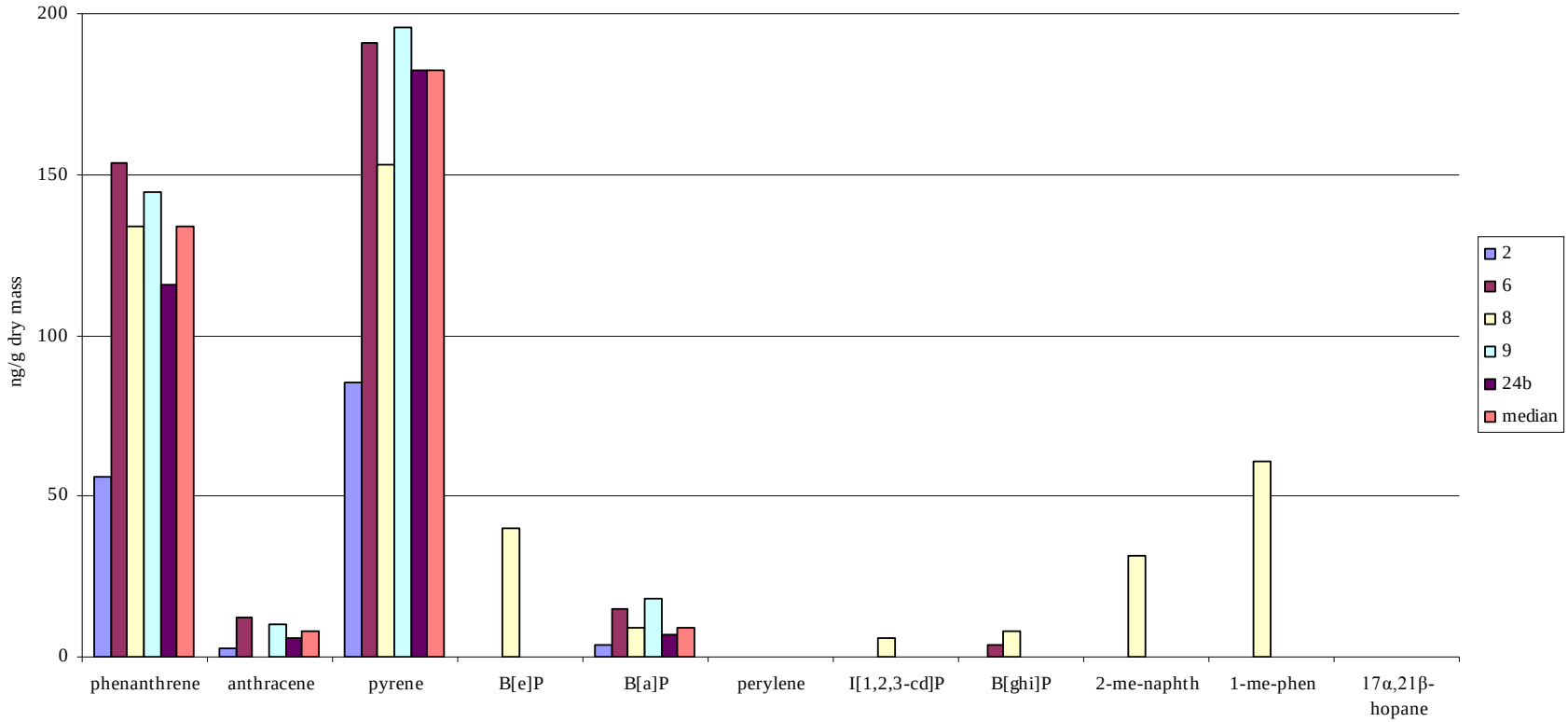

Figure 2. Data from laboratories performing QuEChERS. Medians are not calculated when there are two or fewer sets of data.

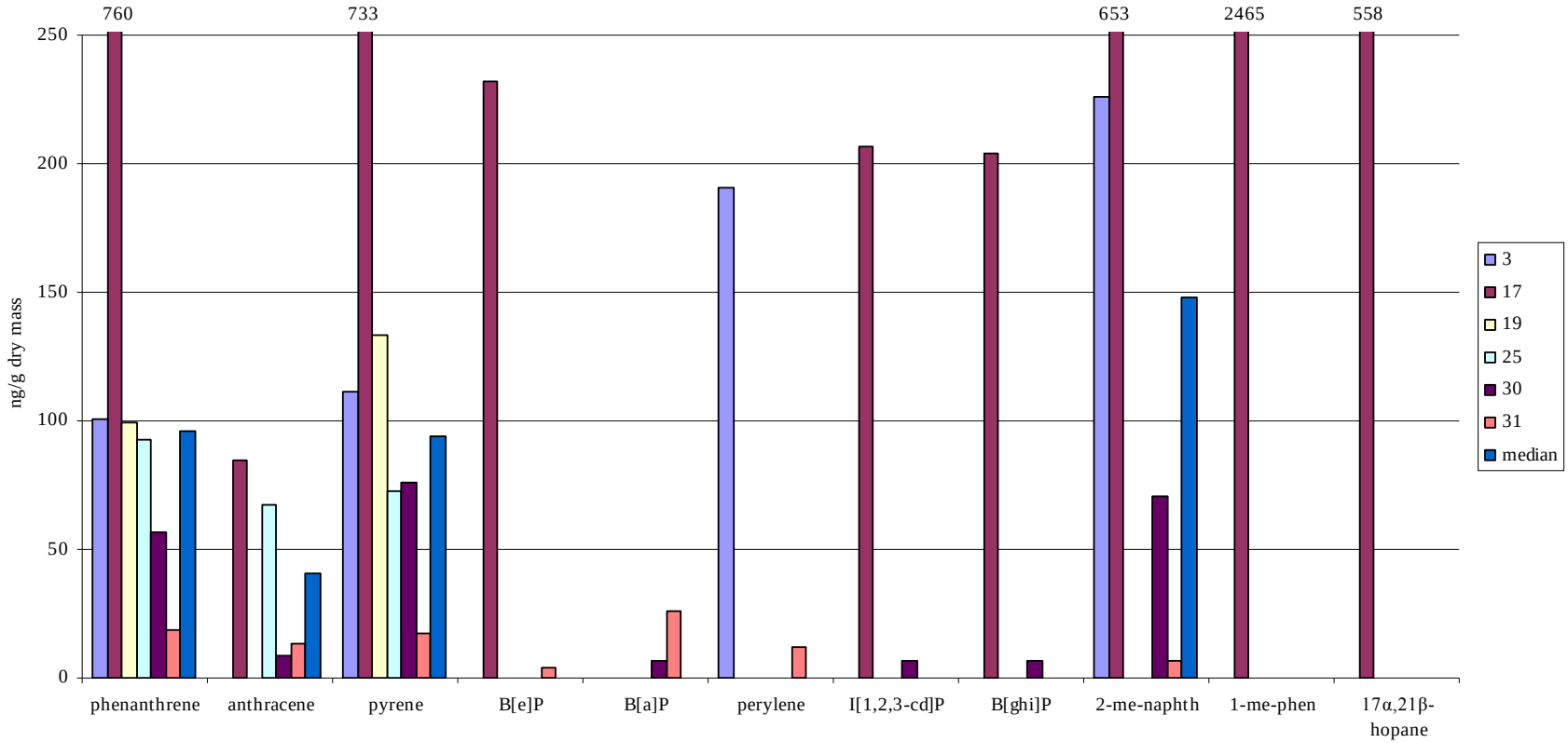

Figure 3. Data from laboratories performing sonication. Medians are not calculated when there are two or fewer sets of data.

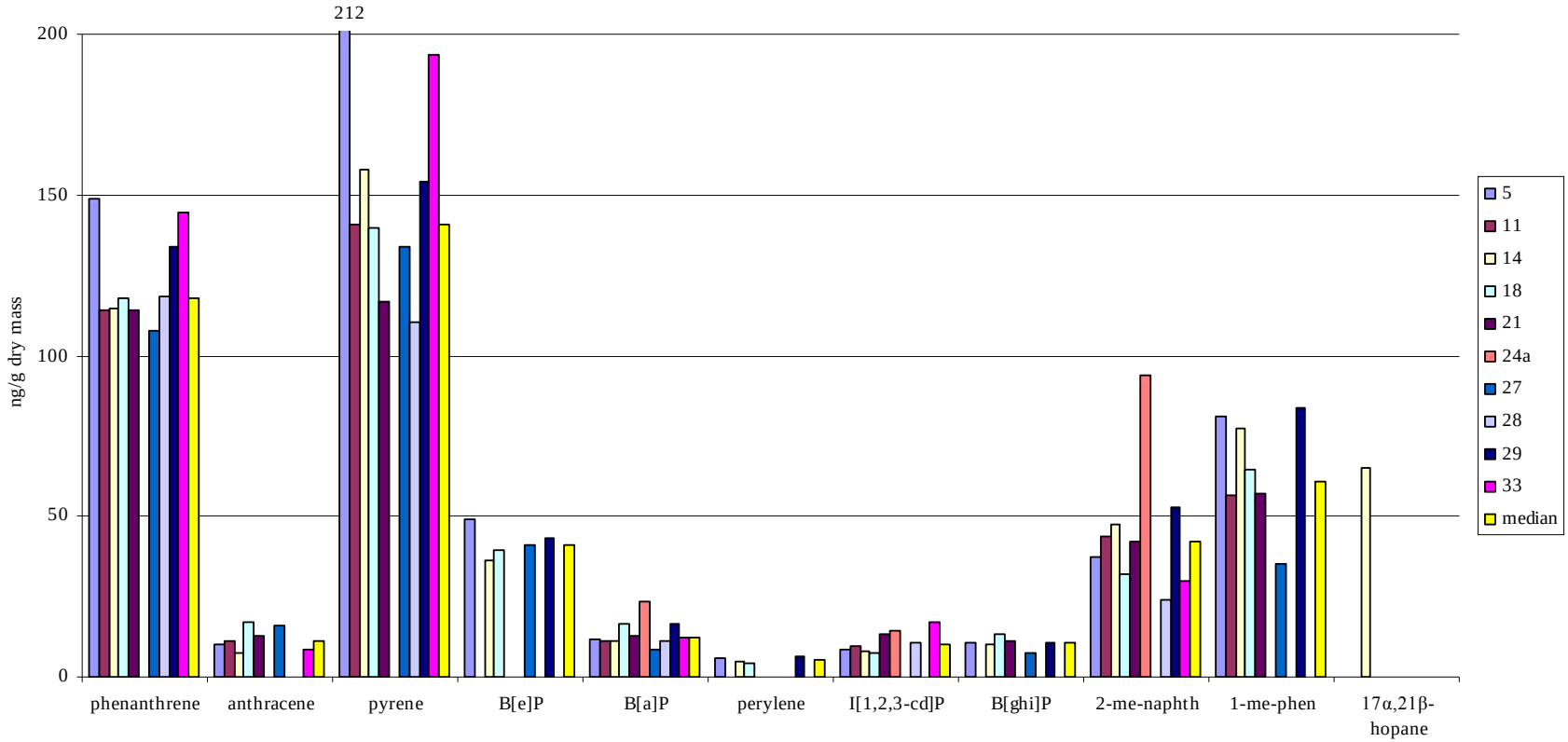

Figure 4. Data from laboratories performing ASE. Medians are not calculated when there are two or fewer sets of data.

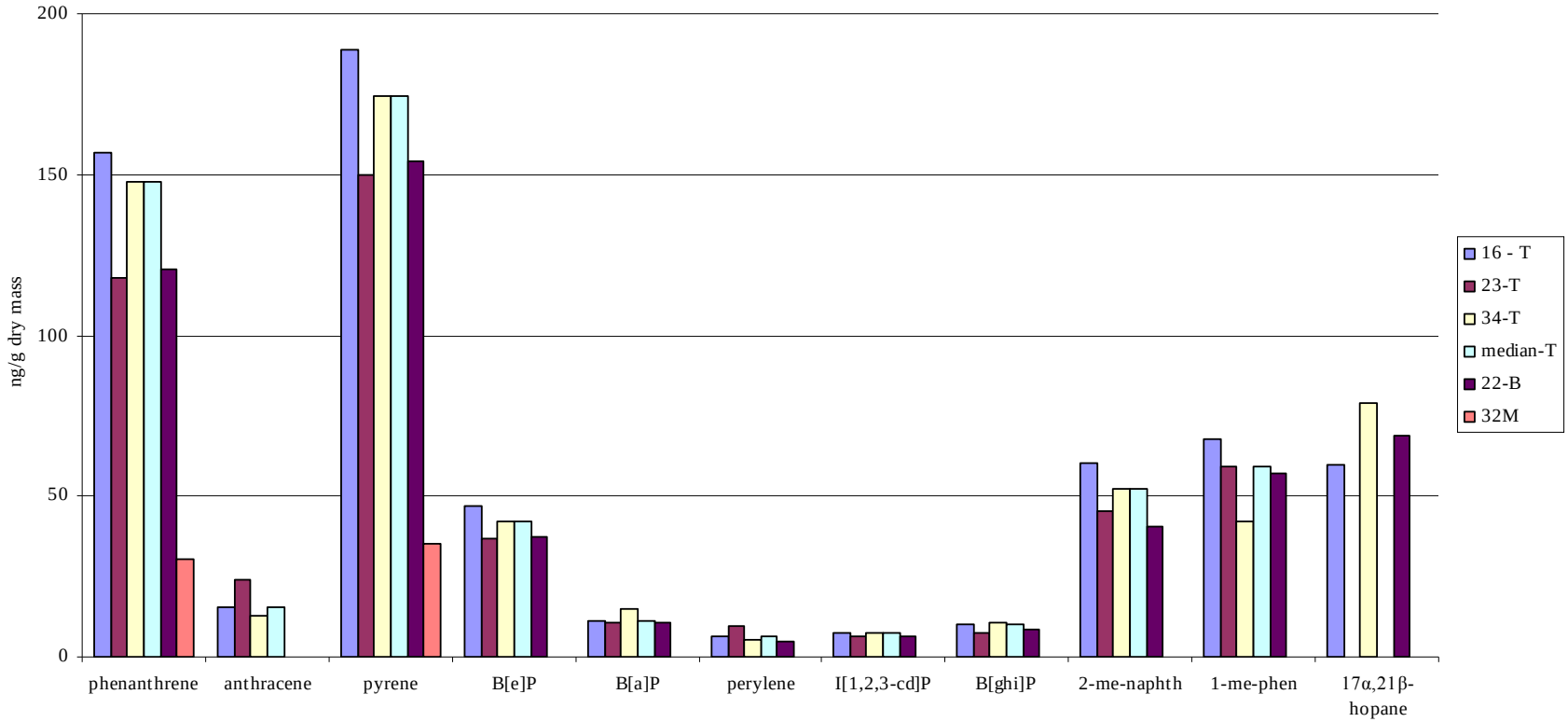

Figure 5. Data from the three laboratories using the tissumizer method (T) along with the medians for that method and from the one laboratory using base digestion (B) and one laboratory using microwave extraction (M). Medians are not calculated when there are two or fewer sets of data.

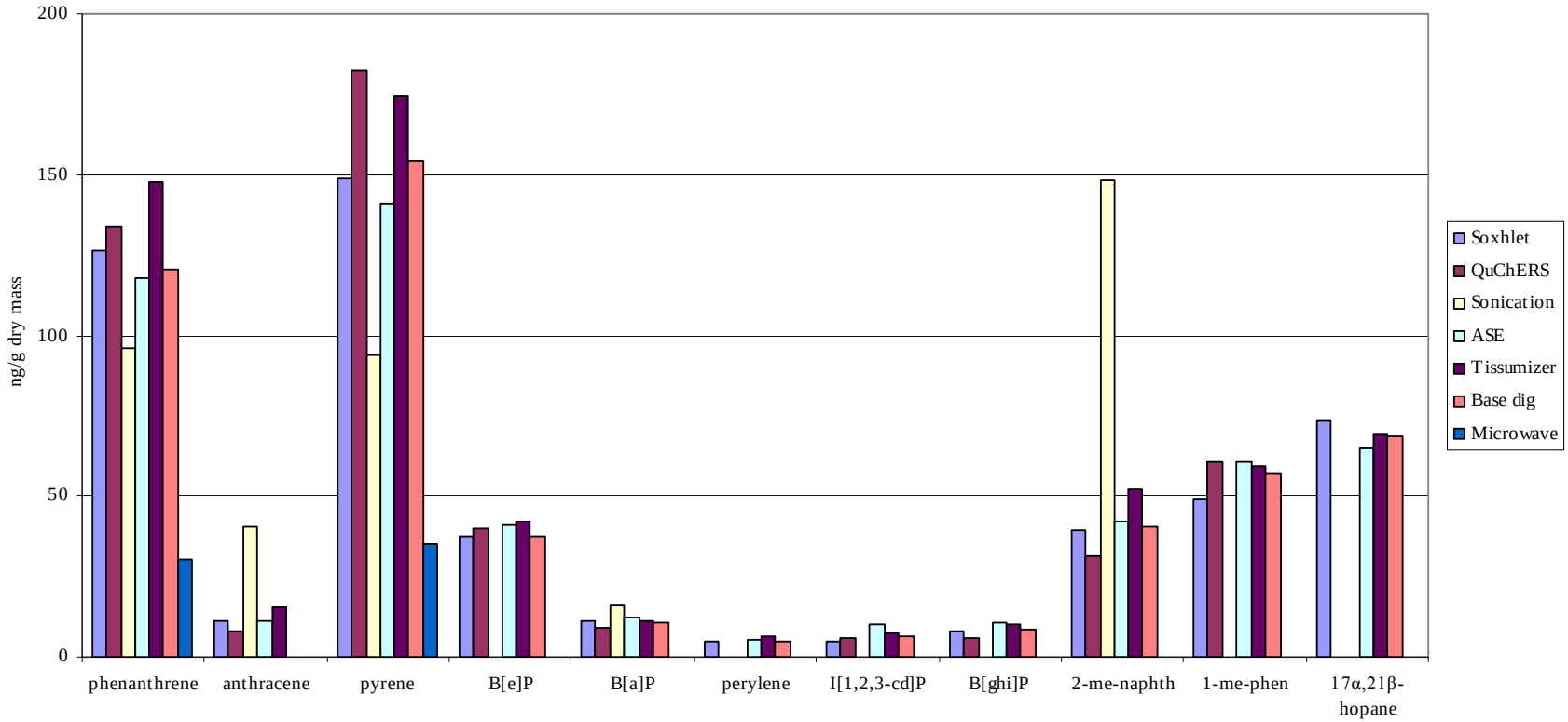

Figure 6. Data comparison by extraction method. Medians are shown for the data sets with 2 or data points that were not excluded from the assignment of the consensus means. Otherwise, the data represent one set of data. See Tables 13 to 15 for the complete summary.

Table 1. Mussel Tissue (QA10TIS01): Laboratory means of three replicates and exercise assigned values - Water and PAHs

(reported as if three figures were significant)

Laboratory No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Percent Water	85.4	87.8	86.0	87.3	87.9	86.9	86.3	86.7	87.3	87.2	86.2	88.8	86.9	86.4	86.6	88.2	86.7	87.8	87.0

ng/g dry mass

Laboratory No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
naphthalene	43.0	**37.2**	<294	19.7	12.9	**104**	36.2	31.3	other	<5700	18.4	24.2	**54.5**	NA	**350**	34.6	**625**	30.2	<78
biphenyl	12.9		**130**	16.0	Other	NA	<14.8	NA	NA	<5700	NA	9.18	21.1	NA	18.3	13.6	**567**	19.1	<78
acenaphthene	14.0	nd	<294	11.3	9.59	**0.00**	<14.8	<0.2	<11	<5700	NA	7.42	< 30	9.70	<10	11.7	<3.2	9.64	<78
acenaphthylene	<10		<294	9.03	2.74	NA	<14.8	<0.2	NA	<5700	NA	4.50	< 30	8.08	12.7	10.7	<3.2	6.77	<78
fluorene	33.9	14.3	<294	24.3	26.0	43.6	19.8	25.2	17.7	<5700	19.7	14.8	33.3	30.9	25.3	24.0	**227**	20.3	<78
phenanthrene	119	56.1	101	97.0	149	153	139	134	144	<5700	114	117	126	114	127	157	**760**	118	99.3
anthracene	10.3	2.76	<294	13.3	10.0	12.1	<14.8	other	10.0	<5700	11.4	10.3	9.69	7.70	17.7	15.7	**85**	17.3	<78
fluoranthene	246	115	181	140	305	247	196	241	260	183	221	269	210	209	173	288	**1160**	303	207
pyrene	207	85.4	112	107	212	191	121	153	196	101	141	149	149	158	121	189	**733**	140	133
benzo[b]fluorene	NA		NA	17.3	NA	NA	NA	NA	NA	NA	NA	15.8	NA	NA	NA	NA	<3.2	NA	NA
benz[a]anthracene	37.3	**8.87**	<294	19.7	57.8	49.9	16.3	28.3	other	<5700	35.8	32.1	30.8	38.6	26.7	35.4	**198**	53.2	<78
chrysene	coelute	59.1	<294	54.7	Other	94.8	93.9	49.8	107	<5700	96.2	73.0	52.9	35.3	88.3	coelute	coelute	82.5	<78
triphenylene	coelute		NA		Other	NA	NA	NA	NA	NA	NA	NA	NA	38.3	NA	NA	coelute	82.5	NA
chrysene/triphenylene	144				139											108	**421**		
benzo[*b*]fluoranthene	26.3	14.4	<294	20.7	38.1	29.8	21.9	27.3	30.8	<5700	44.0	25.0	35.1	31.0	Other	34.6	**261**	32.6	<78
benzo[*j*]fluoranthene	28.6		NA		Other	NA	NA	NA	NA	NA	NA	NA	NA	16.6	Other	NA	coelute	NA	NA
benzo[*k*]fluoranthene	15.4	3.54	<294	13.0	Other	16.6	20.3	11.9	16.8	<5700	25.4	24.7	14.4	15.1	11.0	coelute	coelute	14.7	<78
benzo[*b+j*]fluoranthene															0.027				
benzo[*j+k*]fluoranthene					32.8											31.7	**194**		
benzo[*b+j+k*]fluoranthene																			
benzo[a]fluoranthene	<10		NA	1.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.42	NA	NA	<3.2	NA	NA
benzo[e]pyrene	38.8		<294	24.3	48.9	NA	36.6	39.9	NA	<5700	NA	29.3	39.9	36.1	NA	46.7	**232**	39.4	<78
benzo[a]pyrene	11.4	3.91	<294	7.40	11.8	14.7	<14.8	9.03	18.4	<5700	11.5	7.55	11.7	11.0	10.7	11.0	<3.2	16.7	<78
perylene	4.96		**191**	2.97	5.68	NA	<14.8	NA	NA	<5700	NA	3.93	5.86	4.74	<10	6.55	<3.2	4.16	<78
indeno[1,2,3-cd]pyrene	4.75	nd	<294	21.3	8.35	**0.00**	<14.8	5.83	<21	<5700	9.39	4.39	4.58	8.22	<10	7.70	**207**	7.65	<78
benzo[ghi]perylene	7.81	nd	<294	6.67	10.8	3.83	<14.8	8.03	<7	<5700	NA	7.81	11.9	9.88	<10	9.92	**204**	13.1	<78
dibenz[a,h]anthracene	1.12	nd	<294	**0.00**	Other	**0.00**	<14.8	<0.2	<9	<5700	**18.2**	2.28	2.11	<1.5	<10	2.54	**175**	3.14	<78
dibenz[a,h+a,c]anthracene					2.35														
cis/trans-decalin	NA		NA	63.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	142	<3.2	NA	NA
dibenzofuran	NA		<294	21.3	NA	NA	NA	NA	NA	NA	NA	13.8	19.8	NA	NA	18.2	**143**	NA	<78
retene	NA		NA	42.3	11.8	NA	NA	NA	NA	NA	NA	50.1	NA	28.3	30.0	56.2	**245**	NA	NA
benzothiophene	NA		NA	0.00	NA	NA	<14.8	NA	NA	NA	NA	<40	NA	NA	NA	1.30	<3.2	NA	NA
dibenzothiophene	<15		<294	12.7	20.9	NA	<14.8	NA	NA	<5700	NA	16.0	12.9	13.4	12.0	20.4	<3.2	11.8	<78
naphthobenzothiophene	NA		NA	11.7	Other	NA	NA	NA	NA	NA	NA	13.6	NA	NA	NA	7.41	<3.2	NA	NA

NA=Not analyzed; DL=Detection limit; No value in space=nothing reported by lab: Bolded values were not used in the calculation of the consensus statistics

Table 1 (cont). Mussel Tissue (QA10TIS01): Laboratory means of three replicates and exercise assigned values - Water and PAHs

(reported as if three figures were significant)

Laboratory No.	20	21	22	23	24a	24b	25	26	27	28	29	30	31	32	33	34	Consensus Values (%) mean	std dev	median
Percent Water	86.7	85.6	86.8	85.4	84.6	84.6	87.0	87.1	84.9	85.9	86.9	85.5	NA	88.7	87.6	87.4	86.7	1.1	86.8
ng/g dry mass																	Consensus Values (ng/g dry mass)		
Laboratory No.	20	21	22	23	24a	24b	25	26	27	28	29	30	31	32	33	34	mean	std dev	median
naphthalene	37.0	23.0	24.3	26.5	47.0	**117**	<conc	24.3	<12.2	15.0	31.0	14.7	**5.50**	<26	22.5	28.4	27.2	9.2	30.2
biphenyl	35.0	NA	11.8	16.5	NA	NA	<conc	16.3	13.3	NA	NA	<39.8	**6.87**	<26	NA	12.2	16.6	6.4	16.1
acenaphthene	< 7.4	6.67	10.4	9.06	NA	DL	<conc	11.1	7.12	NA	DL	6.69	**11.7**	<26	NA	10.4	9.63	2.13	9.67
acenaphthylene	13.8	4.45	7.68	16.0	NA	NA	<conc	10.1	12.5	NA	DL	6.29	<3.0	<26	NA	7.86	8.88	3.76	8.08
fluorene	23.5	20.6	18.6	20.8	DL	DL	<conc	18.7	19.5	18.5	29.2	18.7	<3.0	<26	25.2	21.5	23.4	6.6	21.5
phenanthrene	133	114	121	118	DL	116	92.8	126	108	119	134	56.6	**18.7**	**30.3**	145	148	120	24	119
anthracene	28.2	12.8	< 40	24.2	DL	6.10	**67.7**	11.4	16.1	<6.21	DL	8.75	**13.7**	<26	8.29	12.7	12.6	5.7	12.1
fluoranthene	**127**	238	200	221	DL	215	114	227	242	231	215	176	**24.0**	**52.7**	277	262	217	50	218
pyrene	179	117	154	150	DL	182	73.0	158	134	111	154	75.8	**17.3**	**35.0**	194	175	146	38	149
benzo[b]fluorene	NA	NA	NA	NA	NA	NA	<conc	37.0	<15.4	22.4	DL	<39.8	NA	NA	NA	12.2	20.9	9.7	17.3
benz[a]anthracene	63.6	33.7	27.4	28.9	DL	50.3	<conc	28.3	34.2	33.8	37.2	24.0	**5.20**	<26	55.9	34.8	36.6	12.1	34.0
chrysene	88.7	58.7	other	Other	29.2	85.7	43.8	Other	coelute	83.3	coelute	56.0	**15.3**	26.0	71.2	coelute	No Target		65.2
triphenylene	NA	NA	other	Other	NA	NA	NA	Other	NA	NA	coelute	NA	NA	NA	NA	NA	No Target		60.4
chrysene/triphenylene			84.4	69.6				79.3	91.6		107					102	103	25	105
benzo[*b*]fluoranthene	36.0	55.5	25.0	37.6	48.3	20.8	<conc	37.5	42.1	22.4	28.1	21.8	<3.0	coelute	57.2	30.5	32.4	10.5	30.9
benzo[*j*]fluoranthene	NA	NA	other	NA	NA	NA	NA	Other	coelute	NA	coelute	NA	NA	coelute	NA	NA	No Target		22.6
benzo[*k*]fluoranthene	**65.8**	14.3	other	12.5	DL	7.83	<conc	Other	NA	30.1	coelute	14.2	**3.20**	coelute	19.3	coelute	15.8	6.2	14.7
benzo[*b+j*]fluoranthene																	No Target		
benzo[*j+k*]fluoranthene			24.7					**9.97**	14.7		32.8					33.9	28.4	7.5	32.2
benzo[*b+j+k*]fluoranthene														<26			No Target		
benzo[a]fluoranthene	NA	NA	NA	NA	NA	NA	NA	3.99	<2.94	NA	DL	NA	NA	NA	NA	1.96	3.17	1.88	2.97
benzo[e]pyrene	**68.6**	NA	37.5	36.9	NA	NA	<conc	37.4	40.8	NA	43.1	<39.8	**4.00**	<26	NA	42.3	38.6	5.9	39.4
benzo[a]pyrene	29.5	12.9	10.6	10.4	23.3	7.05	<conc	12.7	8.42	11.4	16.5	6.36	**26.0**	<26	12.3	15.2	12.3	5.3	11.4
perylene	**172**	NA	4.57	9.40	NA	NA	<conc	<10	<7.65	NA	6.50	<39.8	**12.1**	<26	NA	5.22	5.38	1.64	5.68
indeno[1,2,3-cd]pyrene	5.12	13.4	6.61	6.44	**14.2**	DL	<conc	7.07	<4.58	10.5	DL	6.36	<3.0	<26	**16.8**	7.24	8.05	4.00	7.45
benzo[ghi]perylene	< 7.4	11.0	8.75	7.73	NA	DL	<conc	8.68	7.29	NA	10.5	6.36	<3.0	<26	NA	10.7	8.92	2.25	8.75
dibenz[a,h]anthracene	< 7.4	**5.09**	other	1.77	DL	DL	<conc	7.83	<3.28	<4.81	DL	<39.8	<3.0	<26	3.23	coelute	3.00	2.07	2.54
dibenz[a,h+a,c]anthracene			1.92													3.63	2.63	0.89	2.35
cis/trans-decalin	NA	NA	NA	NA	NA	NA	NA	91.9	53.9	NA	DL	<39.8	NA	38.3	NA	113	No Target		77.6
dibenzofuran	< 7.4	NA	NA	NA	NA	NA	<conc	15.8	17.1	NA	DL	<39.8	<3.0	<26	NA	15.7	17.4	2.6	17.7
retene	NA	NA	30.7	NA	NA	NA	NA	25.4	<9.61	NA	DL	NA	NA	<26	NA	<2.26	34.4	14.4	30.7
benzothiophene	NA	NA	NA	NA	NA	NA	NA	<1.3	<5.15	NA	DL	<39.8	NA	<26	NA	1.66	No Target		1.30
dibenzothiophene	< 7.4	14.0	14.6	15.8	NA	NA	<conc	16.7	17.6	NA	18.6	<39.8	<3.0	<26	NA	18.4	15.7	3.0	15.8
naphthobenzothiophene	NA	NA	NA	NA	NA	NA	NA	12.7	20.4	NA	NA	NA	NA	<26	NA	18.0	14.0	4.6	13.1

NA=Not analyzed; DL=Detection limit; No value in space=nothing reported by lab: Bolded values were not used in the calculation of the consensus statistics (Lab 31 reported values on a wet mass basis)

Table 2. Mussel Tissue (QA10TIS01): Laboratory means of three replicates and exercise assigned values - Alkylated PAHs (ng/g dry mass)
(reported as if three figures were significant)

Laboratory No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1-methylnaphthalene	27.2		<294	15.0	21.0	NA	**113**	50.3	NA	<5700	27.4	23.0	**50.5**	29.8	37.7	40.1	<6.4	19.9	<78
2-methylnaphthalene	36.2		**226**	23.7	37.1	NA	64.4	31.5	NA	<5700	43.8	38.0	**90.3**	47.6	67.7	60.2	**653**	31.8	<78
2,6-dimethylnaphthalene	67.0		102	42.3	68.8	NA	NA	70.5	NA	NA	46.9	65.4	101	41.5	NA	90.2	**1062**	46.5	<78
1,6,7-trimethylnaphthalene	46.5		112	46.3	39.4	NA	NA	NA	NA	NA	NA	50.5	74.3	NA	NA	76.8	**325**	41.4	<78
1-methylphenanthrene	54.6		<294	23.7	81.1	NA	NA	61.1	NA	NA	56.4	70.9	Other	77.1	NA	67.5	**2465**	64.8	<78
C1-decalins	NA		NA	390	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	831	**2467**	NA	NA
C2-decalins	NA		NA	1333	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2137	**14233**	NA	NA
C3-decalins	NA		NA	1900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1727	**21200**	NA	NA
C4-decalins	NA		NA	2533	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2707	**24533**	NA	NA
C1-naphthalenes	63.4		**596**	23.7	58.2	NA	NA	NA	NA	<5700	NA	35.5	NA	NA	NA	64.7	**862**	NA	<78
C2-naphthalenes	255		378	78.3	236	NA	NA	NA	NA	<5700	NA	125	NA	NA	313	194	**2728**	NA	123
C3-naphthalenes	629		391	153	606	NA	NA	NA	NA	207	NA	253	NA	NA	419	406	**4270**	NA	200
C4-naphthalenes	498		594	170	600	NA	NA	NA	NA	110	NA	210	NA	NA	466	362	**5307**	NA	227
C1-benzothiophenes	NA		NA	**0.00**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16.9	<3.2	NA	NA
C2-benzothiophenes	NA		NA	**0.00**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	34.6	<3.2	NA	NA
C3-benzothiophenes	NA		NA	**0.00**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	55.8	<3.2	NA	NA
C4-benzothiophenes	NA		NA	**0.00**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	41.6	<3.2	NA	NA
C1-fluorenes	76.8		<294	34.0	68.6	NA	NA	NA	NA	<5700	NA	37.7	NA	NA	75.7	72.4	**856**	NA	<78
C2-fluorenes	181		<294	107	186	NA	NA	NA	NA	<5700	NA	109	NA	NA	188	209	**2563**	NA	147
C3-fluorenes	296		<294	473	262	NA	NA	NA	NA	<5700	NA	173	NA	NA	436	300	<3.2	NA	217
C1-phenanthrenes/anthracenes	280		<294	163	425	NA	NA	NA	NA	<5700	NA	226	NA	NA	415	321	<3.2	NA	190
C2-phenanthrenes/anthracenes	521		662	263	626	NA	NA	NA	NA	102	NA	326	NA	NA	689	510	**2353**	NA	307
C3-phenanthrenes/anthracenes	467		<294	323	508	NA	NA	NA	NA	<5700	NA	232	NA	NA	1044	361	**3257**	NA	263
C4-phenanthrenes/anthracenes	145		<294	230	209	NA	NA	NA	NA	<5700	NA	113	NA	NA	597	130	**1380**	NA	117
C1-dibenzothiophenes	95.9		<294	55.3	92.1	NA	NA	NA	NA	<5700	NA	72.3	NA	NA	64.7	99.4	**385**	NA	<78
C2-dibenzothiophenes	237		<294	140	245	NA	NA	NA	NA	<5700	NA	193	NA	NA	192	269	**946**	NA	107
C3-dibenzothiophenes	223		<294	143	206	NA	NA	NA	NA	<5700	NA	163	NA	NA	155	256	**1113**	NA	110
C4-dibenzothiophenes	110		<294	87.0	103	NA	NA	NA	NA	<5700	NA	68.7	NA	NA	<40	110	**877**	NA	<78
C1-fluoranthenes/pyrenes	145		<294	70.0	114	NA	NA	NA	NA	<5700	NA	91.9	NA	NA	66.7	134	**717**	NA	99
C2-fluoranthenes/pyrenes	62.3		166	42.7	68.3	NA	NA	NA	NA	<5700	NA	55.3	NA	NA	43.0	67.1	<3.2	NA	<78
C3-fluoranthenes/pyrenes	33.4		<294	31.7	37.1	NA	NA	NA	NA	<5700	NA	24.3	NA	NA	<40	40.2	<3.2	NA	<78
C4-fluoranthenes/pyrenes	<15		NA	12.6	12.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.2	NA	NA
C1-naphthobenzothiophenes	NA		NA	55.7	20.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12.2	<3.2	NA	NA
C2-naphthobenzothiophenes	NA		NA	**0.00**	13.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.7	<3.2	NA	NA
C3-naphthobenzothiophenes	NA		NA	**0.00**	6.97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.59	<3.2	NA	NA
C4-naphthobenzothiophenes	NA		NA	**0.00**	3.10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.00**	<3.2	NA	NA
C1-chrysenes	42.6		<294	25.7	56.9	NA	NA	NA	NA	<5700	NA	28.9	NA	NA	NA	44.4	**308**	NA	<78
C2-chrysenes	25.7		<294	21.3	31.2	NA	NA	NA	NA	<5700	NA	16.2	NA	NA	NA	32.2	<3.2	NA	<78
C3-chrysenes	<10		<294	9.93	13.5	NA	NA	NA	NA	<5700	NA	6.20	NA	NA	NA	**0.00**	<3.2	NA	<78
C4-chrysenes	<10		<294	**0.00**	<1.79	NA	NA	NA	NA	NA	NA	<40	NA	NA	NA	**0.00**	<3.2	NA	<78

NA=Not analyzed; DL=Detection limit; No value in space=nothing reported by lab: Bolded values were not used in the calculation of the consensus statistics

Table 2 (cont). Mussel Tissue (QA10TIS01): Laboratory means of three replicates and exercise assigned valuess - Alkylated PAHs (ng/g dry mass)
(reported as if three figures were significant)

Laboratory No.	20	21	22	23	24a	24b	25	26	27	28	29	30	31	32	33	34	Consensus Values (ng/g dry mass) mean	std dev	median
1-methylnaphthalene	37.6	25.6	24.8	30.4	58.3	NA	<conc	29.7	<24.3	38.3	31.2	16.1	**7.90**	<52	47.6	34.2	31.7	11.1	30.1
2-methylnaphthalene	34.4	42.3	40.8	45.1	**94.0**	NA	<conc	41.4	<24.3	24.0	52.5	70.5	**6.90**	<52	30.0	52.2	43.6	15.3	43.1
2,6-dimethylnaphthalene	106	41.6	76.2	53.7	118	NA	104	78.8	48.4	69.7	DL	27.1	**13.2**	<52	87.5	73.3	70.7	24.9	69.7
1,6,7-trimethylnaphthalene	168	NA	NA	41.7	NA	NA	<conc	81.4	30.6	NA	46.0	NA	**17.7**	<52	NA	35.6	63.6	37.6	46.4
1-methylphenanthrene	< 7.4	57.3	57.3	59.2	DL	NA	<conc	43.7	35.1	<8.65	83.8	NA	<3.0	<52	**0.00**	42.3	58.5	16.4	58.3
C1-decalins	NA	NA	NA	NA	NA	NA	<conc	560	**30.6**	NA	DL	NA	NA	<52	NA	547	582	183	554
C2-decalins	NA	NA	NA	NA	NA	NA	<conc	1733	**45.6**	NA	DL	NA	NA	<52	NA	1353	1639	379	1543
C3-decalins	NA	NA	NA	NA	NA	NA	<conc	2967	**310**	NA	DL	NA	NA	<52	NA	1127	1930	766	1813
C4-decalins	NA	NA	NA	NA	NA	NA	<conc	3533	**506**	NA	DL	NA	NA	<52	NA	1493	2567	838	2620
C1-naphthalenes	47.2	63.4	65.5	75.4	NA	NA	<conc	48.3	<24.3	62.3	90.0	NA	**13.0**	<52	77.5	55.3	59.3	17.0	63.4
C2-naphthalenes	212	277	298	173	508	NA	<conc	180	102	263	229	NA	**26.0**	<52	321	138	232	106	229
C3-naphthalenes	314	390	615	306	497	NA	<conc	290	226	498	695	NA	**27.0**	**54.3**	435	235	386	165	390
C4-naphthalenes	319	240	554	326	683	NA	<conc	400	279	138	Other	NA	**18.3**	**76.0**	313	247	552	173	316
C1-benzothiophenes	NA	NA	NA	NA	NA	NA	<conc	<39	21.1	NA	DL	NA	NA	<52	NA	14.4	17.5	3.4	15.7
C2-benzothiophenes	NA	NA	NA	NA	NA	NA	<conc	<39	12.4	NA	DL	NA	NA	<52	NA	19.5	22.2	11.3	15.9
C3-benzothiophenes	NA	NA	NA	NA	NA	NA	<conc	<39	20.4	NA	DL	NA	NA	<52	NA	49.4	41.8	18.9	34.9
C4-benzothiophenes	NA	NA	NA	NA	NA	NA	<conc	54.0	37.8	NA	DL	NA	NA	NA	NA	50.2	45.9	7.5	41.6
C1-fluorenes	< 7.4	84.9	140	68.6	98.7	NA	<conc	68.3	70.1	21.5	**446**	NA	<3.0	<52	103	51.8	71.4	29.3	72.4
C2-fluorenes	< 7.4	195	312	146	193	NA	<conc	373	190	181	**658**	NA	<3.0	60.0	77.2	150	177	77	186
C3-fluorenes	< 7.4	48.4	530	242	DL	NA	<conc	780	354	<6.89	558	NA	<3.0	67.0	277	228	328	190	287
C1-phenanthrenes/anthracenes	< 7.4	312	328	258	685	NA	<conc	187	230	360	554	NA	<3.0	**59.3**	433	257	331	138	296
C2-phenanthrenes/anthracenes	< 7.4	113	546	378	**1457**	NA	106	493	393	536	934	NA	<3.0	**93.3**	639	398	434	219	502
C3-phenanthrenes/anthracenes	< 7.4	155	547	294	469	NA	<conc	460	307	356	837	NA	<3.0	**77.0**	482	240	457	224	361
C4-phenanthrenes/anthracenes	< 7.4	NA	590	141	**5.48**	NA	<conc	260	159	<9.48	426	NA	<3.0	<52	237	92.5	246	170	184
C1-dibenzothiophenes	46.2	NA	103	85.1	NA	NA	<conc	82.7	71.6	NA	188	NA	<3.0	<52	NA	71.4	86.8	35.0	83.9
C2-dibenzothiophenes	< 7.4	NA	355	215	NA	NA	<conc	287	226	NA	651	NA	<3.0	**54.0**	NA	201	211	134	226
C3-dibenzothiophenes	61.7	NA	321	190	NA	NA	<conc	303	234	NA	**705**	NA	<3.0	<52	NA	186	196	73	206
C4-dibenzothiophenes	55.6	NA	132	NA	NA	NA	<conc	263	108	NA	**433**	NA	<3.0	NA	NA	95.4	113	57	109
C1-fluoranthenes/pyrenes	373	338	376	123	NA	NA	<conc	127	115	NA	112	NA	<3.0	<52	NA	107	159	107	119
C2-fluoranthenes/pyrenes	< 7.4	91.6	**291**	59.1	NA	NA	<conc	92.7	71.7	NA	84.2	NA	<3.0	<52	NA	59.3	74.1	31.8	67.7
C3-fluoranthenes/pyrenes	57.9	NA	99.1	27.0	NA	NA	<conc	52.3	36.2	NA	40.9	NA	<3.0	<52	NA	30.2	42.5	20.3	36.7
C4-fluoranthenes/pyrenes	NA	NA	22.4	NA	NA	NA	<conc	<39	16.9	NA	18.5	NA	<3.0	NA	NA	15.2	16.3	3.9	16.0
C1-naphthobenzothiophenes	NA	NA	NA	NA	NA	NA	<conc	<39	19.1	NA	NA	NA	<3.0	<52	NA	18.9	25.2	17.3	19.1
C2-naphthobenzothiophenes	NA	NA	NA	NA	NA	NA	<conc	<39	16.0	NA	NA	NA	<3.0	<52	NA	15.9	13.6	3.4	13.8
C3-naphthobenzothiophenes	NA	NA	NA	NA	NA	NA	<conc	<39	<8.19	NA	NA	NA	<3.0	<52	NA	9.75	8.11	1.46	7.28
C4-naphthobenzothiophenes	NA	NA	NA	NA	NA	NA	<conc	<39	<8.19	NA	NA	NA	<3.0	NA	NA	<0.707	No Target		
C1-chrysenes	35.5	NA	60.9	44.7	NA	NA	<conc	43.5	41.6	NA	43.9	NA	<3.0	<52	NA	38.7	42.3	9.9	43.5
C2-chrysenes	**210**	NA	30.6	19.5	NA	NA	<conc	43.0	22.4	NA	21.8	NA	<3.0	<52	NA	23.9	26.2	7.6	24.8
C3-chrysenes	< 7.4	NA	6.74	6.84	NA	NA	<conc	<39	<13.8	NA	12.3	NA	<3.0	<52	NA	<0.595	9.25	3.14	6.84
C4-chrysenes	< 7.4	NA	0.540	2.93	NA	NA	<conc	<39	<13.8	NA	7.81	NA	<3.0	<52	NA	<0.595	No Target		0.540

NA=Not analyzed; DL=Detection limit; No value in space=nothing reported by lab: Bolded values were not used in the calculation of the consensus statistics (Lab 31 reported values on a wet mass basis)

Table 3. Mussel Tissue (QA10TIS01): Laboratory means of three replicates and exercise assigned valuess - Biomarkers (ng/g dry mass)
(reported as if three figures were significant)

Laboratory No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Carbazole	NA		NA		NA	NA	NA	NA	NA	NA	NA	<40	NA	NA	Other	NA	223	NA	NA
18a(H)-22,29,30-Trisnorhopane	NA		<294		NA	NA	NA	NA	NA	<5700	NA	<40	NA	NA	Other	15.3	NA	NA	<78
17a(H)-22,29,30-Trisnorhopane	<25		<294		NA	NA	NA	NA	NA	<5700	NA	<40	NA	coelution	Other	15.7	NA	NA	<78
17α(H),21β(H)-30-Norhopane	<25		<294		NA	NA	NA	NA	NA	<5700	NA	<40	NA	20.3	Other	0.00	NA	NA	<78
18a(H)-30-Norneohopane	NA		<294		NA	NA	NA	NA	NA	<5700	NA	<40	NA	NA	Other	48.2	NA	NA	<78
17a(H)-Diahopane	NA		<294		NA	NA	NA	NA	NA	<5700	NA	<40	NA	NA	Other	0.00	NA	NA	<78
17α(H),21β(H)-Hopane	65.7		<294		NA	NA	NA	NA	NA	<5700	NA	<40	NA	65.3	Other	59.8	**558**	NA	<78
17α(H),21β(H)-22R-Homohopane	<20		<294		NA	NA	NA	NA	NA	<5700	NA	<40	NA	12.4	Other	18.4	NA	NA	<78
17α(H),21β(H)-22S-Homohopane	23.1		<294		NA	NA	NA	NA	NA	<5700	NA	<40	NA	20.8	Other	25.0	NA	NA	<78
13b(H)17a(H)-Diacholestane 20S	NA		<294		NA	NA	NA	NA	NA	<5700	NA	<40	NA	NA	Other	18.2	NA	NA	<78
5a(H),14a(H),17a(H)-Cholestane 20S	NA		<294		NA	NA	NA	NA	NA	NA	NA	<40	NA	NA	Other	26.8	NA	NA	<78
5a(H),14a(H),17a(H)-Cholestane 20R	38.2		<294		NA	NA	NA	NA	NA	<5700	NA	<40	NA	36.8	Other	47.1	NA	NA	<78
5a(H),14a(H),17a(H)-24-Ethylcholestane 20S	NA		<294		NA	NA	NA	NA	NA	<5700	NA	<40	NA	16.8	Other	12.4	NA	NA	<78
5a(H),14a(H),17a(H)-24-Ethylcholestane 20R	29.0		<294		NA	NA	NA	NA	NA	<5700	NA	<40	NA	NA	Other	31.0	NA	NA	<78
5a(H),14b(H),17b(H)-Cholestane 20R	<20		<294		NA	NA	NA	NA	NA	<5700	NA	<40	NA	20.0	Other	17.1	NA	NA	<78
5a(H),14b(H),17b(H)-Cholestane 20S	NA		<294		NA	NA	NA	NA	NA	<5700	NA	<40	NA	NA	Other	18.5	NA	NA	<78
5a(H),14b(H),17b(H)-24-Ethylcholestane 20R	<20		<294		NA	NA	NA	NA	NA	<5700	NA	<40	NA	8.75	Other	19.8	NA	NA	<78
5a(H),14b(H),17b(H)-24-Ethylcholestane 20S	NA		<294		NA	NA	NA	NA	NA	<5700	NA	<40	NA	NA	Other	20.0	NA	NA	<78

NA=Not analyzed; DL=Detection limit; No value in space=nothing reported by lab: Bolded values were not used in the calculation of the consensus statistics

Table 3 (cont). Mussel Tissue (QA10TIS01): Laboratory means of three replicates and exercise assigned values - Biomarkers (ng/g dry mass)
(reported as if three figures were significant)

Laboratory No.	20	21	22	23	24a	24b	25	26	27	28	29	30	31	32	33	34	Consensus Values (ng/g dry mass) mean	std dev	median
Carbazole	NA	NA	< 10	NA	NA	NA	<conc	<1.7	NA	NA	NA	NA	NA	NA	NA	6.85	No Target		115
18a(H)-22,29,30-Trisnorhopane	131	NA	NA	NA	NA	NA	<conc	NA	NA	NA	NA	NA	<3.0	NA	NA	19.8	No Target		19.8
17a(H)-22,29,30-Trisnorhopane	79.6	NA	23.2	NA	NA	NA	<conc	NA	NA	NA	NA	NA	<3.0	NA	NA	20.8	No Target		22.0
17α(H),21β(H)-30-Norhopane	< 7.4	NA	60.2	NA	NA	NA	<conc	NA	NA	NA	NA	NA	**112**	NA	NA	51.2	No Target		51.2
18a(H)-30-Norneohopane	< 7.4	NA	NA	NA	NA	NA	<conc	NA	NA	NA	NA	NA	**86.7**	NA	NA	18.1	No Target		48.2
17a(H)-Diahopane	< 7.4	NA	NA	NA	NA	NA	<conc	NA	NA	NA	NA	NA	<3.0	NA	NA	5.48	No Target		2.74
17α(H),21β(H)-Hopane	< 7.4	NA	68.8	NA	NA	NA	<conc	81.1	NA	NA	NA	NA	<3.0	NA	NA	78.9	69.9	8.3	68.8
17α(H),21β(H)-22R-Homohopane	< 7.4	NA	23.8	NA	NA	NA	<conc	NA	NA	NA	NA	NA	<3.0	NA	NA	20.5	18.8	4.8	19.4
17α(H),21β(H)-22S-Homohopane	< 7.4	NA	29.4	NA	NA	NA	<conc	NA	NA	NA	NA	NA	<3.0	NA	NA	24.4	24.5	3.2	24.4
13b(H)17a(H)-Diacholestane 20S	50.6	NA	NA	NA	NA	NA	<conc	NA	NA	NA	NA	NA	<3.0	NA	NA	17.7	No Target		18.2
5a(H),14a(H),17a(H)-Cholestane 20S	< 7.4	NA	NA	NA	NA	NA	<conc	NA	NA	NA	NA	NA	<3.0	NA	NA	29.1	No Target		28.0
5a(H),14a(H),17a(H)-Cholestane 20R	< 7.4	NA	36.4	NA	NA	NA	<conc	NA	NA	NA	NA	NA	<3.0	NA	NA	52.4	42.2	7.2	38.2
5a(H),14a(H),17a(H)-24-Ethylcholestane 20S	21.0	NA	NA	NA	NA	NA	<conc	NA	NA	NA	NA	NA	<3.0	NA	NA	11.3	15.4	4.4	14.6
5a(H),14a(H),17a(H)-24-Ethylcholestane 20R	66.2	NA	27.6	NA	NA	NA	<conc	NA	NA	NA	NA	NA	**24.7**	NA	NA	32.4	37.2	16.3	30.0
5a(H),14b(H),17b(H)-Cholestane 20R	< 7.4	NA	< 30	NA	NA	NA	<conc	NA	NA	NA	NA	NA	**67.3**	NA	NA	17.7	18.3	1.5	18.8
5a(H),14b(H),17b(H)-Cholestane 20S	< 7.4	NA	NA	NA	NA	NA	<conc	NA	NA	NA	NA	NA	**59.7**	NA	NA	18.8	No Target		18.8
5a(H),14b(H),17b(H)-24-Ethylcholestane 20R	< 7.4	NA	13.0	NA	NA	NA	<conc	NA	NA	NA	NA	NA	<3.0	NA	NA	23.7	16.3	6.7	16.4
5a(H),14b(H),17b(H)-24-Ethylcholestane 20S	< 7.4	NA	NA	NA	NA	NA	<conc	NA	NA	NA	NA	NA	<3.0	NA	NA	18.1	No Target		19.1

NA=Not analyzed; DL=Detection limit; No value in space=nothing reported by lab: Bolded values were not used in the calculation of the consensus statistics (Lab 31 reported values on a wet mass basis)

Table 4. Mussel Tissue (QA10TIS01): z scores (25% by laboratory)- Water and PAHs

(z=+1 is 25% higher than the exercise assigned value; z=-1 is 25% lower than the exercise assigned value.)

Laboratory No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Percent Water	-0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0

Laboratory No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
naphthalene	2.3	1.5		-1.1	-2.1	11.3	1.3	0.6			-1.3	-0.4	4.0		47.4	1.1	87.9	0.4
biphenyl	-0.7		28.8	0.0								-1.7	1.3		0.6	-0.6	138.8	0.8
acenaphthene	1.7			0.6	-0.1							-1.0		0.0		0.8		-0.1
acenaphthylene				0.1	-2.8							-2.0		-0.4	1.7	0.8		-1.0
fluorene	1.8	-1.6		0.2	0.4	3.5	-0.6	0.3	-1.0		-0.6	-1.5	1.7	1.3	0.3	0.1	34.8	-0.5
phenanthrene	-0.1	-2.1	-0.7	-0.8	0.9	1.1	0.6	0.4	0.8		-0.2	-0.1	0.2	-0.2	0.2	1.2	21.1	-0.1
anthracene	-0.7	-3.1		0.2	-0.8	-0.2			-0.8		-0.4	-0.8	-0.9	-1.6	1.6	1.0	22.8	1.5
fluoranthene	0.5	-1.9	-0.7	-1.4	1.6	0.5	-0.4	0.4	0.8	-0.6	0.1	0.9	-0.1	-0.2	-0.8	1.3	17.3	1.5
pyrene	1.7	-1.7	-1.0	-1.1	1.8	1.2	-0.7	0.2	1.3	-1.2	-0.2	0.1	0.1	0.3	-0.7	1.1	16.0	-0.2
benzo[b]fluorene				-0.7								-1.0						
benz[a]anthracene	0.1	-3.0		-1.8	2.3	1.5	-2.2	-0.9			-0.1	-0.5	-0.6	0.2	-1.1	-0.1	17.7	1.8
chrysene																		
triphenylene																		
chrysene/triphenylene	1.6				1.4											0.2	12.4	
benzo[*b*]fluoranthene	-0.8	-2.2		-1.4	0.7	-0.3	-1.3	-0.6	-0.2		1.4	-0.9	0.3	-0.2		0.3	28.2	0.0
benzo[*j*]fluoranthene																		
benzo[*k*]fluoranthene	0.0	-3.1		-0.6		0.4	1.3	-0.9	0.4		2.7	2.5	-0.2	0.0	-1.1			-0.1
benzo[*b+j*]fluoranthene																		
benzo[*j+k*]fluoranthene					0.6											0.5	23.3	
benzo[*b+j+k*]fluoranthene																		
benzo[a]fluoranthene				-2.3										2.8				
benzo[e]pyrene	0.0			-1.5	1.1		-0.2	0.1				-1.0	0.1	-0.3		0.8	20.0	0.1
benzo[a]pyrene	-0.5	-2.8		-1.7	-0.3	0.6		-1.2	1.7		-0.4	-1.6	-0.4	-0.6	-0.7	-0.6		1.2
perylene	-0.6		125.4	-2.0	-0.1							-1.3	0.0	-0.8		0.4		-1.2
indeno[1,2,3-cd]pyrene	-1.6			6.6	0.2			-1.1			0.7	-1.8	-1.7	0.1		-0.2	98.9	-0.2
benzo[ghi]perylene	-0.5			-1.0	0.8	-2.3		-0.4				-0.5	1.3	0.4		0.4	87.4	1.9
dibenz[a,h]anthracene	-2.5										20.2	-1.0	-1.2			-0.6	229.2	0.2
dibenz[a,h+a,c]anthracene					-0.4													
cis/trans-decalin																		
dibenzofuran				0.9								-0.8	0.5			0.2	28.9	
retene				0.9	-2.6							1.8		-0.7	-0.5	2.5	24.5	
benzothiophene																		
dibenzothiophene				-0.8	1.3							0.1	-0.7	-0.6	-0.9	1.2		-1.0
naphthobenzothiophene				-0.7								-0.1				-1.9		

Table 4 (cont). Mussel Tissue (QA10TIS01): z scores (25% by laboratory)- Water and PAHs

(z=+1 is 25% higher than the exercise assigned value; z=-1 is 25% lower than the exercise assigned value.)

Laboratory No.	19	20	21	22	23	24a	24b	25	26	27	28	29	30	31	32	33	34
Percent Water	0.0	0.0	-0.1	0.0	-0.1	-0.1	-0.1	0.0	0.0	-0.1	0.0	0.0	-0.1		0.1	0.0	0.0

Laboratory No.	19	20	21	22	23	24a	24b	25	26	27	28	29	30	31	32	33	34
naphthalene		1.4	-0.6	-0.4	-0.1	2.9	13.2		-0.4		-1.8	0.6	-1.8	-3.2		-0.7	0.2
biphenyl		4.5		-1.2	0.0				-0.1	-0.8				-2.3			-1.0
acenaphthene			-1.2	0.3	-0.2				0.6	-1.0			-1.2	0.8			0.3
acenaphthylene		2.2	-2.0	-0.5	3.2				0.5	1.6			-1.2				-0.5
fluorene		0.0	-0.5	-0.8	-0.4				-0.8	-0.7	-0.8	1.0	-0.8			0.3	-0.3
phenanthrene	-0.7	0.4	-0.2	0.0	-0.1		-0.1	-0.9	0.2	-0.4	0.0	0.5	-2.1	-3.4	-3.0	0.8	0.9
anthracene		5.0	0.1		3.7		-2.1	17.5	-0.4	1.1			-1.2	0.3		-1.4	0.0
fluoranthene	-0.2	-1.7	0.4	-0.3	0.1		0.0	-1.9	0.2	0.4	0.3	0.0	-0.8	-3.6	-3.0	1.1	0.8
pyrene	-0.3	0.9	-0.8	0.2	0.1		1.0	-2.0	0.3	-0.3	-1.0	0.2	-1.9	-3.5	-3.0	1.3	0.8
benzo[b]fluorene									3.1		0.3						-1.7
benz[a]anthracene		3.0	-0.3	-1.0	-0.8		1.5		-0.9	-0.3	-0.3	0.1	-1.4	-3.4		2.1	-0.2
chrysene																	
triphenylene																	
chrysene/triphenylene				-0.7	-1.3				-0.9	-0.4		0.2					0.0
benzo[*b*]fluoranthene		0.4	2.9	-0.9	0.6	2.0	-1.4		0.6	1.2	-1.2	-0.5	-1.3			3.1	-0.2
benzo[*j*]fluoranthene																	
benzo[*k*]fluoranthene		12.6	-0.4		-0.8		-2.0				3.6		-0.4	-3.2		0.9	
benzo[*b+j*]fluoranthene																	
benzo[*j+k*]fluoranthene				-0.5					-2.6	-1.9		0.6					0.8
benzo[*b+j+k*]fluoranthene																	
benzo[a]fluoranthene									1.0								-1.5
benzo[e]pyrene		3.1		-0.1	-0.2				-0.1	0.2		0.5		-3.6			0.4
benzo[a]pyrene		5.6	0.2	-0.6	-0.6	3.6	-1.7		0.1	-1.3	-0.3	1.3	-1.9	4.4		0.0	0.9
perylene		123.8		-0.6	3.0							0.8		5.0			-0.1
indeno[1,2,3-cd]pyrene		-1.5	2.6	-0.7	-0.8	3.0			-0.5		1.2		-0.8			4.4	-0.4
benzo[ghi]perylene			0.9	-0.1	-0.5				-0.1	-0.7		0.7	-1.1				0.8
dibenz[a,h]anthracene			2.8		-1.6				6.4							0.3	
dibenz[a,h+a,c]anthracene				-1.1													1.5
cis/trans-decalin																	
dibenzofuran									-0.4	-0.1							-0.4
retene				-0.4					-1.0								
benzothiophene																	
dibenzothiophene			-0.4	-0.3	0.0				0.2	0.5		0.7					0.7
naphthobenzothiophene									-0.4	1.8							1.2

Lab 31 reported values on a wet mass basis

Table 5. Mussel Tissue (QA10TIS01): z scores (25% by laboratory)- Alkylated PAHs

(z=+1 is 25% higher than the exercise assigned value; z=-1 is 25% lower than the exercise assigned value.)

Laboratory No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1-methylnaphthalene	-0.6			-2.1	-1.3		10.2	2.4			-0.5	-1.1	2.4	-0.2	0.8	1.1		-1.5
2-methylnaphthalene	-0.7		16.7	-1.8	-0.6		1.9	-1.1			0.0	-0.5	4.3	0.4	2.2	1.5	55.9	-1.1
2,6-dimethylnaphthalene	-0.2		1.8	-1.6	-0.1			0.0			-1.3	-0.3	1.7	-1.7		1.1	56.1	-1.4
1,6,7-trimethylnaphthalene	-1.1		3.0	-1.1	-1.5							-0.8	0.7			0.8	16.4	-1.4
1-methylphenanthrene	-0.3			-2.4	1.5			0.2			-0.1	0.8		1.3		0.6	164.6	0.4
C1-decalins				-1.3												1.7	13.0	
C2-decalins				-0.7												1.2	30.7	
C3-decalins				-0.1												-0.4	39.9	
C4-decalins				-0.1												0.2	34.2	
C1-naphthalenes	0.3		36.2	-2.4	-0.1							-1.6				0.4	54.2	
C2-naphthalenes	0.4		2.5	-2.6	0.1							-1.8			1.4	-0.7	43.1	
C3-naphthalenes	2.5		0.1	-2.4	2.3					-1.9		-1.4			0.3	0.2	40.3	
C4-naphthalenes	-0.4		0.3	-2.8	0.3					-3.2		-2.5			-0.6	-1.4	34.5	
C1-benzothiophenes																-0.1		
C2-benzothiophenes																2.2		
C3-benzothiophenes																1.3		
C4-benzothiophenes																-0.4		
C1-fluorenes	0.3			-2.1	-0.2							-1.9			0.2	0.1	44.0	
C2-fluorenes	0.1			-1.6	0.2							-1.5			0.3	0.7	54.0	
C3-fluorenes	-0.4			1.8	-0.8							-1.9			1.3	-0.3		
C1-phenanthrenes/anthracenes	-0.6			-2.0	1.1							-1.3			1.0	-0.1		
C2-phenanthrenes/anthracenes	0.8		2.1	-1.6	1.8					-3.1		-1.0			2.4	0.7	17.7	
C3-phenanthrenes/anthracenes	0.1			-1.2	0.4							-2.0			5.1	-0.8	24.5	
C4-phenanthrenes/anthracenes	-1.6			-0.3	-0.6							-2.2			5.7	-1.9	18.4	
C1-dibenzothiophenes	0.4			-1.4	0.2							-0.7			-1.0	0.6	13.7	
C2-dibenzothiophenes	0.5			-1.3	0.6							-0.3			-0.4	1.1	13.9	
C3-dibenzothiophenes	0.5			-1.1	0.2							-0.7			-0.8	1.2	18.7	
C4-dibenzothiophenes	-0.1			-0.9	-0.4							-1.6				-0.1	26.9	
C1-fluoranthenes/pyrenes	-0.4			-2.2	-1.1							-1.7			-2.3	-0.6	14.0	
C2-fluoranthenes/pyrenes	-0.6		5.0	-1.7	-0.3							-1.0			-1.7	-0.4		
C3-fluoranthenes/pyrenes	-0.9			-1.0	-0.5							-1.7				-0.2		
C4-fluoranthenes/pyrenes				-0.9	-1.0													
C1-naphthobenzothiophenes				4.8	-0.8											-2.1		
C2-naphthobenzothiophenes					0.1											-1.4		
C3-naphthobenzothiophenes					-0.6											-0.3		
C4-naphthobenzothiophenes																		
C1-chrysenes	0.0			-1.6	1.4							-1.3				0.2	25.2	
C2-chrysenes	-0.1			-0.7	0.8							-1.5				0.9		
C3-chrysenes				0.3	1.8							-1.3						
C4-chrysenes																		

Table 5 (cont). Mussel Tissue (QA10TIS01): z scores (25% by laboratory)- Alkylated PAHs

(z=+1 is 25% higher than the exercise assigned value; z=-1 is 25% lower than the exercise assigned value.)

Laboratory No.	19	20	21	22	23	24a	24b	25	26	27	28	29	30	31	32	33	34
1-methylnaphthalene		0.7	-0.8	-0.9	-0.2	3.4			-0.2		0.8	-0.1	-2.0	-3.0		2.0	0.3
2-methylnaphthalene		-0.8	-0.1	-0.3	0.1	4.6			-0.2		-1.8	0.8	2.5	-3.4		-1.2	0.8
2,6-dimethylnaphthalene		2.0	-1.6	0.3	-1.0	2.7		1.9	0.5	-1.3	-0.1		-2.5	-3.3		0.9	0.1
1,6,7-trimethylnaphthalene		6.6			-1.4				1.1	-2.1		-1.1		-2.9			-1.8
1-methylphenanthrene			-0.1	-0.1	0.0				-1.0	-1.6		1.7					-1.1
C1-decalins									-0.2	-3.8							-0.2
C2-decalins									0.2	-3.9							-0.7
C3-decalins									2.1	-3.4							-1.7
C4-decalins									1.5	-3.2							-1.7
C1-naphthalenes		-0.8	0.3	0.4	1.1				-0.7		0.2	2.1		-3.1		1.2	-0.3
C2-naphthalenes	-1.9	-0.3	0.8	1.2	-1.0	4.8			-0.9	-2.2	0.5	0.0		-3.6		1.5	-1.6
C3-naphthalenes	-1.9	-0.7	0.0	2.4	-0.8	1.2			-1.0	-1.7	1.2	3.2		-3.7	-3.4	0.5	-1.6
C4-naphthalenes	-2.4	-1.7	-2.3	0.0	-1.6	1.0			-1.1	-2.0	-3.0			-3.9	-3.4	-1.7	-2.2
C1-benzothiophenes										0.8							-0.7
C2-benzothiophenes										-1.8							-0.5
C3-benzothiophenes										-2.1							0.7
C4-benzothiophenes									0.7	-0.7							0.4
C1-fluorenes			0.8	3.8	-0.2	1.5			-0.2	-0.1	-2.8	21.0				1.8	-1.1
C2-fluorenes	-0.7		0.4	3.1	-0.7	0.4			4.5	0.3	0.1	10.9			-2.6	-2.3	-0.6
C3-fluorenes	-1.4		-3.4	2.5	-1.0				5.5	0.3		2.8			-3.2	-0.6	-1.2
C1-phenanthrenes/anthracenes	-1.7		-0.2	0.0	-0.9	4.3			-1.7	-1.2	0.4	2.7			-3.3	1.2	-0.9
C2-phenanthrenes/anthracenes	-1.2		-3.0	1.0	-0.5	9.4		-3.0	0.5	-0.4	0.9	4.6			-3.1	1.9	-0.3
C3-phenanthrenes/anthracenes	-1.7		-2.6	0.8	-1.4	0.1			0.0	-1.3	-0.9	3.3			-3.3	0.2	-1.9
C4-phenanthrenes/anthracenes	-2.1			5.6	-1.7	-3.9			0.2	-1.4		2.9				-0.2	-2.5
C1-dibenzothiophenes		-1.9		0.8	-0.1				-0.2	-0.7		4.7					-0.7
C2-dibenzothiophenes	-2.0			2.7	0.1				1.4	0.3		8.3			-3.0		-0.2
C3-dibenzothiophenes	-1.8	-2.7		2.5	-0.1				2.2	0.8		10.4					-0.2
C4-dibenzothiophenes		-2.0		0.7					5.3	-0.2		11.3					-0.6
C1-fluoranthenes/pyrenes	-1.5	5.4	4.5	5.4	-0.9				-0.8	-1.1		-1.2					-1.3
C2-fluoranthenes/pyrenes			0.9	11.7	-0.8				1.0	-0.1		0.5					-0.8
C3-fluoranthenes/pyrenes		1.4		5.3	-1.5				0.9	-0.6		-0.2					-1.2
C4-fluoranthenes/pyrenes				1.5						0.1		0.5					-0.3
C1-naphthobenzothiophenes										-1.0							-1.0
C2-naphthobenzothiophenes										0.7							0.7
C3-naphthobenzothiophenes																	0.8
C4-naphthobenzothiophenes																	
C1-chrysenes		-0.6		1.8	0.2				0.1	-0.1		0.2					-0.3
C2-chrysenes		28.0		0.7	-1.0				2.6	-0.6		-0.7					-0.4
C3-chrysenes				-1.1	-1.0							1.3					
C4-chrysenes																	

Lab 31 reported values on a wet mass basis

Table 6. Mussel Tissue (QA10TIS01): z scores (25% by laboratory)- Biomarkers
(z=+1 is 25% higher than the exercise assigned value; z=-1 is 25% lower than the exercise assigned value.)

Laboratory No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Carbazole																		
18a(H)-22,29,30-Trisnorhopane																		
17a(H)-22,29,30-Trisnorhopane																		
17α(H),21β(H)-30-Norhopane																		
18a(H)-30-Norneohopane																		
17a(H)-Diahopane																		
17α(H),21β(H)-Hopane	-0.2													-0.3		-0.6	27.9	
17α(H),21β(H)-22R-Homohopane														-1.4		-0.1		
17α(H),21β(H)-22S-Homohopane	-0.2													-0.6		0.1		
13b(H)17a(H)-Diacholestane 20S																		
5a(H),14a(H),17a(H)-Cholestane 20S																		
5a(H),14a(H),17a(H)-Cholestane 20R	-0.4													-0.5		0.5		
5a(H),14a(H),17a(H)-24-Ethylcholestane 20S														0.4		-0.8		
5a(H),14a(H),17a(H)-24-Ethylcholestane 20R	-0.7															-0.5		
5a(H),14b(H),17b(H)-Cholestane 20R														-1.4		-1.8		
5a(H),14b(H),17b(H)-Cholestane 20S																		
5a(H),14b(H),17b(H)-24-Ethylcholestane 20R														-1.9		0.9		
5a(H),14b(H),17b(H)-24-Ethylcholestane 20S																		

Table 6 (cont). Mussel Tissue (QA10TIS01): z scores (25% by laboratory)- Biomarkers
(z=+1 is 25% higher than the exercise assigned value; z=-1 is 25% lower than the exercise assigned value.)

Laboratory No.	19	20	21	22	23	24a	24b	25	26	27	28	29	30	31	32	33	34			
Carbazole																				
18a(H)-22,29,30-Trisnorhopane																				
17a(H)-22,29,30-Trisnorhopane																				
17α(H),21β(H)-30-Norhopane																				
18a(H)-30-Norneohopane																				
17a(H)-Diahopane																				
17α(H),21β(H)-Hopane				-0.1					0.6								0.5			
17α(H),21β(H)-22R-Homohopane				1.1													0.4			
17α(H),21β(H)-22S-Homohopane				0.8													0.0			
13b(H)17a(H)-Diacholestane 20S																				
5a(H),14a(H),17a(H)-Cholestane 20S																				
5a(H),14a(H),17a(H)-Cholestane 20R				-0.6													1.0			
5a(H),14a(H),17a(H)-24-Ethylcholestane 20S		1.5															-1.1			
5a(H),14a(H),17a(H)-24-Ethylcholestane 20R		3.1		-1.0										-1.3			-0.5			
5a(H),14b(H),17b(H)-Cholestane 20R														10.8			-0.1			
5a(H),14b(H),17b(H)-Cholestane 20S																				
5a(H),14b(H),17b(H)-24-Ethylcholestane 20R				-0.8													1.8			
5a(H),14b(H),17b(H)-24-Ethylcholestane 20S																				

Lab 31 reported values on a wet mass basis

Table 7. Mussel Tissue (QA10TIS01): Laboratory relative standard deviations of three replicates - Water and PAHs

Laboratory No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Percent Water	0.1%	0.4%	0.0%	0.2%	0.2%	0.4%	0.4%	0.3%	0.6%	1.2%	n=1	1.4%	0.1%	0.4%	2.5%	0.6%	0.7%
naphthalene	7.2%	36.5%		21.2%	4.3%	2.9%	16.7%	16.7%			26.7%	22.4%	11.2%	5.5%	29.8%	13.4%	24.5%
biphenyl	7.8%		65.6%	16.5%								7.2%	9.0%	2.4%	13.7%	14.8%	31.7%
acenaphthene	4.2%			10.2%	9.8%							8.4%		6.4%		12.0%	
acenaphthylene				15.7%	23.3%							2.0%		4.1%	4.6%	11.2%	
fluorene	6.1%	18.6%		12.6%	1.4%	8.1%	4.2%	5.4%	9.6%		7.4%	9.8%	4.6%	4.6%	6.0%	15.2%	20.5%
phenanthrene	2.7%	1.3%	24.1%	15.2%	2.1%	4.7%	5.0%	3.8%	12.7%		4.4%	11.9%	3.6%	4.4%	12.2%	11.9%	9.3%
anthracene	4.0%	78.2%		22.1%	3.2%	3.4%			31.3%		3.9%	11.9%	24.4%	3.8%	3.3%	13.6%	6.3%
fluoranthene	2.2%	9.2%	19.5%	14.3%	2.6%	3.7%	3.8%	3.4%	16.5%	3.1%	5.6%	11.4%	2.2%		16.4%	11.2%	7.8%
pyrene	3.6%	3.6%	7.6%	14.3%	2.6%	3.1%	4.1%	3.2%	25.2%	8.5%	3.3%	12.5%	2.7%	3.2%	13.8%	10.7%	11.4%
benzo[b]fluorene				8.8%								8.4%		4.2%			
benz[a]anthracene	7.4%	14.9%		17.9%	3.5%	5.0%	1.1%	4.2%			12.0%	8.0%	8.8%	0.4%	12.1%	8.9%	31.7%
chrysene		7.9%		16.0%		3.3%	3.1%	6.2%	12.2%		2.7%	10.7%	5.6%	3.0%	15.2%		
triphenylene														3.6%			
benzo[*b*]fluoranthene	3.1%	5.0%		14.8%	3.0%	2.4%	4.6%	5.1%	12.0%		4.7%	11.4%	5.8%	3.9%		13.6%	37.4%
benzo[*j*]fluoranthene	7.7%													3.9%			
benzo[*k*]fluoranthene	10.0%	5.1%		20.4%		8.3%	3.0%	11.2%	16.7%		16.3%	18.2%	7.5%	5.0%	0.0%		
benzo[a]fluoranthene				173.2%										2.8%			
benzo[e]pyrene	5.4%			16.6%	3.6%		0.9%	6.3%				9.0%	2.0%	9.3%		12.2%	8.9%
benzo[a]pyrene	10.6%	12.0%		27.9%	1.5%	4.1%		5.5%	36.3%		3.5%	19.8%	14.5%	6.0%	5.4%	14.3%	
perylene	6.1%		4.3%	22.4%	3.6%							13.4%	12.8%	1.4%		14.4%	
indeno[1,2,3-cd]pyrene	10.6%			7.2%	1.4%			12.3%			4.2%	17.2%	35.2%			9.8%	
benzo[ghi]perylene	6.5%			23.4%	2.8%	25.5%		5.9%				10.8%	23.5%			15.7%	
dibenz[a,h]anthracene	11.6%										8.4%	11.9%	13.8%			19.7%	
cis/trans-decalin				12.9%										3.5%		10.2%	
dibenzofuran				16.5%								11.4%	3.4%			11.3%	2.5%
retene				17.1%	3.4%							10.5%		2.6%	10.0%	9.6%	22.3%
benzothiophene																17.8%	
dibenzothiophene				12.1%	4.8%							12.1%	5.5%		14.4%	12.2%	
naphthobenzothiophene				4.9%								10.5%				13.1%	

Table 7 (cont). Mussel Tissue (QA10TIS01): Laboratory relative standard deviations of three replicates - Water and PAHs

Laboratory No.	18	19	20	21	22	23	24a	24b	25	26	27	28	29	30	31	32	33	34
Percent Water	0.7%	0.1%	0.2%	0.0%	0.8%	0.6%	1.5%	1.5%	0.0%	0.0%	0.8%	2.1%	0.3%	0.1%		0.7%	0.41%	0.2%
naphthalene	28.9%		9.8%	8.9%	6.2%	2.7%	43.6%	7.4%		14.6%		6.4%	6.4%	10.2%	6.3%		5.8%	5.0%
biphenyl	6.6%		10.9%		4.2%	5.8%				10.3%	5.3%				25.1%			6.0%
acenaphthene	15.1%			2.1%	5.9%	8.0%				13.3%	10.4%			23.6%	17.8%			22.0%
acenaphthylene	29.7%		24.7%	17.5%	11.6%	1.7%				10.5%	4.5%			34.1%				7.3%
fluorene	1.8%		49.1%	3.7%	3.4%	3.2%				4.3%	9.1%	0.0%	2.0%	22.9%			7.0%	12.4%
phenanthrene	9.8%	0.6%	19.3%	7.9%	5.6%	2.9%		7.0%	33.5%	5.2%	7.5%	11.0%	2.0%	17.4%	18.8%	8.3%	1.6%	10.2%
anthracene	6.7%		69.7%	6.8%		4.1%		4.0%	10.6%	4.9%	5.9%				11.2%		3.4%	23.0%
fluoranthene	7.6%	2.8%	17.4%	2.4%	7.1%	3.3%		8.1%	47.7%	5.3%	5.4%	10.9%	2.3%	13.3%	15.0%	9.0%	2.0%	8.0%
pyrene	32.5%	4.3%	25.1%	13.6%	5.8%	3.9%		8.6%	58.0%	3.0%	6.8%	11.6%	2.3%	71.6%	35.3%	7.6%	3.9%	8.6%
benzo[b]fluorene										2.0%		9.7%						7.1%
benz[a]anthracene	30.4%		33.9%	1.0%	5.7%	4.4%		7.7%		6.2%	4.0%	10.2%	3.8%	10.4%	21.8%		3.1%	21.4%
chrysene	7.9%		20.4%	13.8%			18.6%	9.3%	37.1%			11.0%		15.2%	49.4%		6.7%	
triphenylene	7.9%																	
benzo[*b*]fluoranthene	11.4%		105.8%	5.9%	5.0%	2.7%	10.2%	20.7%		8.0%	4.2%	9.7%	7.5%	15.3%			5.0%	21.1%
benzo[*j*]fluoranthene																		
benzo[*k*]fluoranthene	3.1%		70.0%	8.1%		4.8%		9.1%				13.6%		18.9%			3.6%	
benzo[a]fluoranthene																		38.8%
benzo[e]pyrene	7.0%		66.2%		2.4%	2.2%				7.9%	5.9%		1.7%					10.9%
benzo[a]pyrene	6.9%		82.4%	11.7%	9.9%	3.9%	6.2%	10.2%		5.9%	10.6%	7.8%	5.8%		10.2%		7.3%	34.2%
perylene	7.4%		52.7%		3.9%	5.8%							4.4%		50.6%			21.5%
indeno[1,2,3-cd]pyrene	66.6%			35.0%	10.2%	11.6%	40.8%			5.0%		10.9%					13.4%	31.3%
benzo[ghi]perylene	1.5%			29.5%	8.1%	8.8%					3.5%		5.9%					32.2%
dibenz[a,h]anthracene	18.4%			22.3%		28.9%				52.5%	#DIV/0!						8.7%	
cis/trans-decalin										21.7%	20.3%					16.6%		7.7%
dibenzofuran										7.2%	4.7%							10.5%
retene					7.9%					4.3%								
benzothiophene																		11.6%
dibenzothiophene	10.3%			7.8%	6.2%	2.4%				3.6%	12.8%		5.9%					10.4%
naphthobenzothiophene										4.4%	10.8%							7.0%

Table 8. Mussel Tissue (QA10TIS01): Laboratory relative standard deviations of three replicates - Alkylated PAHs

Laboratory No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1-methylnaphthalene	0.8%			11.5%	0.5%		38.7%	11.5%			8.3%	4.7%	17.0%	5.7%	17.7%	12.1%	
2-methylnaphthalene	2.4%		28.4%	13.6%	1.1%		5.7%	13.1%			8.1%	4.6%	48.8%	4.9%	18.4%	13.8%	12.8%
2,6-dimethylnaphthalene	2.1%		15.6%	13.0%	0.9%			4.8%			8.0%	4.3%	9.5%	6.6%		10.2%	15.1%
1,6,7-trimethylnaphthalene	0.7%		4.5%	27.0%	10.9%							8.8%	4.6%			14.2%	9.6%
1-methylphenanthrene	5.5%			14.8%	2.6%			2.7%			1.4%	15.3%		5.9%		8.5%	25.0%
C1-decalins				16.0%												10.9%	18.5%
C2-decalins				11.5%												12.9%	9.6%
C3-decalins				9.1%												13.2%	28.0%
C4-decalins				9.9%												11.2%	20.8%
C1-naphthalenes	1.4%		11.8%	9.8%	0.9%							4.7%				12.8%	15.7%
C2-naphthalenes	2.9%		4.4%	13.8%	1.3%							5.4%			7.0%	11.7%	13.5%
C3-naphthalenes	2.1%		11.0%	13.6%	0.8%					12.2%		8.2%			6.1%	12.2%	15.4%
C4-naphthalenes	3.1%		13.4%	15.6%	1.3%							8.5%			4.7%	12.4%	17.3%
C1-benzothiophenes																16.9%	
C2-benzothiophenes																10.3%	
C3-benzothiophenes																21.4%	
C4-benzothiophenes																9.9%	
C1-fluorenes	4.1%			15.6%	0.5%							6.5%			2.0%	9.4%	5.2%
C2-fluorenes	5.0%			14.3%	1.1%							7.9%			4.5%	11.3%	11.0%
C3-fluorenes	9.1%			1.2%	3.3%							5.9%			22.3%	11.5%	
C1-phenanthrenes/anthracenes	6.0%			18.7%	3.3%							10.9%			7.7%	11.7%	
C2-phenanthrenes/anthracenes	4.8%		16.0%	15.3%	1.9%					80.4%		9.2%			8.8%	10.0%	4.7%
C3-phenanthrenes/anthracenes	2.2%			17.6%	2.2%							9.9%			13.6%	11.3%	8.0%
C4-phenanthrenes/anthracenes	7.0%			15.7%	0.6%							9.3%			2.5%	14.4%	19.5%
C1-dibenzothiophenes				13.6%	2.0%							10.3%			2.4%	13.0%	8.6%
C2-dibenzothiophenes				7.1%	1.7%							10.3%			0.8%	12.0%	20.8%
C3-dibenzothiophenes				14.5%	2.8%							9.7%			3.6%	10.6%	7.0%
C4-dibenzothiophenes				16.1%	4.1%							7.6%				12.0%	8.3%
C1-fluoranthenes/pyrenes	2.5%			14.3%	1.5%							9.5%			8.8%	10.6%	7.1%
C2-fluoranthenes/pyrenes	5.4%		13.4%	18.8%	0.2%							12.1%			9.9%	13.5%	
C3-fluoranthenes/pyrenes	4.9%			14.9%	1.6%							8.9%				10.7%	
C4-fluoranthenes/pyrenes				19.2%	3.1%												
C1-naphthobenzothiophenes				12.0%	3.6%											13.0%	
C2-naphthobenzothiophenes					2.5%											10.3%	
C3-naphthobenzothiophenes					4.4%											21.6%	
C4-naphthobenzothiophenes					10.4%												
C1-chrysenes	7.6%			15.7%	3.1%							8.8%				10.1%	13.4%
C2-chrysenes				21.1%	1.6%							4.5%				18.7%	
C3-chrysenes				32.0%	5.9%							11.4%					
C4-chrysenes																	

Table 8 (cont). Mussel Tissue (QA10TIS01): Laboratory relative standard deviations of three replicates - Alkylated PAHs

Laboratory No.	18	19	20	21	22	23	24a	24b	25	26	27	28	29	30	31	32	33	34
1-methylnaphthalene	6.6%		45.5%	5.8%	17.2%	5.9%	31.5%			9.5%		4.3%	11.8%	13.9%	2.5%		6.5%	6.0%
2-methylnaphthalene	12.8%		23.6%	9.8%	11.0%	4.5%	26.9%			10.1%		6.1%	2.8%	14.0%	17.1%		4.6%	8.3%
2,6-dimethylnaphthalene	9.9%		12.6%	5.3%	3.5%	7.1%	39.6%			8.0%	8.7%	4.4%		21.4%	75.4%		6.8%	5.5%
1,6,7-trimethylnaphthalene	11.2%		23.1%			5.4%				6.1%	10.6%		10.9%		21.4%			21.0%
1-methylphenanthrene	9.0%			6.7%	10.0%	2.5%				4.8%	6.6%		3.9%					1.9%
C1-decalins										22.8%	9.2%							3.0%
C2-decalins										27.3%	46.6%							1.5%
C3-decalins										19.5%	26.4%							5.4%
C4-decalins										20.9%	19.5%							16.7%
C1-naphthalenes			24.8%	8.4%	13.4%	5.1%				12.6%		4.9%	2.5%		0.0%		5.7%	1.7%
C2-naphthalenes		4.7%	21.2%	5.8%	5.8%	2.0%	33.5%			5.6%	9.6%	3.3%	3.0%		24.0%		8.0%	7.1%
C3-naphthalenes		0.0%	15.4%	14.2%	13.2%	2.3%	12.8%			6.0%	6.2%	32.5%	5.4%		23.1%	7.4%	10.6%	11.3%
C4-naphthalenes		6.7%	8.7%	8.7%	15.4%	2.5%	19.7%			7.5%	5.3%	75.8%			20.7%	13.7%	15.5%	12.9%
C1-benzothiophenes											3.8%							15.1%
C2-benzothiophenes											15.9%							5.2%
C3-benzothiophenes											33.3%							8.6%
C4-benzothiophenes											17.2%							8.8%
C1-fluorenes				10.1%	10.7%	3.5%	49.7%			4.7%	8.6%	21.4%	6.7%				3.7%	2.6%
C2-fluorenes		7.9%		12.7%	11.7%	1.7%	19.8%			4.1%	7.8%	20.8%	2.3%				1.2%	4.1%
C3-fluorenes		2.7%		19.9%	14.3%	1.1%				19.2%	7.0%		4.9%			21.1%	7.5%	2.7%
C1-phenanthrenes/anthracenes		5.3%		3.3%	7.6%	2.4%	19.4%			72.7%	6.4%	14.7%	1.3%			6.8%	15.8%	2.8%
C2-phenanthrenes/anthracenes		1.9%		4.5%	5.7%	1.7%	22.0%		41.1%	4.2%	7.6%	20.5%	4.2%			8.9%	14.5%	1.9%
C3-phenanthrenes/anthracenes		4.4%		2.9%	14.2%	3.7%	16.6%			3.8%	7.2%	12.3%	6.2%			23.6%	1.8%	2.3%
C4-phenanthrenes/anthracenes		4.9%			16.0%	5.9%	41.5%			3.8%	9.4%		4.2%				8.5%	5.2%
C1-dibenzothiophenes			16.1%		6.5%	3.0%				4.9%	6.6%		0.8%					7.6%
C2-dibenzothiophenes		5.4%			8.0%	2.8%				14.1%	7.4%		7.1%					3.2%
C3-dibenzothiophenes		0.0%			9.6%	2.3%				5.0%	7.9%		4.7%					1.1%
C4-dibenzothiophenes					13.1%					2.2%	11.3%		5.3%					1.7%
C1-fluoranthenes/pyrenes		2.3%	41.7%	11.2%	16.1%	5.1%				4.6%	8.0%		2.1%					5.7%
C2-fluoranthenes/pyrenes				15.4%	8.3%	4.2%				8.1%	5.2%		2.9%					3.4%
C3-fluoranthenes/pyrenes			n=1		1.4%	2.8%				7.7%	6.4%		9.8%					5.6%
C4-fluoranthenes/pyrenes					45.5%						8.1%		7.1%					11.4%
C1-naphthobenzothiophenes											11.2%							5.5%
C2-naphthobenzothiophenes											10.2%							6.9%
C3-naphthobenzothiophenes																		13.3%
C4-naphthobenzothiophenes																		
C1-chrysenes			62.6%		4.6%	2.9%				1.6%	6.5%		4.1%					4.1%
C2-chrysenes			52.6%		4.0%	2.9%				0.0%	7.5%		3.0%					5.8%
C3-chrysenes					26.8%	21.0%							2.2%					
C4-chrysenes					35.3%	53.6%							2.0%					

Table 9. Mussel Tissue (QA10TIS01): Laboratory relative standard deviations of three replicates - Biomarkers

Laboratory No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Carbazole																	23.1%
18a(H)-22,29,30-Trisnorhopane																19.0%	
17a(H)-22,29,30-Trisnorhopane																6.8%	
17α(H),21β(H)-30-Norhopane														4.7%			
18a(H)-30-Norneohopane																14.3%	
17a(H)-Diahopane																	
17α(H),21β(H)-Hopane														4.9%		10.9%	6.8%
17α(H),21β(H)-22R-Homohopane														1.3%		13.0%	
17α(H),21β(H)-22S-Homohopane	4.2%													1.4%		13.4%	
13b(H)17a(H)-Diacholestane 20S																8.6%	
5a(H),14a(H),17a(H)-Cholestane 20S																8.0%	
5a(H),14a(H),17a(H)-Cholestane 20R														5.1%		11.5%	
5a(H),14a(H),17a(H)-24-Ethylcholestane 20S														4.6%		4.6%	
5a(H),14a(H),17a(H)-24-Ethylcholestane 20R																10.9%	
5a(H),14b(H),17b(H)-Cholestane 20R														6.6%		6.3%	
5a(H),14b(H),17b(H)-Cholestane 20S																5.3%	
5a(H),14b(H),17b(H)-24-Ethylcholestane 20R														2.8%		7.1%	
5a(H),14b(H),17b(H)-24-Ethylcholestane 20S																7.1%	

Table 9 (cont). Mussel Tissue (QA10TIS01): Laboratory relative standard deviations of three replicates - Biomarkers

Laboratory No.	18	19	20	21	22	23	24a	24b	25	26	27	28	29	30	31	32	33	34
Carbazole																		2.5%
18a(H)-22,29,30-Trisnorhopane			61.4%															7.9%
17a(H)-22,29,30-Trisnorhopane			73.5%		1.3%													2.8%
17α(H),21β(H)-30-Norhopane					4.0%										60.9%			0.8%
18a(H)-30-Norneohopane															73.3%			4.3%
17a(H)-Diahopane																		25.9%
17α(H),21β(H)-Hopane					3.3%					13.9%								5.2%
17α(H),21β(H)-22R-Homohopane					3.9%													6.6%
17α(H),21β(H)-22S-Homohopane					4.2%													4.1%
13b(H)17a(H)-Diacholestane 20S			84.6%															7.0%
5a(H),14a(H),17a(H)-Cholestane 20S																		6.4%
5a(H),14a(H),17a(H)-Cholestane 20R					5.9%													4.9%
5a(H),14a(H),17a(H)-24-Ethylcholestane 20S																		5.4%
5a(H),14a(H),17a(H)-24-Ethylcholestane 20R			72.4%		3.4%										23.1%			4.2%
5a(H),14b(H),17b(H)-Cholestane 20R															38.7%			2.7%
5a(H),14b(H),17b(H)-Cholestane 20S															45.8%			4.2%
5a(H),14b(H),17b(H)-24-Ethylcholestane 20R					5.4%													3.2%
5a(H),14b(H),17b(H)-24-Ethylcholestane 20S																		5.3%

Table 10. Mussel Tissue (QA10TIS01): p scores (15%) - Water and PAHs

Laboratory No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Percent Water	0.01	0.02		0.01	0.01	0.03	0.03	0.02	0.04	0.08	n=1	0.09	0.01	0.02	0.16	0.04	0.04
naphthalene	0.48	2.43		1.41	0.28	0.19	1.11	1.11			1.78	1.50	0.75	0.37	1.99	0.90	1.63
biphenyl	0.52		4.37	1.10								0.48	0.60	0.16	0.92	0.99	2.12
acenaphthene	0.28			0.68	0.65							0.56		0.43		0.80	
acenaphthylene				1.04	1.55							0.13		0.27	0.30	0.74	
fluorene	0.40	1.24		0.84	0.09	0.54	0.28	0.36	0.64		0.49	0.65	0.30	0.31	0.40	1.01	1.37
phenanthrene	0.18	0.09	1.60	1.01	0.14	0.32	0.33	0.25	0.85		0.29	0.80	0.24	0.29	0.81	0.80	0.62
anthracene	0.27	5.21		1.48	0.21	0.23			2.09		0.26	0.79	1.63	0.25	0.22	0.91	0.42
fluoranthene	0.15	0.61	1.30	0.95	0.18	0.25	0.25	0.23	1.10	0.21	0.37	0.76	0.15		1.10	0.75	0.52
pyrene	0.24	0.24	0.51	0.95	0.18	0.20	0.28	0.21	1.68	0.56	0.22	0.83	0.18	0.21	0.92	0.71	0.76
benzo[b]fluorene				0.59								0.56		0.28			
benz[a]anthracene	0.49	0.99		1.19	0.23	0.34	0.07	0.28			0.80	0.53	0.59	0.02	0.80	0.59	2.12
chrysene		0.53		1.07		0.22	0.21	0.42	0.82		0.18	0.71	0.37	0.20	1.01		
triphenylene														0.24			
benzo[*b*]fluoranthene	0.21	0.33		0.99	0.20	0.16	0.31	0.34	0.80		0.31	0.76	0.39	0.26		0.91	2.49
benzo[*j*]fluoranthene	0.51													0.26			
benzo[*k*]fluoranthene	0.66	0.34		1.36		0.55	0.20	0.75	1.11		1.09	1.21	0.50	0.33			
benzo[a]fluoranthene				11.55										0.19			
benzo[e]pyrene	0.36			1.11	0.24		0.06	0.42				0.60	0.13	0.62		0.82	0.59
benzo[a]pyrene	0.70	0.80		1.86	0.10	0.28		0.37	2.42		0.23	1.32	0.96	0.40	0.36	0.95	
perylene	0.40		0.29	1.50	0.24							0.90	0.85	0.10		0.96	
indeno[1,2,3-cd]pyrene	0.71			0.48	0.10			0.82			0.28	1.15	2.35			0.66	
benzo[ghi]perylene	0.43			1.56	0.19	1.70		0.40				0.72	1.57			1.04	
dibenz[a,h]anthracene	0.77										0.56	0.79	0.92			1.32	
cis/trans-decalin				0.86										0.23		0.68	
dibenzofuran				1.10								0.76	0.22			0.75	0.17
retene				1.14	0.23							0.70		0.17	0.67	0.64	1.49
benzothiophene																1.19	
dibenzothiophene				0.80	0.32							0.81	0.36		0.96	0.82	
naphthobenzothiophene				0.33								0.70				0.87	

Table 10 (cont). Mussel Tissue (QA10TIS01): p scores (15%) - Water and PAHs

Laboratory No.	18	19	20	21	22	23	24a	24b	25	26	27	28	29	30	31	32	33	34
Percent Water	0.05	0.01	0.01	0.00	0.05	0.04	0.10	0.10	0.00	0.00	0.05	0.14	0.02	0.01		0.04	0.03	0.01
naphthalene	1.93		0.65	0.59	0.42	0.18	2.91	0.49		0.97		0.42	0.43	0.68	0.42		0.39	0.33
biphenyl	0.44		0.73		0.28	0.39				0.69	0.35				1.67			0.40
acenaphthene	1.01			0.14	0.39	0.54				0.88	0.70			1.57	1.19			1.46
acenaphthylene	1.98		1.65	1.17	0.78	0.11				0.70	0.30			2.27				0.49
fluorene	0.12		3.27	0.24	0.22	0.21				0.29	0.61		0.13	1.53			0.46	0.83
phenanthrene	0.65	0.04	1.29	0.53	0.38	0.20		0.47	2.24	0.35	0.50	0.73	0.13	1.16	1.25	0.55	0.11	0.68
anthracene	0.44		4.65	0.45		0.28		0.27	0.70	0.33	0.40				0.75		0.23	1.53
fluoranthene	0.50	0.19	1.16	0.16	0.47	0.22		0.54	3.18	0.35	0.36	0.73	0.16	0.89	1.00	0.60	0.13	0.53
pyrene	2.16	0.29	1.67	0.90	0.39	0.26		0.57	3.87	0.20	0.46	0.77	0.16	4.77	2.35	0.50	0.26	0.57
benzo[b]fluorene										0.13		0.65						0.48
benz[a]anthracene	2.03		2.26	0.07	0.38	0.29		0.51		0.41	0.27	0.68	0.25	0.70	1.45		0.21	1.43
chrysene	0.53		1.36	0.92			1.24	0.62	2.47			0.74		1.01	3.29		0.45	
triphenylene	0.53																	
benzo[*b*]fluoranthene	0.76		7.05	0.39	0.34	0.18	0.68	1.38		0.53	0.28	0.65	0.50	1.02			0.34	1.41
benzo[*j*]fluoranthene																		
benzo[*k*]fluoranthene	0.20		4.67	0.54		0.32		0.61				0.91		1.26			0.24	
benzo[a]fluoranthene																		2.58
benzo[e]pyrene	0.47		4.41		0.16	0.15				0.53	0.39		0.11					0.72
benzo[a]pyrene	0.46		5.49	0.78	0.66	0.26	0.42	0.68		0.40	0.70	0.52	0.39		0.68		0.49	2.28
perylene	0.49		3.51		0.26	0.39							0.29		3.38			1.43
indeno[1,2,3-cd]pyrene	4.44			2.33	0.68	0.77	2.72			0.33		0.73					0.89	2.09
benzo[ghi]perylene	0.10			1.97	0.54	0.58					0.24		0.39					2.14
dibenz[a,h]anthracene	1.23			1.49		1.93				3.50							0.58	0.00
cis/trans-decalin										1.45	1.35					1.10		0.51
dibenzofuran										0.48	0.32							0.70
retene					0.52					0.29								0.00
benzothiophene																		0.77
dibenzothiophene	0.69			0.52	0.42	0.16				0.24	0.86		0.40					0.69
naphthobenzothiophene										0.29	0.72							0.46

Table 11. Mussel Tissue (QA10TIS01): p scores (15%) - Alkylated PAHs

Laboratory No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1-methylnaphthalene	0.05			0.77	0.04		2.58	0.77			0.55	0.31	1.13	0.38	1.18	0.81	
2-methylnaphthalene	0.16		1.89	0.91	0.07		0.38	0.88			0.54	0.30	3.25	0.32	1.22	0.92	0.85
2,6-dimethylnaphthalene	0.14		1.04	0.87	0.06			0.32			0.53	0.29	0.63	0.44		0.68	1.01
1,6,7-trimethylnaphthalene	0.05		0.30	1.80	0.73							0.59	0.31			0.95	0.64
1-methylphenanthrene	0.37			0.99	0.17			0.18			0.09	1.02		0.39		0.57	1.67
C1-decalins				1.07												0.72	1.24
C2-decalins				0.76												0.86	0.64
C3-decalins				0.61												0.88	1.87
C4-decalins				0.66												0.75	1.39
C1-naphthalenes	0.09		0.79	0.65	0.06							0.31				0.86	1.05
C2-naphthalenes	0.19		0.29	0.92	0.09							0.36			0.46	0.78	0.90
C3-naphthalenes	0.14		0.73	0.91	0.06					0.81		0.55			0.40	0.81	1.03
C4-naphthalenes	0.21		0.89	1.04	0.09							0.56			0.32	0.83	1.15
C1-benzothiophenes																1.13	
C2-benzothiophenes																0.69	
C3-benzothiophenes																1.43	
C4-benzothiophenes																0.66	
C1-fluorenes	0.28			1.04	0.04							0.43			0.13	0.63	0.35
C2-fluorenes	0.34			0.95	0.07							0.53			0.30	0.76	0.73
C3-fluorenes	0.61			0.08	0.22							0.39			1.49	0.77	
C1-phenanthrenes/anthracenes	0.40			1.25	0.22							0.73			0.51	0.78	
C2-phenanthrenes/anthracenes	0.32		1.06	1.02	0.13					5.36		0.61			0.59	0.67	0.31
C3-phenanthrenes/anthracenes	0.14			1.17	0.15							0.66			0.91	0.76	0.53
C4-phenanthrenes/anthracenes	0.46			1.05	0.04							0.62			0.17	0.96	1.30
C1-dibenzothiophenes				0.90	0.13							0.68			0.16	0.87	0.58
C2-dibenzothiophenes				0.48	0.11							0.68			0.05	0.80	1.39
C3-dibenzothiophenes				0.97	0.19							0.65			0.24	0.71	0.47
C4-dibenzothiophenes				1.07	0.27							0.51				0.80	0.55
C1-fluoranthenes/pyrenes	0.17			0.95	0.10							0.63			0.59	0.71	0.47
C2-fluoranthenes/pyrenes	0.36		0.89	1.25	0.01							0.81			0.66	0.90	
C3-fluoranthenes/pyrenes	0.33			0.99	0.11							0.59				0.71	
C4-fluoranthenes/pyrenes				1.28	0.21											0.00	
C1-naphthobenzothiophenes				0.80	0.24											0.87	
C2-naphthobenzothiophenes					0.17											0.69	
C3-naphthobenzothiophenes					0.29											1.44	
C4-naphthobenzothiophenes					0.70												
C1-chrysenes	0.51			1.05	0.21							0.58				0.67	0.89
C2-chrysenes				1.41	0.11							0.30				1.25	
C3-chrysenes				2.14	0.40							0.76					
C4-chrysenes																	

Table 11 (cont). Mussel Tissue (QA10TIS01): p scores (15%) - Alkylated PAHs

Laboratory No.	18	19	20	21	22	23	24a	24b	25	26	27	28	29	30	31	32	33	34
1-methylnaphthalene	0.44		3.04	0.39	1.15	0.39	2.10			0.63		0.29	0.79	0.92	0.17		0.43	0.40
2-methylnaphthalene	0.85		1.57	0.65	0.73	0.30	1.79			0.67		0.40	0.18	0.93	1.14		0.31	0.55
2,6-dimethylnaphthalene	0.66		0.84	0.36	0.23	0.48	2.64			0.53	0.58	0.29		1.43	5.03		0.45	0.37
1,6,7-trimethylnaphthalene	0.75		1.54			0.36				0.41	0.71		0.72		1.43			1.40
1-methylphenanthrene	0.60			0.45	0.67	0.17				0.32	0.44		0.26					0.13
C1-decalins										1.52	0.61							0.20
C2-decalins										1.82	3.11							0.10
C3-decalins										1.30	1.76							0.36
C4-decalins										1.39	1.30							1.11
C1-naphthalenes			1.65	0.56	0.89	0.34				0.84		0.33	0.17				0.38	0.12
C2-naphthalenes		0.31	1.41	0.39	0.38	0.14	2.23			0.37	0.64	0.22	0.20		1.60		0.53	0.47
C3-naphthalenes			1.03	0.95	0.88	0.15	0.85			0.40	0.41	2.17	0.36		1.54	0.50	0.71	0.75
C4-naphthalenes		0.45	0.58	0.58	1.03	0.16	1.31			0.50	0.35	5.06			1.38	0.92	1.03	0.86
C1-benzothiophenes											0.25					0.00		1.01
C2-benzothiophenes											1.06							0.34
C3-benzothiophenes											2.22							0.57
C4-benzothiophenes											1.15							0.58
C1-fluorenes				0.67	0.72	0.23	3.32			0.31	0.57	1.43	0.45				0.24	0.18
C2-fluorenes		0.52		0.85	0.78	0.12	1.32			0.27	0.52	1.39	0.16				0.08	0.27
C3-fluorenes		0.18		1.33	0.95	0.07				1.28	0.46		0.33			1.41	0.50	0.18
C1-phenanthrenes/anthracenes		0.35		0.22	0.51	0.16	1.29			4.85	0.43	0.98	0.08			0.45	1.05	0.19
C2-phenanthrenes/anthracenes		0.13		0.30	0.38	0.11	1.47		2.74	0.28	0.50	1.36	0.28			0.59	0.96	0.13
C3-phenanthrenes/anthracenes		0.29		0.19	0.95	0.25	1.11			0.25	0.48	0.82	0.41			1.58	0.12	0.15
C4-phenanthrenes/anthracenes		0.33			1.07	0.39	2.76			0.26	0.63		0.28				0.56	0.35
C1-dibenzothiophenes			1.08		0.44	0.20				0.33	0.44		0.05					0.51
C2-dibenzothiophenes		0.36			0.54	0.19				0.94	0.49		0.48					0.21
C3-dibenzothiophenes					0.64	0.15				0.34	0.53		0.31					0.07
C4-dibenzothiophenes					0.88					0.15	0.75		0.35					0.11
C1-fluoranthenes/pyrenes		0.16	2.78	0.75	1.07	0.34				0.30	0.53		0.14					0.38
C2-fluoranthenes/pyrenes				1.02	0.55	0.28				0.54	0.35		0.20					0.23
C3-fluoranthenes/pyrenes			n=1		0.10	0.19				0.51	0.43		0.66					0.37
C4-fluoranthenes/pyrenes					3.04						0.54		0.47					0.76
C1-naphthobenzothiophenes											0.75							0.37
C2-naphthobenzothiophenes											0.68							0.46
C3-naphthobenzothiophenes																		0.89
C4-naphthobenzothiophenes																		
C1-chrysenes			4.18		0.31	0.20				0.11	0.44		0.27					0.27
C2-chrysenes			3.51		0.27	0.19					0.50		0.20					0.39
C3-chrysenes					1.78	1.40							0.14					
C4-chrysenes					2.35	3.58							0.13					

Table 12. Mussel Tissue (QA10TIS01): p scores (15%) - Biomarkers

Laboratory No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Carbazole																	1.54
18a(H)-22,29,30-Trisnorhopane																1.26	
17a(H)-22,29,30-Trisnorhopane																0.46	
17α(H),21β(H)-30-Norhopane														0.31			
18a(H)-30-Norneohopane																0.96	
17a(H)-Diahopane																	
17α(H),21β(H)-Hopane														0.33		0.72	0.45
17α(H),21β(H)-22R-Homohopane														0.09		0.87	
17α(H),21β(H)-22S-Homohopane	0.28													0.09		0.89	
13b(H)17a(H)-Diacholestane 20S																0.57	
5a(H),14a(H),17a(H)-Cholestane 20S																0.53	
5a(H),14a(H),17a(H)-Cholestane 20R														0.34		0.77	
5a(H),14a(H),17a(H)-24-Ethylcholestane 20S														0.31		0.30	
5a(H),14a(H),17a(H)-24-Ethylcholestane 20R																0.72	
5a(H),14b(H),17b(H)-Cholestane 20R														0.44		0.42	
5a(H),14b(H),17b(H)-Cholestane 20S																0.35	
5a(H),14b(H),17b(H)-24-Ethylcholestane 20R														0.19		0.47	
5a(H),14b(H),17b(H)-24-Ethylcholestane 20S																0.47	

Table 12 (cont). Mussel Tissue (QA10TIS01): p scores (15%) - Biomarkers

Laboratory No.	18	19	20	21	22	23	24a	24b	25	26	27	28	29	30	31	32	33	34
Carbazole																		0.17
18a(H)-22,29,30-Trisnorhopane			4.09															0.53
17a(H)-22,29,30-Trisnorhopane			4.90		0.09													0.19
17α(H),21β(H)-30-Norhopane					0.27										4.06			0.05
18a(H)-30-Norneohopane															4.89			0.29
17a(H)-Diahopane																		1.73
17α(H),21β(H)-Hopane					0.22													0.34
17α(H),21β(H)-22R-Homohopane					0.26													0.44
17α(H),21β(H)-22S-Homohopane					0.28													0.28
13b(H)17a(H)-Diacholestane 20S			5.64															0.47
5a(H),14a(H),17a(H)-Cholestane 20S																		0.43
5a(H),14a(H),17a(H)-Cholestane 20R					0.40													0.33
5a(H),14a(H),17a(H)-24-Ethylcholestane 20S																		0.36
5a(H),14a(H),17a(H)-24-Ethylcholestane 20R			4.82		0.23										1.54			0.28
5a(H),14b(H),17b(H)-Cholestane 20R															2.58			0.18
5a(H),14b(H),17b(H)-Cholestane 20S															3.05			0.28
5a(H),14b(H),17b(H)-24-Ethylcholestane 20R					0.36													0.21
5a(H),14b(H),17b(H)-24-Ethylcholestane 20S																		0.36

Table 13. Mussel Tissue (QA10TIS01): Laboratory means of three replicates summarzed by extraction method along with the median values for the extraction method - PAHs (ng/g dry mass)

(reported as if three figures were significant)

	Soxhlet										QuEChERS						tissuemizer			
Laboratory No.	1	4	7	10	12	13	15	20	26	median	2	6	8	9	24b	median	16	23	34	median
naphthalene	43.0	19.7	36.2	<5700	24.2	**54.5**	**350**	37.0	24.3	36.6	**37.2**	**104**	31.3	other	**117**	70.6	34.6	26.5	28.4	28.4
biphenyl	12.9	16.0	<14.8	<5700	9.18	21.1	18.3	35.0	16.3	16.3		NA	NA	NA	NA		13.6	16.5	12.2	13.6
acenaphthene	14.0	11.3	<14.8	<5700	7.42	< 30	<10	< 7.4	11.1	11.2	nd	**0.00**	<0.2	<11	DL		11.7	9.06	10.4	10.4
acenaphthylene	<10	9.03	<14.8	<5700	4.50	< 30	12.7	13.8	10.1	10.1		NA	<0.2	NA	NA		10.7	16.0	7.86	10.7
fluorene	33.9	24.3	19.8	<5700	14.8	33.3	25.3	23.5	18.7	23.9	14.3	43.6	25.2	17.7	DL	21.4	24.0	20.8	21.5	21.5
phenanthrene	119	97.0	139	<5700	117	126	127	133	126	126	56.1	153	134	144	116	134	157	118	148	148
anthracene	10.3	13.3	<14.8	<5700	10.3	9.69	17.7	28.2	11.4	11.4	2.76	12.1	other	10.0	6.10	8.06	15.7	24.2	12.7	15.7
fluoranthene	246	140	196	183	269	210	173	**127**	227	196	115	247	241	260	215	241	288	221	262	262
pyrene	207	107	121	101	149	149	121	179	158	149	85.4	191	153	196	182	182	189	150	175	175
benzo[b]fluorene	NA	17.3	NA	NA	15.8	NA	NA	NA	37.0	17.3		NA	NA	NA	NA		NA	NA	12.2	12.2
benz[a]anthracene	37.3	19.7	16.3	<5700	32.1	30.8	26.7	63.6	28.3	29.6	**8.87**	49.9	28.3	other	50.3	39.1	35.4	28.9	34.8	34.8
chrysene	coelute	54.7	93.9	<5700	73.0	52.9	88.3	88.7	Other	80.6	59.1	94.8	49.8	107	85.7	85.7	coelute	Other	coelute	
triphenylene	coelute		NA	NA	NA	NA	NA	NA	Other			NA	NA	NA	NA		NA	Other	NA	
chrysene/triphenylene	144								79.3	111							108	69.6	102	102
benzo[*b*]fluoranthene	26.3	20.7	21.9	<5700	25.0	35.1	Other	36.0	37.5	26.3	14.4	29.8	27.3	30.8	20.8	27.3	34.6	37.6	30.5	34.6
benzo[*j*]fluoranthene	28.6		NA	NA	NA	NA	Other	NA	Other	28.6		NA	NA	NA	NA		NA	NA	NA	
benzo[*k*]fluoranthene	15.4	13.0	20.3	<5700	24.7	14.4	11.0	**65.8**	Other	15.4	3.54	16.6	11.9	16.8	7.83	11.9	coelute	12.5	coelute	12.5
benzo[*b+j*]fluoranthene							0.027													
benzo[*j+k*]fluoranthene									**9.97**								31.7		33.9	32.8
benzo[*b+j+k*]fluoranthene																				
benzo[a]fluoranthene	<10	1.33	NA	NA	NA	NA	NA	NA	3.99	2.66		NA	NA	NA	NA		NA	NA	1.96	1.96
benzo[e]pyrene	38.8	24.3	36.6	<5700	29.3	39.9	NA	**68.6**	37.4	37.4		NA	39.9	NA	NA	39.9	46.7	36.9	42.3	42.3
benzo[a]pyrene	11.4	7.40	<14.8	<5700	7.55	11.7	10.7	29.5	12.7	11.4	3.91	14.7	9.03	18.4	7.05	9.03	11.0	10.4	15.2	11.0
perylene	4.96	2.97	<14.8	<5700	3.93	5.86	<10	**172**	<10	4.96		NA	NA	NA	NA		6.55	9.40	5.22	6.55
indeno[1,2,3-cd]pyrene	4.75	21.3	<14.8	<5700	4.39	4.58	<10	5.12	7.07	4.93	nd	**0.00**	5.83	<21	DL		7.70	6.44	7.24	7.24
benzo[ghi]perylene	7.81	6.67	<14.8	<5700	7.81	11.9	<10	< 7.4	8.68	7.81	nd	3.83	8.03	<7	DL	5.93	9.92	7.73	10.7	9.92
dibenz[a,h]anthracene	1.12	**0.00**	<14.8	<5700	2.28	2.11	<10	< 7.4	7.83	2.11	nd	**0.00**	<0.2	<9	DL		2.54	1.77	coelute	2.16
dibenz[a,h+a,c]anthracene																			3.63	3.63
cis/trans-decalin	NA	63.3	NA	NA	NA	NA	NA	NA	91.9	77.6		NA	NA	NA	NA		142	NA	113	128
dibenzofuran	NA	21.3	NA	NA	13.8	19.8	NA	< 7.4	15.8	17.8		NA	NA	NA	NA		18.2	NA	15.7	17.0
retene	NA	42.3	NA	NA	50.1	NA	30.0	NA	25.4	36.2		NA	NA	NA	NA		56.2	NA	<2.26	56.2
benzothiophene	NA	0.00	<14.8	NA	<40	NA	NA	NA	<1.3			NA	NA	NA	NA		1.30	NA	1.66	1.48
dibenzothiophene	<15	12.7	<14.8	<5700	16.0	12.9	12.0	< 7.4	16.7	12.9		NA	NA	NA	NA		20.4	15.8	18.4	18.4
naphthobenzothiophene	NA	11.7	NA	NA	13.6	NA	NA	NA	12.7	12.7		NA	NA	NA	NA		7.41	NA	18.0	12.7

NA=Not analyzed; DL=Detection limit; No value in space=nothing reported by lab: Bolded values were not used in the calculation of the consensus means in Tables 1 through 3.

Table 13 (cont). Mussel Tissue (QA10TIS01): Laboratory means of three replicates summarzed by extraction method along with the median values for the extraction method - PAHs (ng/g dry mass)

(reported as if three figures were significant)

	Sonication							ASE											base digestion	microwave
Laboratory No.	3	17	19	25	30	31	median	5	11	14	18	21	24a	27	28	29	33	median	22	32
naphthalene	<294	**625**	<78	<conc	14.7	**5.50**	14.7	12.9	18.4	NA	30.2	23.0	47.0	<12.2	15.0	31.0	22.5	22.8	24.3	<26
biphenyl	**130**	**567**	<78	<conc	<39.8	6.87	130	Other	NA	NA	19.1	NA	NA	13.3	NA	NA	NA	16.2	11.8	<26
acenaphthene	<294	<3.2	<78	<conc	6.69	11.7	9.18	9.59	NA	9.70	9.64	6.67	NA	7.12	NA	DL	NA	9.59	10.4	<26
acenaphthylene	<294	<3.2	<78	<conc	6.29	<3.0	6.29	2.74	NA	8.08	6.77	4.45	NA	12.5	NA	DL	NA	6.77	7.68	<26
fluorene	<294	**227**	<78	<conc	18.7	<3.0	18.7	26.0	19.7	30.9	20.3	20.6	DL	19.5	18.5	29.2	25.2	20.6	18.6	<26
phenanthrene	101	**760**	99.3	92.8	56.6	**18.7**	96.1	149	114	114	118	114	DL	108	119	134	145	118	121	**30.3**
anthracene	<294	**84.6**	<78	**67.7**	8.75	13.7	11.2	10.0	11.4	7.70	17.3	12.8	DL	16.1	<6.21	DL	8.29	11.4	< 40	<26
fluoranthene	181	**1160**	207	114	176	**24.0**	179	305	221	209	303	238	DL	242	231	215	277	238	200	**52.7**
pyrene	112	**733**	133	73.0	75.8	**17.3**	93.7	212	141	158	140	117	DL	134	111	154	194	141	154	**35.0**
benzo[b]fluorene	NA	<3.2	NA	<conc	<39.8	NA		NA	NA	NA	NA	NA	NA	<15.4	22.4	DL	NA	22.4	NA	NA
benz[a]anthracene	<294	**198**	<78	<conc	24.0	5.20	24.0	57.8	35.8	38.6	53.2	33.7	DL	34.2	33.8	37.2	55.9	37.2	27.4	<26
chrysene	<294	coelute	<78	43.8	56.0	15.3	43.8	Other	96.2	35.3	82.5	58.7	29.2	coelute	83.3	coelute	71.2	71.2	other	26.0
triphenylene	NA	coelute	NA	NA	NA	NA		Other	NA	38.3	82.5	NA	NA	NA	NA	coelute	NA	60.4	other	NA
chrysene/triphenylene		**421**						139						91.6		107		107	84.4	
benzo[*b*]fluoranthene	<294	**261**	<78	<conc	21.8	<3.0		38.1	44.0	31.0	32.6	55.5	48.3	42.1	22.4	28.1	57.2	40.1	25.0	coelute
benzo[*j*]fluoranthene	NA	coelute	NA	NA	NA	NA		Other	NA	16.6	NA	NA	NA	coelute	NA	coelute	NA	16.6	other	coelute
benzo[*k*]fluoranthene	<294	coelute	<78	<conc	14.2	3.20	8.70	Other	25.4	15.1	14.7	14.3	DL	NA	30.1	coelute	19.3	17.2	other	coelute
benzo[*b+j*]fluoranthene																				
benzo[*j+k*]fluoranthene		**194**						32.8						14.7		32.8		32.8	24.7	
benzo[*b+j+k*]fluoranthene																				<26
benzo[a]fluoranthene	NA	<3.2	NA	NA	NA	NA		NA	NA	5.42	NA	NA	NA	<2.94	NA	DL	NA	5.42	NA	NA
benzo[e]pyrene	<294	**232**	<78	<conc	<39.8	**4.00**		48.9	NA	36.1	39.4	NA	NA	40.8	NA	43.1	NA	40.8	37.5	<26
benzo[a]pyrene	<294	<3.2	<78	<conc	6.36	26.0	16.2	11.8	11.5	11.0	16.7	12.9	23.3	8.42	11.4	16.5	12.3	12.0	10.6	<26
perylene	**191**	<3.2	<78	<conc	<39.8	12.1	12.1	5.68	NA	4.74	4.16	NA	NA	<7.65	NA	6.50	NA	5.21	4.57	<26
indeno[1,2,3-cd]pyrene	<294	**207**	<78	<conc	6.36	<3.0	6.36	8.35	9.39	8.22	7.65	13.4	**14.2**	<4.58	10.5	DL	**16.8**	10.0	6.61	<26
benzo[ghi]perylene	<294	**204**	<78	<conc	6.36	<3.0	6.36	10.8	NA	9.88	13.1	11.0	NA	7.29	NA	10.5	NA	10.6	8.75	<26
dibenz[a,h]anthracene	<294	**175**	<78	<conc	<39.8	<3.0		Other	**18.2**	<1.5	3.14	**5.09**	DL	<3.28	<4.81	DL	3.23	4.16	other	<26
dibenz[a,h+a,c]anthracene								2.35										2.35	1.92	
cis/trans-decalin	NA	<3.2	NA	NA	<39.8	NA		NA	NA	NA	NA	NA	NA	53.9	NA	DL	NA	53.9	NA	38.3
dibenzofuran	<294	**143**	<78	<conc	<39.8	<3.0		NA	NA	NA	NA	NA	NA	17.1	NA	DL	NA	17.1	NA	<26
retene	NA	**245**	NA	NA	NA	NA		11.8	NA	28.3	NA	NA	NA	<9.61	NA	DL	NA	20.1	30.7	<26
benzothiophene	NA	<3.2	NA	NA	<39.8	NA		NA	NA	NA	NA	NA	NA	<5.15	NA	DL	NA		NA	<26
dibenzothiophene	<294	<3.2	<78	<conc	<39.8	<3.0		20.9	NA	13.4	11.8	14.0	NA	17.6	NA	18.6	NA	15.8	14.6	<26
naphthobenzothiophene	NA	<3.2	NA	NA	NA	NA		Other	NA	NA	NA	NA	NA	20.4	NA	NA	NA	20.4	NA	<26

NA=Not analyzed; DL=Detection limit; No value in space=nothing reported by lab: Bolded values were not used in the calculation of the consensus means in Tables 1 through 3.

Table 14. Mussel Tissue (QA10TIS01): Laboratory means of three replicates summarzed by extraction method along with the median values for the extraction method - Alkylated PAHs (ng/g dry mass)

(reported as if three figures were significant)

	Soxhlet										QuEChERS						tissuemizer			
Laboratory No.	1	4	7	10	12	13	15	20	26	median	2	6	8	9	24b	median	16	23	34	median
1-methylnaphthalene	27.2	15.0	**113**	<5700	23.0	**50.5**	37.7	37.6	29.7	33.6		NA	50.3	NA	NA	50.3	40.1	30.4	34.2	34.2
2-methylnaphthalene	36.2	23.7	64.4	<5700	38.0	**90.3**	67.7	34.4	41.4	39.7		NA	31.5	NA	NA	31.5	60.2	45.1	52.2	52.2
2,6-dimethylnaphthalene	67.0	42.3	NA	NA	65.4	101	NA	106	78.8	72.9		NA	70.5	NA	NA	70.5	90.2	53.7	73.3	73.3
1,6,7-trimethylnaphthalene	46.5	46.3	NA	NA	50.5	74.3	NA	168	81.4	62.4		NA	NA	NA	NA		76.8	41.7	35.6	41.7
1-methylphenanthrene	54.6	23.7	NA	NA	70.9	Other	NA	< 7.4	43.7	49.1		NA	61.1	NA	NA	61.1	67.5	59.2	42.3	59.2
C1-decalins	NA	390	NA	NA	NA	NA	NA	NA	560	475		NA	NA	NA	NA		831	NA	547	689
C2-decalins	NA	1333	NA	NA	NA	NA	NA	NA	1733	1533		NA	NA	NA	NA		2137	NA	1353	1745
C3-decalins	NA	1900	NA	NA	NA	NA	NA	NA	2967	2433		NA	NA	NA	NA		1727	NA	1127	1427
C4-decalins	NA	2533	NA	NA	NA	NA	NA	NA	3533	3033		NA	NA	NA	NA		2707	NA	1493	2100
C1-naphthalenes	63.4	23.7	NA	<5700	35.5	NA	NA	47.2	48.3	47.2		NA	NA	NA	NA		64.7	75.4	55.3	64.7
C2-naphthalenes	255	78.3	NA	<5700	125	NA	313	212	180	196		NA	NA	NA	NA		194	173	138	173
C3-naphthalenes	629	153	NA	207	253	NA	419	314	290	290		NA	NA	NA	NA		406	306	235	306
C4-naphthalenes	498	170	NA	110	210	NA	466	319	400	319		NA	NA	NA	NA		362	326	247	326
C1-benzothiophenes	NA	**0.00**	NA	NA	NA	NA	NA	NA	<39			NA	NA	NA	NA		16.9	NA	14.4	15.7
C2-benzothiophenes	NA	**0.00**	NA	NA	NA	NA	NA	NA	<39			NA	NA	NA	NA		34.6	NA	19.5	27.0
C3-benzothiophenes	NA	**0.00**	NA	NA	NA	NA	NA	NA	<39			NA	NA	NA	NA		55.8	NA	49.4	52.6
C4-benzothiophenes	NA	**0.00**	NA	NA	NA	NA	NA	NA	54.0	54.0		NA	NA	NA	NA		41.6	NA	50.2	45.9
C1-fluorenes	76.8	34.0	NA	<5700	37.7	NA	75.7	< 7.4	68.3	68.3		NA	NA	NA	NA		72.4	68.6	51.8	68.6
C2-fluorenes	181	107	NA	<5700	109	NA	188	< 7.4	373	181		NA	NA	NA	NA		209	146	150	150
C3-fluorenes	296	473	NA	<5700	173	NA	436	< 7.4	780	436		NA	NA	NA	NA		300	242	228	242
C1-phenanthrenes/anthracenes	280	163	NA	<5700	226	NA	415	< 7.4	187	226		NA	NA	NA	NA		321	258	257	258
C2-phenanthrenes/anthracenes	521	263	NA	102	326	NA	689	< 7.4	493	410		NA	NA	NA	NA		510	378	398	398
C3-phenanthrenes/anthracenes	467	323	NA	<5700	232	NA	1044	< 7.4	460	460		NA	NA	NA	NA		361	294	240	294
C4-phenanthrenes/anthracenes	145	230	NA	<5700	113	NA	597	< 7.4	260	230		NA	NA	NA	NA		130	141	92.5	130
C1-dibenzothiophenes	95.9	55.3	NA	<5700	72.3	NA	64.7	46.2	82.7	68.5		NA	NA	NA	NA		99.4	85.1	71.4	85.1
C2-dibenzothiophenes	237	140	NA	<5700	193	NA	192	< 7.4	287	193		NA	NA	NA	NA		269	215	201	215
C3-dibenzothiophenes	223	143	NA	<5700	163	NA	155	61.7	303	159		NA	NA	NA	NA		256	190	186	190
C4-dibenzothiophenes	110	87.0	NA	<5700	68.7	NA	<40	55.6	263	87.0		NA	NA	NA	NA		110	NA	95.4	103
C1-fluoranthenes/pyrenes	145	70.0	NA	<5700	91.9	NA	66.7	373	127	109		NA	NA	NA	NA		134	123	107	123
C2-fluoranthenes/pyrenes	62.3	42.7	NA	<5700	55.3	NA	43.0	< 7.4	92.7	55.3		NA	NA	NA	NA		67.1	59.1	59.3	59.3
C3-fluoranthenes/pyrenes	33.4	31.7	NA	<5700	24.3	NA	<40	57.9	52.3	33.4		NA	NA	NA	NA		40.2	27.0	30.2	30.2
C4-fluoranthenes/pyrenes	<15	12.6	NA	NA	NA	NA	NA	NA	<39	12.6		NA	NA	NA	NA		NA	NA	15.2	15.2
C1-naphthobenzothiophenes	NA	55.7	NA	NA	NA	NA	NA	NA	<39	55.7		NA	NA	NA	NA		12.2	NA	18.9	15.5
C2-naphthobenzothiophenes	NA	**0.00**	NA	NA	NA	NA	NA	NA	<39			NA	NA	NA	NA		8.7	NA	15.9	12.3
C3-naphthobenzothiophenes	NA	**0.00**	NA	NA	NA	NA	NA	NA	<39			NA	NA	NA	NA		7.59	NA	9.75	8.7
C4-naphthobenzothiophenes	NA	**0.00**	NA	NA	NA	NA	NA	NA	<39			NA	NA	NA	NA		**0.00**	NA	<0.707	
C1-chrysenes	42.6	25.7	NA	<5700	28.9	NA	NA	35.5	43.5	35.5		NA	NA	NA	NA		44.4	44.7	38.7	44.4
C2-chrysenes	25.7	21.3	NA	<5700	16.2	NA	NA	**210**	43.0	25.7		NA	NA	NA	NA		32.2	19.5	23.9	23.9
C3-chrysenes	<10	9.93	NA	<5700	6.20	NA	NA	< 7.4	<39	8.07		NA	NA	NA	NA		**0.00**	6.84	<0.595	6.84
C4-chrysenes	<10	**0.00**	NA	NA	<40	NA	NA	< 7.4	<39			NA	NA	NA	NA		**0.00**	2.93	<0.595	2.93

NA=Not analyzed; DL=Detection limit; No value in space=nothing reported by lab: Bolded values were not used in the calculation of the consensus statistics

Table 14 (cont). Mussel Tissue (QA10TIS01): Laboratory means of three replicates summarzed by extraction method along with the median values for the extraction method - Alkylated PAHs (ng/g dry mass)

(reported as if three figures were significant)

	Sonication							ASE											base digestion	microwave
Laboratory No.	3	17	19	25	30	31	median	5	11	14	18	21	24a	27	28	29	33	median	22	32
1-methylnaphthalene	<294	<6.4	<78	<conc	16.1	**7.90**	12.0	21.0	27.4	29.8	19.9	25.6	58.3	<24.3	38.3	31.2	47.6	29.8	24.8	<52
2-methylnaphthalene	**226**	**653**	<78	<conc	70.5	**6.90**	70.5	37.1	43.8	47.6	31.8	42.3	**94.0**	<24.3	24.0	52.5	30.0	42.3	40.8	<52
2,6-dimethylnaphthalene	102	**1062**	<78	104	27.1	**13.2**	102	68.8	46.9	41.5	46.5	41.6	118	48.4	69.7	DL	87.5	48.4	76.2	<52
1,6,7-trimethylnaphthalene	112	**325**	<78	<conc	NA	**17.7**	112	39.4	NA	NA	41.4	NA	NA	30.6	NA	46.0	NA	40.4	NA	<52
1-methylphenanthrene	<294	**2465**	<78	<conc	NA	<3.0		81.1	56.4	77.1	64.8	57.3	DL	35.1	<8.65	83.8	**0.00**	61.0	57.3	<52
C1-decalins	NA	**2467**	NA	<conc	NA	NA		NA	NA	NA	NA	NA	NA	**30.6**	NA	DL	NA		NA	<52
C2-decalins	NA	**14233**	NA	<conc	NA	NA		NA	NA	NA	NA	NA	NA	**45.6**	NA	DL	NA		NA	<52
C3-decalins	NA	**21200**	NA	<conc	NA	NA		NA	NA	NA	NA	NA	NA	**310**	NA	DL	NA		NA	<52
C4-decalins	NA	**24533**	NA	<conc	NA	NA		NA	NA	NA	NA	NA	NA	**506**	NA	DL	NA		NA	<52
C1-naphthalenes	**596**	**862**	<78	<conc	NA	**13.0**		58.2	NA	NA	NA	63.4	NA	<24.3	62.3	90.0	77.5	63.4	65.5	<52
C2-naphthalenes	378	**2728**	123	<conc	NA	**26.0**	251	236	NA	NA	NA	277	508	102	263	229	321	263	298	<52
C3-naphthalenes	391	**4270**	200	<conc	NA	**27.0**	295	606	NA	NA	NA	390	497	226	498	695	435	497	615	**54.3**
C4-naphthalenes	594	**5307**	227	<conc	NA	**18.3**	410	600	NA	NA	NA	240	683	279	138	Other	313	296	554	**76.0**
C1-benzothiophenes	NA	<3.2	NA	<conc	NA	NA		NA	NA	NA	NA	NA	NA	21.1	NA	DL	NA	21.1	NA	<52
C2-benzothiophenes	NA	<3.2	NA	<conc	NA	NA		NA	NA	NA	NA	NA	NA	12.4	NA	DL	NA	12.4	NA	<52
C3-benzothiophenes	NA	<3.2	NA	<conc	NA	NA		NA	NA	NA	NA	NA	NA	20.4	NA	DL	NA	20.4	NA	<52
C4-benzothiophenes	NA	<3.2	NA	<conc	NA	NA		NA	NA	NA	NA	NA	NA	37.8	NA	DL	NA	37.8	NA	NA
C1-fluorenes	<294	**856**	<78	<conc	NA	<3.0		68.6	NA	NA	NA	84.9	98.7	70.1	21.5	**446**	103	84.9	140	<52
C2-fluorenes	<294	**2563**	147	<conc	NA	<3.0	147	186	NA	NA	NA	195	193	190	181	**658**	77.2	190	312	60.0
C3-fluorenes	<294	<3.2	217	<conc	NA	<3.0	217	262	NA	NA	NA	48.4	DL	354	<6.89	558	277	277	530	67.0
C1-phenanthrenes/anthracenes	<294	<3.2	190	<conc	NA	<3.0	190	425	NA	NA	NA	312	685	230	360	554	433	425	328	**59.3**
C2-phenanthrenes/anthracenes	662	**2353**	307	106	NA	<3.0	484	626	NA	NA	NA	113	**1457**	393	536	934	639	626	546	**93.3**
C3-phenanthrenes/anthracenes	<294	**3257**	263	<conc	NA	<3.0	1760.0	508	NA	NA	NA	155	469	307	356	837	482	469	547	**77.0**
C4-phenanthrenes/anthracenes	<294	**1380**	117	<conc	NA	<3.0	117	209	NA	NA	NA	NA	**5.48**	159	<9.48	426	237	209	590	<52
C1-dibenzothiophenes	<294	**385**	<78	<conc	NA	<3.0		92.1	NA	NA	NA	NA	NA	71.6	NA	188	NA	92.1	103	<52
C2-dibenzothiophenes	<294	**946**	107	<conc	NA	<3.0	107	245	NA	NA	NA	NA	NA	226	NA	651	NA	245	355	**54.0**
C3-dibenzothiophenes	<294	**1113**	110	<conc	NA	<3.0	110	206	NA	NA	NA	NA	NA	234	NA	**705**	NA	234	321	<52
C4-dibenzothiophenes	<294	**877**	<78	<conc	NA	<3.0		103	NA	NA	NA	NA	NA	108	NA	**433**	NA	108	132	NA
C1-fluoranthenes/pyrenes	<294	**717**	99	<conc	NA	<3.0	98.7	114	NA	NA	NA	338	NA	115	NA	112	NA	115	376	<52
C2-fluoranthenes/pyrenes	166	<3.2	<78	<conc	NA	<3.0	166	68.3	NA	NA	NA	91.6	NA	71.7	NA	84.2	NA	78.0	**291**	<52
C3-fluoranthenes/pyrenes	<294	<3.2	<78	<conc	NA	<3.0		37.1	NA	NA	NA	NA	NA	36.2	NA	40.9	NA	37.1	99.1	<52
C4-fluoranthenes/pyrenes	NA	<3.2	NA	<conc	NA	<3.0		12.2	NA	NA	NA	NA	NA	16.9	NA	18.5	NA	16.9	22.4	NA
C1-naphthobenzothiophenes	NA	<3.2	NA	<conc	NA	<3.0		20.4	NA	NA	NA	NA	NA	19.1	NA	NA	NA	19.7	NA	<52
C2-naphthobenzothiophenes	NA	<3.2	NA	<conc	NA	<3.0		13.8	NA	NA	NA	NA	NA	16.0	NA	NA	NA	14.9	NA	<52
C3-naphthobenzothiophenes	NA	<3.2	NA	<conc	NA	<3.0		6.97	NA	NA	NA	NA	NA	<8.19	NA	NA	NA	6.97	NA	<52
C4-naphthobenzothiophenes	NA	<3.2	NA	<conc	NA	<3.0		3.10	NA	NA	NA	NA	NA	<8.19	NA	NA	NA	3.10	NA	NA
C1-chrysenes	<294	**308**	<78	<conc	NA	<3.0		56.9	NA	NA	NA	NA	NA	41.6	NA	43.9	NA	43.9	60.9	<52
C2-chrysenes	<294	<3.2	<78	<conc	NA	<3.0		31.2	NA	NA	NA	NA	NA	22.4	NA	21.8	NA	22.4	30.6	<52
C3-chrysenes	<294	<3.2	<78	<conc	NA	<3.0		13.5	NA	NA	NA	NA	NA	<13.8	NA	12.3	NA	12.9	6.74	<52
C4-chrysenes	<294	<3.2	<78	<conc	NA	<3.0		<1.79	NA	NA	NA	NA	NA	<13.8	NA	7.81	NA	7.81	0.540	<52

NA=Not analyzed; DL=Detection limit; No value in space=nothing reported by lab: Bolded values were not used in the calculation of the consensus statistics

Table 15. Mussel Tissue (QA10TIS01): Laboratory means of three replicates summarzed by extraction method along with the median values for the extraction method - Biomarkers (ng/g dry mass)
(reported as if three figures were significant)

	Soxhlet										QuEChERS						tissuemizer			
Laboratory No.	1	4	7	10	12	13	15	20	26	median	2	6	8	9	24b	median	16	23	34	median
Carbazole	NA		NA	NA	<40	NA	Other	NA	<1.7			NA	NA	NA	NA		NA	NA	6.85	6.85
18a(H)-22,29,30-Trisnorhopane	NA		NA	<5700	<40	NA	Other	131	NA	131		NA	NA	NA	NA		15.3	NA	19.8	17.6
17a(H)-22,29,30-Trisnorhopane	<25		NA	<5700	<40	NA	Other	79.6	NA	79.6		NA	NA	NA	NA		15.7	NA	20.8	18.2
17α(H),21β(H)-30-Norhopane	<25		NA	<5700	<40	NA	Other	< 7.4	NA			NA	NA	NA	NA		0.00	NA	51.2	25.6
18a(H)-30-Norneohopane	NA		NA	<5700	<40	NA	Other	< 7.4	NA			NA	NA	NA	NA		48.2	NA	18.1	33.2
17a(H)-Diahopane	NA		NA	<5700	<40	NA	Other	< 7.4	NA			NA	NA	NA	NA		0.00	NA	5.48	2.74
17α(H),21β(H)-Hopane	65.7		NA	<5700	<40	NA	Other	< 7.4	81.1	73.4		NA	NA	NA	NA		59.8	NA	78.9	69.4
17α(H),21β(H)-22R-Homohopane	<20		NA	<5700	<40	NA	Other	< 7.4	NA			NA	NA	NA	NA		18.4	NA	20.5	19.4
17α(H),21β(H)-22S-Homohopane	23.1		NA	<5700	<40	NA	Other	< 7.4	NA	23.1		NA	NA	NA	NA		25.0	NA	24.4	24.7
13b(H)17a(H)-Diacholestane 20S	NA		NA	<5700	<40	NA	Other	50.6	NA	50.6		NA	NA	NA	NA		18.2	NA	17.7	18.0
5a(H),14a(H),17a(H)-Cholestane 20S	NA		NA	NA	<40	NA	Other	< 7.4	NA			NA	NA	NA	NA		26.8	NA	29.1	28.0
5a(H),14a(H),17a(H)-Cholestane 20R	38.2		NA	<5700	<40	NA	Other	< 7.4	NA	38.2		NA	NA	NA	NA		47.1	NA	52.4	49.7
5a(H),14a(H),17a(H)-24-Ethylcholestane 20S	NA		NA	<5700	<40	NA	Other	21.0	NA	21.0		NA	NA	NA	NA		12.4	NA	11.3	11.9
5a(H),14a(H),17a(H)-24-Ethylcholestane 20R	29.0		NA	<5700	<40	NA	Other	66.2	NA	47.6		NA	NA	NA	NA		31.0	NA	32.4	31.7
5a(H),14b(H),17b(H)-Cholestane 20R	<20		NA	<5700	<40	NA	Other	< 7.4	NA			NA	NA	NA	NA		17.1	NA	17.7	17.4
5a(H),14b(H),17b(H)-Cholestane 20S	NA		NA	<5700	<40	NA	Other	< 7.4	NA			NA	NA	NA	NA		18.5	NA	18.8	18.7
5a(H),14b(H),17b(H)-24-Ethylcholestane 20R	<20		NA	<5700	<40	NA	Other	< 7.4	NA			NA	NA	NA	NA		19.8	NA	23.7	21.8
5a(H),14b(H),17b(H)-24-Ethylcholestane 20S	NA		NA	<5700	<40	NA	Other	< 7.4	NA			NA	NA	NA	NA		20.0	NA	18.1	19.1

NA=Not analyzed; DL=Detection limit; No value in space=nothing reported by lab: Bolded values were not used in the calculation of the consensus statistics

Table 15 (cont). Mussel Tissue (QA10TIS01): Laboratory means of three replicates summarzed by extraction method along with the median values for the extraction method - Biomarkers (ng/g dry mass)
(reported as if three figures were significant)

	Sonication							ASE												base digestion	microwave
Laboratory No.	3	17	19	25	30	31	median	5	11	14	18	21	24a	27	28	29	33	median	22	32
Carbazole	NA	223	NA	<conc	NA	NA	223	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		< 10	NA
18a(H)-22,29,30-Trisnorhopane	<294	NA	<78	<conc	NA	<3.0		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA
17a(H)-22,29,30-Trisnorhopane	<294	NA	<78	<conc	NA	<3.0		NA	NA	coelution	NA	NA	NA	NA	NA	NA	NA		23.2	NA
17α(H),21β(H)-30-Norhopane	<294	NA	<78	<conc	NA	112	112	NA	NA	20.3	NA	NA	NA	NA	NA	NA	NA	20.3	60.2	NA
18a(H)-30-Norneohopane	<294	NA	<78	<conc	NA	86.7	86.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA
17a(H)-Diahopane	<294	NA	<78	<conc	NA	<3.0		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA
17α(H),21β(H)-Hopane	<294	**558**	<78	<conc	NA	<3.0	558	NA	NA	65.3	NA	NA	NA	NA	NA	NA	NA	65.3	68.8	NA
17α(H),21β(H)-22R-Homohopane	<294	NA	<78	<conc	NA	<3.0		NA	NA	12.4	NA	NA	NA	NA	NA	NA	NA	12.4	23.8	NA
17α(H),21β(H)-22S-Homohopane	<294	NA	<78	<conc	NA	<3.0		NA	NA	20.8	NA	NA	NA	NA	NA	NA	NA	20.8	29.4	NA
13b(H)17a(H)-Diacholestane 20S	<294	NA	<78	<conc	NA	<3.0		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA
5a(H),14a(H),17a(H)-Cholestane 20S	<294	NA	<78	<conc	NA	<3.0		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA
5a(H),14a(H),17a(H)-Cholestane 20R	<294	NA	<78	<conc	NA	<3.0		NA	NA	36.8	NA	NA	NA	NA	NA	NA	NA	36.8	36.4	NA
5a(H),14a(H),17a(H)-24-Ethylcholestane 20S	<294	NA	<78	<conc	NA	<3.0		NA	NA	16.8	NA	NA	NA	NA	NA	NA	NA	16.8	NA	NA
5a(H),14a(H),17a(H)-24-Ethylcholestane 20R	<294	NA	<78	<conc	NA	24.7	24.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		27.6	NA
5a(H),14b(H),17b(H)-Cholestane 20R	<294	NA	<78	<conc	NA	67.3	67.3	NA	NA	20.0	NA	NA	NA	NA	NA	NA	NA	20.0	< 30	NA
5a(H),14b(H),17b(H)-Cholestane 20S	<294	NA	<78	<conc	NA	59.7	59.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA
5a(H),14b(H),17b(H)-24-Ethylcholestane 20R	<294	NA	<78	<conc	NA	<3.0		NA	NA	8.75	NA	NA	NA	NA	NA	NA	NA	8.75	13.0	NA
5a(H),14b(H),17b(H)-24-Ethylcholestane 20S	<294	NA	<78	<conc	NA	<3.0		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA

NA=Not analyzed; DL=Detection limit; No value in space=nothing reported by lab: Bolded values were not used in the calculation of the consensus statistics

APPENDIX A

Interlaboratory Analytical Comparison Study to Support Deepwater Horizon Natural Resource Damage Assessment

Intercomparison Exercise: Mussel Tissue QA10TIS01 Description of Materials and Instructions

Intercomparison Exercise Materials:

Each of the three jars contains approximately 15 g (wet basis) of Mussel Tissue QA10TIS01. This cryogenically homogenized fresh frozen material was prepared from mussels collected from an urban area. This material has not been enriched or spiked and still contains its endogenous water. Each 2-oz clear glass jar has a Teflon-lined screw cap and is labeled with an individual jar number as well as the above name.

In addition, three concurrent analyses of SRM 1974b Organics in Mussel Tissue (*Mytilus edulis*) are recommended. This material can be obtained from the NIST Standard Reference Materials Program ($798/5 x 8 g to 10 g bottles). See the following link for information on ordering on-line: https://www-s.nist.gov/srmors/view_detail.cfm?srm=1974B

Storage of Materials:

The tissue material should be stored in the dark at temperatures of -20 °C or lower. If allowed to thaw or if stored for extended periods at temperatures higher than -40°C, it will lose its powder-like form. If this happens, use the contents from the entire jar for analysis. This material has been stored at NIST at -80 °C and was shipped to you on dry ice. If only a portion of the contents of a jar is used, the jar should be tightly closed immediately after removal of a subsample to preserve the integrity of the remaining material for later analysis.

Instructions for Use:

You are to analyze Mussel Tissue QA10TIS01 and SRM 1974b using **your** laboratory's and/or program's analytical protocols, for the concentrations (mass/mass [dry-mass basis]) of the parent polycyclic aromatic hydrocarbon (PAH) compounds, alkylated PAH compounds, and biomarkers currently being determined in your laboratory. A target list of compounds are presented in Table 1; however, participants do not need to quantify all of these compounds and can add additional compounds when reporting data.

The percentage of water in the mussel tissue should be determined so that the results can be reported on a dry basis. You should have received sufficient material so that you can perform separate determinations for the water content if you do not dry your tissue samples prior to analysis.
The amount of material used for each analysis should correspond to the amount (wet basis) of marine tissue that you would typically analyze as prescribed in your protocols. It is best if the Mussel Tissue QA10TIS01 and the SRM 1974b samples are not allowed to thaw prior to the taking of samples for analysis; however, if the material has been even partially thawed, you should use the contents of the entire jar as a single sample as it is difficult to take representative samples from a jar once the material

has thawed. After removing the material for analysis from the jars, the samples should be used without delay.

You should analyze three samples of Mussel Tissue QA10TIS01 and at least one or more samples of SRM 1974b using your protocol for tissue samples. If time allows, we are asking that you analyze one sample of Mussel Tissue QA10TIS01 and one sample of SRM 1974b with one batch of laboratory samples; analyze a second sample of each material with another batch; and the third sample with yet another batch. This will allow a more realistic assessment of laboratory precision over a longer term than the assessment obtained when a laboratory places all three samples in the same extraction and cleanup batch and the resulting extracts are analyzed using the same calibration curve, etc.

Reporting of Results:
Please report one result, as if three figures were significant, for each of the analytes quantified in each of the three replicates of the Mussel Tissue QA10TIS01 and of SRM 1974b. Report results in units of ng/g **dry-mass** basis. Report the date of measurement of each sample in the requested m/d/y format. Also, report the results of your percentage water determinations of Mussel Tissue QA10TIS01.

If you know that a target or non-target compound is interfering (coeluting) with the determination of a target analyte, please identify this issue by qualifying the data and note the data qualifier used at the bottom of your table of results. Please note that any changes you make to the column or row headings **within** the tables will **not** be seen by the coordinators because only the table entries and comments at the bottom of the tables are automatically transferred to the exercise database.

We prefer that concentration values be reported for each analyte determined. If the measured concentration is below your typical reporting concentration for an analyte in a particular matrix, you can report the number and list the appropriate detection limit, quantification limit, etc. at the bottom of the data table. However, if you need to report non-numerical data please use the following conventions:

NA	"Not analyzed", "not determined"
<"value"	"Less than specified concentration", e.g., <8 ng/g
Other	"Other"; add note of explanation at end of data table, e.g., interference
DL	"Below detection limit" may be used, however, <"value" is preferable

Do not use negative numbers or parentheses to indicate "less than detection limits".

The attached file is an EXCEL file, QA10TIS01.xls. If you have any software/hardware conversion problems, please contact Michele Schantz. The data file templates also include places for you to list the surrogate/internal standards and type of calibration curve used, and to provide a brief description of the analyses. Please **do not** add spaces before entering numbers in the table cells and enter them as "numbers" not as "labels". Please **do not** insert any columns or rows **within** the table in the data file. If you wish to include additional data and/or other information or comments, you may add it to the bottom of the data table in the attached file.

Submit your results by **April 8, 2011** as an attached file via e-mail to:

michele.schantz@nist.gov

Further Information:

If you need further information, please contact Michele at the following address or phone numbers:

Michele M. Schantz
NIST
100 Bureau Drive Stop 8392
Gaithersburg, MD 20899-8392

Phone: (301)975-3106
FAX: (301)977-0685

Table 1: Preliminary List of Analytes of Interest in the Interlaboratory Analytical Comparison Study to Support Deepwater Horizon Natural Resource Damage Assessment

PAHs

Naphthalene
Biphenyl
Acenaphthene
Acenaphthylene
Fluorene
Phenanthrene
Anthracene
Fluoranthene
Pyrene
Benzo[*b*]fluorene
Benz[*a*]anthracene
Chrysene
Triphenylene
Benzo[*b*]fluoranthene
Benzo[*j*]fluoranthene
Benzo[*k*]fluoranthene
Benzo[*a*]fluoranthene
Benzo[*e*]pyrene
Benzo[*a*]pyrene
Perylene
Indeno[1,2,3-*cd*]pyrene
Benzo[*ghi*]perylene
Dibenz[*a,h*]anthracene

cis/trans-Decalin
Dibenzofuran
Retene
Benzothiophene
Dibenzothiophene
Naphthobenzothiophene

Alkylated PAHs

1-Methylnaphthalene
2-Methylnaphthalene
2,6-Dimethylnaphthalene
1,6.7-Trimethylnaphthalene
1-Methylphenanthrene

C1-Decalins
C2-Decalins
C3-Decalins
C4-Decalins

C1-Naphthalenes
C2-Naphthalenes
C3-Naphthalenes
C4-Naphthalenes

C1-Benzothiophenes
C2-Benzothiophenes
C3-Benzothiophenes
C4-Benzothiophenes

Table 1 (cont.)

C1-Fluorenes
C2-Fluorenes
C3-Fluorenes

C1-Phenanthrenes/anthracenes
C2- Phenanthrenes/anthracenes
C3- Phenanthrenes/anthracenes
C4- Phenanthrenes/anthracenes
C1-Dibenzothiophenes
C2-Dibenzothiophenes
C3-Dibenzothiophenes
C4-Dibenzothiophenes

C1-Fluoranthenes/pyrenes
C2-Fluoranthenes/pyrenes
C3-Fluoranthenes/pyrenes
C4-Fluoranthenes/pyrenes

C1-Naphthobenzothiophenes
C2-Naphthobenzothiophenes
C3-Naphthobenzothiophenes
C4-Naphthobenzothiophenes

C1-Chrysenes
C2-Chrysenes
C3-Chrysenes
C4-Chrysenes

Biomarkers

Carbazole
18α(H)-22,29,30-Trisnorhopane
17α(H)-22,29,30-Trisnorhopane
17α(H),21β(H)-30-Norhopane
18α(H)-30-Norneohopane
17α(H)-Diahopane
17α(H),21β(H)-Hopane
17α(H),21β(H)-22R-Homohopane
17α(H),21β(H)-22S-Homohopane
13β(H) 17α(H)-Diacholestane 20S
5α(H),14α(H),17α(H)-Cholestane 20S
5α(H),14α(H),17α(H)-Cholestane 20R
5α(H),14α(H),17α(H)-24-Ethylcholestane 20S
5α(H),14α(H),17α(H)-24-Ethylcholestane 20R
5α(H),14β(H),17β(H)-Cholestane 20S
5α(H),14β(H),17β(H)-Cholestane 20R
5α(H),14β(H),17β(H)-24-Ethylcholestane 20S
5α(H),14β(H),17β(H)-24-Ethylcholestane 20R

Appendix B

Summary of Method Information Provided by the Participating Laboratories

Extraction parameters used by labs for tissue samples

Lab #	Reported	g extracted QA10TIS01	g extracted SRM 1974b	% water Determination	Extraction Method	Extraction Solvent	Extraction Time	Extraction other
1	3/22/2011	8	8	Oven drying at 110°C until stable mass	Soxhlet	dichloromethane (DCM)	20 h	mixed with hydromatrix in the extraction cell
2	3/16/2011	5	5	Loss on drying 140°C for 12 h	QuEChERS	acetonitrile		
3	3/28/2011	2.5 & 10	10	ASTM D2216	SW-846 3550B	DCM	3 times at 3 min each	
4	3/30/2011	5	5	Modified EPA 160.3	EPA 3541	DCM	4h	
5	4/5/2011	2	2	Oven-drying at 120°C overnight.	Accelerated solvent extraction (ASE)	DCM	~16 min.	ASE conditions: Pressure = 2000 psi (13.8 Mpa), temperature = 100°C
6	4/6/2011	5	5	AOAC Official Method 952.08 Solids (Total) in Seafood	QuEChERS	Acetonitrile	1 min	15.00 mL to ~5g shake 1 min with ceramic homogenizers; used Genogrinder to shake (500 SPM)
7	4/7/2011	5	5	Small amount of sample placed in 1 dram shell vial and heated to >105°C on a heating block for over 8 h.	Soxhlet	1:1 DCM : Acetone	12 - 16 h	2 - 3 cycles per hour - overnight
8	4/5/2011	5	5	Weighed aliquot of sample before and after drying in vacuum oven at 90°C	QuEChERS	Acetonitrile	shake 1 min, rotate 10 min	extraction with acetonitrile and HPLC water, 6g MgSO4 1.5g sodium bicarbinate in 50mL glass tubes; centrifuge at 2000rpm (210 rad/sec) for 8 min, solvent exchange to hexane
9	4/7/2011	5	5	Weighed about 0.5 g and dried at 100°C for 24 h. Repeated drying until constant weight.	modified QuEChERS	Acetonitrile (ACN)	2 min via Genogrinder	Added 15 mL ACN + ceramic homogenizer & mixed for 1 min, then add 6 g magnesium sulfate + 1.5 g sodium acetate & mixed for 1 min, then centrifuged for 10 min & filtered top layer using 0.2 µm PTFE filter prior to analysis.
10	4/8/2011	15	0	2540G	8270 3541	DCM\ Acetone	2h program:starts at 150°C boils 15 min/4-15 min reductions/55min extraction/3-15min reductions/ Cools for 45 min/ pulled off/ N blow down.	
11	4/7/2011	2	2	Gravimetric Determination of Water by Drying and Weighing Ruiz, R. P. 2001. Current Protocols in Food Analytical Chemistry. John Wiley & Sons	ASE (sample + sodium sulfate + magnesium sulfate)	DCM	10 min per sample	
12	4/8/2011	10	10	SW 846 Guidance	3540	DCM: Acetone	18 h	
13	4/8/2011	5	5	Dried an aliquot of sample in the oven at 105°C for 24 h	Soxhlet	50% hexane/acetone	> 18 h	
14	4/8/2011	5	4.5	Dry for 24 h at 110°C.	ASE	DCM	3 cycles at 5 min each	The cell temperature was 100 °C, equilibration 5 min, static time 5 min, cell pressure was 2000 psi (13.8 Mpa) and there were three cycles
15	4/7/2011	5.1	NA	Oven dry 105°C-Gravimetric	Modified EPA 3540	DCM	Minimum 16 h	
16	4/8/2011	5 to 10	5 to 10	Drying oven at 105°C overnight	SOP 5-190 - tissumizer extraction	DCM	2 x 2 min	30 min on orbital shaker table (third extraction)
17	4/8/2011	10	10	160.3 Modified / TS	EPA 3550	DCM	Approx. 3 h extraction; 2 h silica cleanup; 1 h concentration	
18	4/8/2011	5	5	gravimetric	ASE, KD, Silica Gel column, KD	DCM, Hexane	1 day	

Extraction parameters used by labs for tissue samples (cont)

Lab #	Reported	g extracted QA10TIS01	g extracted SRM 1974b	% water Determination	Extraction Method	Extraction Solvent	Extraction Time	Extraction other
19	4/8/2011	13.2 - 14.6	9.9 - 12.2	160.3	Sonication	Acetone/DCM (50/50)	3 min in triplicate	
20	4/8/2011	10.2	6.8	SM 2540G	SW846 3541	DCM / Acetone	2.5 h	
21	4/8/2011	5	5	Freeze drying 7 days at -20°C	ACE-350 NOAA procedure	DCM	21 min total time with two cycles extraction	
22	4/8/2011	15	10	Gravimetric	Base digest	Pentane	4.5 h	
23	4/7/2011	20	7	An aliquat (~1g) was removed and dried to a constent weight after drying at 40°C	Tissuemizer with sodium sulfate	DCM	three times for 3 min each time	
24a	4/8/2011	2.1	2	Microwave moisture analyzer	NOAA Technical Memorandum NMFS-NWFSC-59	isooctane	24 h	
24b	4/6/2011	5		Microwave moisture analyzer	QuEChERS-based method for LC-FLD screening	acetonitrile	1.5 h	
25	4/8/2011	8	8	2g of each sample was dried in an oven set to 105°C for 3 h.	3550B sonication extraction	1:1 DCM/Acetone	3x 3min with sonic disrupter horn	
26	4/8/2011	10	5	EPA 160.3	EPA 3541	DCM	3:12	
27	4/8/2011	9.6	5	oven drying at 105°C to constant weight	ASE	DCM	13 min per sample	1500 psi (10.4 Mpa), 100°C Celsius, 2 static extraction cycles/sample, reduction to 2.0 to 3.0 mL using water bath
28	4/8/2011	2	2	Drying overnight in an oven set at 90 °C	NOAA Method (July 2010)	DCM	20 min	
29	4/4/2011	5	4	gravimetric: 1g dried at 120°C for 24 h	ASE	DCM	~30min	ground w/ sodium sulfate
30	4/15/2001	6	6	aliquot weighed into aluminum dish then dried at 110°C for 4 h, then weighed again and % solids calculated	sonic bath	50:50 acetone and DCM	overnight	
31	4/22/2011	15			3550C	DCM	4/19/11 4:00pm	
32	4/26/2011	17	4	Dry at 106°C	SW3546 (Microwave)	DCM/Acetone 90:10	20 min (2x)	Exchanged to hexane
33	4/27/2011	2.5	2.5	University of Massachusetts - Determination of Moisture and Total Solids; Gravimetric drying at 100 °C for 8 h.	NOAA Technical Memorandum NMFS-NWFSC-59	ACE - DCM	30 min	
34	5/6/2011	~8	~8	Gravimetric, SM2540G	Tissuemizer, Lab SOP - OP-003	DCM	6 minutes total (3 x 2min serial extractions)	

Sample clean-up and quantification methods used by laboratories for tissue study

Lab #	Sample extract cleanup method	Method of quantification
1	concentrate extract to 0.5 mL with solvent change to hexane; pass through two aminoproyl solid phase extraction (SPE) columns in series using 20 mL of 20% methylene chloride in hexane (same solvent mixture and volume used to condition the SPE columns) concentrate fraction to 0.5 mL and transfer to autosampler vial	IS
2	QuEChERS	ES
3	Gel Permeation Column (GPC)	IS
4	Silica Gel	IS
5	Gravity flow column with silica gel and neutral alumina, followed by size-exclusion HPLC to elute fraction containing PAHs and alkyl-PAHs.	IS
6	QuEChERS packet added (6 g magnesium sulfate and 1.5 g of sodium acetate), shake vigorously 1 min, centrifuge at 3000 rpm for 10 min, filter through 0.2 um PTFE syringe filter	ES
7	1. SX-3 Size Exclusion Chromatography (SEC) with DCM Elution; 2. KOH-Impregnated Silica Gel 60 (SG-60; 5g) Flash Chromatography with 5% Methyl t Butyl Ether (MtBE) in Hexanes Elution; 3. Phenogel (Phenomenex) SEC with DCM Elution; 4. 3% Aqueous Deactivated SG-60 (5g) Flash Chromatography with Hexanes (Impurities - Discarded) Followed by 25% MtBE in Hexanes (PAHs) Elution	IS
8	4.2g 60 mesh activated Silica gel with 1cm layer sodium sulfate. Column rinsed with 3:1 hexane:MeCl2 followed by additional Hexane rinse. Sample added followed by 40mL Hexane. PAHs eluted with 3:1 Hexane:MeCl2 Solvent exchange to Iso-octane for analysis	IS
9	No post extraction sample cleanup.	ES
10	GPC	IS
11	Silica/Alumina Column Chromatography (gravity-flow); Gel Permeation Chromatography (GPC) - J2 Scientific	IS
12	3640; 3630	IS
13	Gel Permeation Chromatography	IS
14	Alumina solid phase extraction.	IS
15	GPC followed by a neutral alumina/silica column cleanup	IS for PAH; ES for biomarkers
16	Alumina cleanup followed by silica gel cleanup	IS
17	Silica gel cleanup performed.	IS
18		IS
19	filter through sodium sulfate, followed by GPC, followed by silica gel	IS
20	None	IS
21	GPC	IS
22	Column chromatography; PAHs & bimarkers - 5% deactivated silica gel; PAHs-5% deactivated silica gel, 2%-deactivated alumina, biobead.	IS
23	Silica gel/Alumina columns and HPLC Phenogel	IS
24a	GPC	IS
24b	None	ES
25	None	IS
26	EPA 3630	IS
27	silica/alumina column chromatography, HPLC (Phenogel 100A columns), reduction to 0.5 mL in water bath	IS
28	Silica/Alumina Column Chromatography; Size Exclusion High-Performance Liquid Chromatography	IS
29	Extracts were filtered through silicone-treated filter papers and sodium sulfate, GPCed, and cleaned with alumina.	IS
30	SW 846 3630 modified - silica gel	IS
31		IS
32	Silica Gel	IS
33	Alumina/Silica Cleanup Column followed by J2 - GPC Cleanup	IS
34	PAH: 3610 - alumina cleanup, followed by 3640 - GPC cleanup; Biomarker: 3610 - alumina cleanup, followed by 3640 - GPC cleanup, followed by 3630 Silica fractionation. F1 portion collected for Biomarkers.	IS

Analytical methods used for PAHs

Lab #	Instrument	**PAHs** Phase	Dimensions	mode of injection (split/splitless/on-column)	Calibration Curve # points	range*
1	GC/MS	DB-17MS	60m x 0.25mm, 0.25µm film	on-column	6	varied by compound
2	HPLC/FLD	Zorbax PAH	5 cm x 4.6 mm, 1.8 um part	10 ul direct	3	2.5 ppb to 50 ppb
3	GC/MS	DB-5	60m x 0.25mm, 0.25µm film	splitless	6	0.1 ug/mL to 4.0 ug/mL
4	GC/MS	ZB-5MS	30m x 0.25mm, 0.25µm film	split/splitless	10	2 ppb to 2000ppb
5	GC/MS	DB-5	60m x 0.25mm, 0.25µm film	on-column	6	0.001ng/µL to 0.33 ng/µL
6	LC	Zorbax Ecliple PAH Rapid Resolution HT	50 mm x 4.6 mm, 1.8 um part		3	2.5 ng/g to 50 ng/g
7	GC/MS	DB-5	30m x 0.25mm, 0.25µm film	on-column	7	10ng/mL to 4000ng/mL
8	GC/MS	Crossbond® silarylene phase; similar to 50% phenyl/50% dimethyl polysiloxane	30m x 0.25mm, 0.25µm film	LVI/ solvent vent	6	1ng/mL to 500 ng/mL (0.2 ng/g to100ng/g)
9	HPLC	polymeric C18	50 mm x 4.6 mm, 1.8 um part	on-column	3	2.5 ng/mL - 50 ng/mL
10	GC/MS	ZB-MS-5si	60m x 0.25mm, 0.25µm film		6	0.1 ug/mL to 4.0 ug/mL
11	GC/MS	DB-5MS	60m x 0.25mm, 0.25µm film	on-column	6	1 ng/mL to 300ng/mL
12	GC/MS	ZB-5MSi	60m x 0.25mm, 0.25µm film	splitless	6	0.008 ug/mL to 0.80 ug/mL
13	GC/MS	DB-5	30m x 0.25mm, 0.25µm film		6	5 ng/mL to 1000 ng/mL
14	GC/MS	Rxi-17 sil	60m x 0.25mm, 0.25µm film	splitless	6	0.1 ng/g to 1000 ng/g
15	GC/MS	DB-5	30m x 0.25mm, 0.25µm film	splitless	6	0.05 mg/L to 5.0 mg/L
16	GC/MS	DB-5	60m x 0.25mm, 0.25µm film	splitless	7	0.01 to 7.2
17	GC/MS	Rtx-5MS	30m x 0.32mm, 0.25µm film	split	8	4ug/g - 1000ug/g
18	GC/MS	DB-EUPAH CF	20m x 0.18mm, 0.14µm film	pulsed splitless	6	0.5pg/uL - 100pg/uL
19	GC/MS	5% phenylpolydimethyl	60m x 0.25mm, 0.25µm film	splitless	6	0.1 ug/mL to 4 ug/mL
20	GC/MS	ZB5MSi	60m x 0.25mm, 0.25µm film		6	0.02 ug/L to 0.8 ug/L
21	GC/MS QQQ	HP-5MS	30m x 0.25mm, 0.25µm film	pulsed splitless	7 or 8	1 ppb to 500 ppb
22	GC/MS	RTX-5	30m x 0.25mm, 0.25µm film	split/splitless	5	50 ng/mL to 5000ng/mL
23	GC/MS	DB5-MS	30m x 0.25mm, 0.25µm film	split/splitless	5	20 ng/mL to 1000 ng/mL
24a	GC/MS	DB-5MS	60m x 0.25mm, 0.25µm film	on-column	6	1ng/mL to 330 ng/mL
24b	LC-FLD	C18 Rapid resolution	50 mm x 4.6 mm, 1.8 um part	on-column	3	2.5 ng/mL to 50 ng/mL
25	GC/MS	ZB-5MSI	60m x 0.25mm, 0.25µm film	pulsed splitless	6	0.1 ug/m to -4.0ug/ml
26	GC/MS	ZB-5MS	30m x 0.25mm, 0.25µm film	splitless	10	2.0 ng/mL to 2000 ng/mL
27	GC/MS	HP-5MS	60m x 0.25mm, 0.25µm film	split	5	(20, 100, 250, 500,1000)
28	GC/MS	DB-5	60m x 0.25mm, 0.25µm film		6	3 ppm to 333 ppm
29	GC/MS	DB-5MS	30m x 0.25mm, 0.25µm film	PTV	6	10ng/ml to 5000ng/ml
30	GC/MS	5MS	30m x 0.25mm, 0.25µm film	split/splitless	5	0.050 ug/mL to 10ug/mL
31	GC/MS	ZB-5msi	60m x 0.25mm, 0.25µm film	splitless	6	0.1 ppm to 4.0ppm
32	GC/MS	ZB5 msi	30m x 0.25mm, 0.5µm film	splitless	6	0.1-10
33	GC/MS	DB-5	60m x 0.25mm, 0.25µm film	on-column	6	1 ppb to 300 ppb
34	GC/MS-SIM	ZB-5	60m x 0.25mm, 0.25µm film	splitless	7	10 ng/mL to 20,000 ng/mL

*Units are those reported by the participating laboratory

Analytical methods used for Alkylated PAHs

Lab #	Instrument	**Alkylated PAH** Phase	Dimensions	mode of injection (split/splitless/on-column)	Calibration Curve # points	range*
1	GC/MS	DB-17MS	60m x 0.25mm, 0.25µm film	on-column	6	varied by compound
2						
3	GC/MS	DB-5	60m x 0.25mm, 0.25µm film	splitless	6	0.1 ug/mL to 4.0 ug/mL
4	GC/MS	ZB-5MS	30m x 0.25mm, 0.25µm film	split/splitless		
5	GC/MS	DB-5	60m x 0.25mm, 0.25µm film	on-column	6	0.001ng/µL to 0.33 ng/µL
6						
7	GC/MS	DB-5	30m x 0.25mm, 0.25µm film	on-column	7	10ng/mL to 4000ng/mL
8	GC/MS	Crossbond® silarylene phase; similar to 50% phenyl/50% dimethyl polysiloxane	30m x 0.25mm, 0.25µm film	LVI/ solvent vent	6	1ng/mL to 500 ng/mL (0.2 ng/g to 100ng/g)
9						
10	GC/MS	ZB-MS-5si	60m x 0.25mm, 0.25µm film		6	0.1 ug/mL to 4.0 ug/mL
11	GC/MS	DB-5MS	60m x 0.25mm, 0.25µm film	on-column	6	1 ng/mL to 300ng/mL
12	GC/MS	ZB-5MSi	60m x 0.25mm, 0.25µm film	splitless	6	0.008 ug/mL to 0.80 ug/mL
13	GC/MS	DB-5	30m x 0.25mm, 0.25µm film		6	5 ng/mL to 1000 ng/mL
14	GC/MS	Rxi-17 sil	60m x 0.25mm, 0.25µm film	splitless	6	0.1 ng/g to 1000 ng/g
15	GC/MS	DB-5	30m x 0.25mm, 0.25µm film	splitless	6	0.05 mg/L to 5.0 mg/L
16	GC/MS	DB-5	60m x 0.25mm, 0.25µm film	splitless	7	0.01 to 7.2
17	GC/MS	Rtx-5MS	30m x 0.32mm, 0.25µm film	split	8	4ug/g to 1000ug/g
18	GC/MS	DB-EUPAH CF	20m x 0.18mm, 0.14µm film	pulsed splitless	6	0.5pg/uL to 100pg/uL
19	GC/MS	5% phenylpolydimethyl	60m x 0.25mm, 0.25µm film	splitless	6	0.1 ug/mL to 4 ug/mL
20	GC/MS	ZB5MSi	60m x 0.25mm, 0.25µm film		6	0.02 ug/L to 0.8 ug/L
21	GC/MS QQQ	HP-5MS	30m x 0.25mm, 0.25µm film	pulsed splitless	8	1ppb to 500 ppb
22	GC/MS	RTX-5	30m x 0.25mm, 0.25µm film	split/splitless	1	2000 ng/mL
23	GC/MS	DB5-MS	30m x 0.25mm, 0.25µm film	split/splitless	5	20ng/mL to 1000 ng/mL
24a	GC/MS	DB-5MS	60m x 0.25mm, 0.25µm film	on-column	6	1 ng/mL to 330 ng/mL
24b						
25	GC/MS	ZB-5MSI	60m x 0.25mm, 0.25µm film	pulsed splitless	6	0.1 ug/mL to 4.0ug/mL
26	GC/MS	ZB-5MS	30m x 0.25mm, 0.25µm film	splitless	10	2.0 ng/mL to 2000 ng/mL
27	GC/MS	HP-5MS	60m x 0.25mm, 0.25µm film	split	5	(20, 100, 250, 500,1000) ng/mL
28	GC/MS	DB-5	60m x 0.25mm, 0.25µm film		6	3 ppm to 333 ppm
29	GC/MS	DB-5MS	30m x 0.25mm, 0.25µm film	PTV	6	10ng/mL to 5000ng/mL
30	GC/MS	5MS	30m x 0.25mm, 0.25µm film	split/splitless	5	0.050 ug/mL to 10ug/mL
31	GC/MS	ZB-5msi	60m x 0.25mm, 0.25µm film	splitless	6	0.1ppm to 4.0ppm
32	GC/MS	ZB5 msi	30m x 0.25mm, 0.5µm film	splitless	6	0.1-10
33	GC/MS	DB-5	60m x 0.25mm, 0.25µm film	on-column	6	1ppb to 300 ppb
34	GC/MS-SIM	ZB-5	60m x 0.25mm, 0.25µm film	splitless	7	10 ng/mL to 20,000 ng/mL

*Units are those reported by the participating laboratory

Analytical methods used for Biomarkers

Lab #	Biomarkers Instrument	Phase	Dimensions	mode of injection (split/splitless/on-column)	Calibration Curve # points	range*
1	GC/MS	DB-17MS	60m x 0.25mm, 0.25µm film	on-column	4	varied by compound
2						
3	GC/MS	DB-5	60m x 0.25mm, 0.25µm film	splitless	6	0.1 ug/mL to 4.0 ug/mL
4						
5						
6						
7						
8						
9						
10	GC/MS	ZB-MS-5si	60m x 0.25mm, 0.25µm film		6	0.1 ug/mL to 4.0 ug/mL
11						
12	GC/MS	ZB-5MSi	60m x 0.25mm, 0.25µm film	splitless	6	0.008 ug/mL to 0.80 ug/mL
13						
14	GC/MS	Rxi-17 sil	60m x 0.25mm, 0.25µm film	splitless	6	0.1 ng/g to 2000 ng/g
15	GC/MS	DB-5	30m x 0.25mm, 0.25µm film	splitless	1	SINTEF reference oil
16	GC/MS	DB-5	60m x 0.25mm, 0.25µm film	splitless	6 to 7	0.03 to 7.2 / 0.01 to 7.2
17	GC/MS	Rtx-5MS	30m x 0.32mm, 0.25µm film	split	8	4 ug/g to 1000 ug/g
18						
19	GC/MS	5% phenylpolydimethyl	60m x 0.25mm, 0.25µm film	splitless	6	0.1 ug/mL to 4 ug/mL
20	GC/MS	ZB5MSi	60m x 0.25mm, 0.25µm film		6	0.02 ug/L to 0.8 ug/L
21						
22	GC/MS	RTX-5	30m x 0.25mm, 0.25µm film	split/splitless	1	300 ng/mL to 11500ng/mL
23						
24a						
24b						
25	GC/MS	ZB-5MSI	60m x 0.25mm, 0.25µm film	pulsed splitless	6	0.1 ug/mL to 4.0ug/mL
26						
27						
28						
29						
30						
31	GC/MS	ZB-5msi	60m x 0.25mm, 0.25µm film	splitless	6	0.1ppm to 4.0ppm
32						
33						
34	GC/MS-SIM	ZB-5	60m x 0.25mm, 0.25µm film	splitless	6	10 ng/mL to 10,000 ng/mL

*Units are those reported by the participating laboratory

Quantification of PAHs

			PAHs		corrected for	
Lab #	IS/surrogate added prior to extraction	Used?	added prior to analysis	Used?	recovery?	others?
1	naphthalene-d8;biphenyl-d10; acenaphthalene-d10; phenanthrene-d10; fluoranthene-d10; pyrene-d10; B[a]A-d12; B[a]P-d12; perylene-d12; B[ghi]P-d12;DB[a,h]A-d14	x				
2						
3	Nitrobenzene-d5, 2-Fluorobiphenyl, Terphenyl-d14		Naphthalene-d8, Acenaphthene-d10, Phenanthrene-d10, Chrysene-d10	x	no	
4	surrogates only		Internal standards			
5	NPH-d8, ACE-d10, BaP-d12	x	HMB			PHN-d10 (prior to size-exclusion LC)
6						
7	Deuterated-Primary PAHs (16 total)	x	d10-2-Methylnaphthalene and d12-Benzo(e)pyrene			
8	13C labeled EPA 16 PAH @10ng/g	x				
9						
10	Nitrobenzene- d5; 2- Fluorobiphenyl; Terphenyl- d14		Naphthalene- d8; Acenapthene- d10; Chrysene- d12; Perylene- d12	x	yes	
11	Naphthalene-d8, Acenaphthene-d10 and Benzo[a]pyrene-d12	x				
12	Naphthalene-d8, Acenaphtene-d10, Phenanthrene-d10, Chrysene-d12, Perylene-d12		Fluorene-d10, Benzo(a)pyrene-d12	x	no	
13	Acenaphthene-d10, Acenaphthylene-d8, Anthracene-d10, Benz[a]Anthracene-d12, Benzo[b]Fluoranthene-d12, Benzo[k]Fluoranthene-d12, Benzo[g,h,i]Perylene-d12, Benzo[a]Pyrene-d12, Chrysene-d12, Dibenz[a,h]Anthracene-d14, Fluoranthene-d10, Fluorene-d10, Indeno[l,2,3-cd]Pyrene-d12, Naphthalene-d8, Phenanthrene-d10, Pyrene-d10	x					
14	Naphthalene-d8; Acenaphthene-d10; Phenanthrene-d10; Fluoranthene-d10; Pyrene-d10; Benz[a]anthracene-d12; Benzo[a]pyrene-d12; Perylene-d12; Bibenz[a,h]anthracene-d14; Benzo [[ghi]perylene-d12	x				
15	naphthalene-d8, acenaphthylene-d8, phenanthrene-d10, pyrene-d10, benzo(a)pyrene-d12, benzo(ghi)perylene-d12		2-fluorobiphenyl, p-terphenyl-d14, chrysene-d12, dibenzo(ah)anthracene-d14	x		
16	Naphthalene-d8, Acenaphthene-d10, Phenanthrene-d10, Benzo(a)pyrene-d12		Fluorene-d10, Chrysene-d12	x	yes	
17	Naphthalene-d8, Acenaphthene-d10, Phenanthrene-d10, 5 alpha-Androstane, Chrysene-d12, Perylene-d12		Fluorene-d10, Pyrene-d10, Benzo(a)pyrene-d12	x	yes	
18	Fluorene-d10, Fluoranthene-d10		Napthalene-d8, Acenaphthalene-d10, Phenanthrene-d10, Chrysene-d12, Perylene-d12	x	no	

Quantification of PAHs (cont)

			PAHs		corrected for	
Lab #	IS/surrogate added prior to extraction	Used?	added prior to analysis	Used?	recovery?	
19	surr - 2-fluorobiphenyl, nitrobenzene-d5, terphenyl-d14		IS - Naphthalene-d8, Acenaphthalene-d10, Phenanthrene-d10, Chrysene-d12, Perylene-d12	x	no	
20	Surrogates: Nitrobenzene-d5; 2-Fluorobiphenyl; Terphenyl-d14		Naphthalene-d8; Acenaphthene-d10; Phenanthrene-d10; Chrysene-d12; Perylene-d12			
21	surrogates: Nitrobenzene-d5, 2-Fluorobiphenyl, Terphenyl-d14		Internal standards: Naphthalene-d8, Acenaphthene-d10, Phenathrene-d10, Chrysene-d12, Perylene-d12	x	no	
22	d8-naphthalene, d10-2-methylnaphthalene, d10-biphenyl, d12-2,6-dimethylnaphthalene, d8-acenaphthylene, d10-phenanthrene, d10-fluoranthene, d12-benz[a]anthracene, d12-chrysene, d12-benzo[b,k]fluoranthenes, d12-benzo[a]pyrene, d12-perylene, d14-dibenz[a,h]anthracene, d12-indeno[123-cd]perylene, d12-benzo(ghi)perylene	x	d10-acenaphthene, d10-pyrene, d12-benzo[e]pyrene, used to quantify labeled surrogates only.			
23	d8-Naphthalene, d10-Acenaphthene, d10-Phenanthrene, d12-Chrysene, d12-Perylene	x	d10-Fluorene, d12-Benzo(a)pyrene			
24a	Naphthalene-d8, Acenaphthene-d10, Benzo(a)-pyrene-d21	x	Hexamethylbenzene			
24b						
25	2-Flourophenyl, phenol-d5, nitrobenzene-d5, 2,4,6-tribromophenol, Terphenyl-d14, 2-Fluorobiphenyl		1,4-dichlorobenzene-d4, Naphthalene-d8, Acenaphthene-d10, Phenanthrene-d10, Chrysene-d12, Perylene-d12	x	yes	
26	Fluorene-d10, Fluoranthene-d10, Terphenyl-d14	sur	Naphthalene-d8, Acenapthene-d10, Phenanthrene-d10, Chrysene-d12, Perylene-d12	IS	yes	
27	SU-Naphthalene-d8, Acenaphthene-d10, Phenanthrene-d10, Chrysene-d12, Perylene-d12		IS-Fluorene-d10, Pyrene-d10, Benzo(a)pyrene-d12	x	yes	
28	naphthalene-d8; acenaphthene-d10; benzo[a]pyrene-d12	x	hexamethylbenzene			phenanthrene-d10 (prior to size-exclusion LC)
29	d8-Napthalene, d8-1-Methylnapthalene, d8-Acenaphthylene, d10-Acenaphthene, d10-Fluorene, d8-Dibenzothiophene, d10-Phenanthrene, d10-Anthracene, d10-Fluoranthene, d10-Pyrene, d12-Benz(a)anthracene, d12-Chrysene, d12-Benzo(b)fluoranthene, d12-Benzo(k)fluoranthene, d12-Benzo(e)pyrene, d12-Benzo(a)pyrene, d12-Perylene, d12-Benzo(g,h,i)perylene	x	d14-p-terphenyl			
30	2-fluorobiphenyl, terphenyl d14		naph d8, acenaph d10, phenan d10, chry d12, pery d12	x	no	
31	Nitrobenzene-d5, 2-fluorobiphenyl, Terphenyl-d-14	x	Naphthalene-d8, acenaphthalene-d10, phenanthrene-d10, chrysene-d12, perylene-d12			
32	d8-Naphthalene, d10-Acenaphthene, d10-Phenanthrene, d12-Chrysene, d12-Perylene		d10-Fluorene, d10-Pyrene, d12-Benzo(a)pyrene	x	no	
33	D8Napthalene, D10Acenapthene, D12 BAP	x	Hexamethylbenzene			
34	Surrogates: Naphthalene-d8, Phenanthrene-d10, Benzo[a]pyrene-d12, 5b(H)Cholane	x	IS: Acenaphthene-d10, Chrysene-d12	x	yes	

Quantification of Alkylated PAHs

			Alkylated PAHs		corrected for	
Lab #	IS/surrogate added prior to extraction	Used?	added prior to analysis	Used?	recovery?	others?
1	naphthalene-d8;biphenyl-d10; acenaphthalene-d10; phenanthrene-d10; fluoranthene-d10; pyrene-d10; B[a]A-d12; B[a]P-d12; perylene-d12; B[ghi]P-d12;DB[a,h]A-d14	x				
2						
3	Nitrobenzene-d5, 2-Fluorobiphenyl, Terphenyl-d14		Naphthalene-d8, Acenaphthene-d10, Phenanthrene-d10, Chrysene-d10	x	no	
4	surrogates only		Internal standards			
5	NPH-d8, ACE-d10, BaP-d12		HMB			PHN-d10 (prior to size-exclusion LC)
6		x				
7	Deuterated-Primary PAHs (16 total)	x	d10-2-Methylnaphthalene and d12-Benzo(e)pyrene			
8	13C labeled EPA 16 PAH @10ng/g	x				
9						
10	Nitrobenzene- d5; 2- Fluorobiphenyl; Terphenyl- d14		Naphthalene- d8; Acenapthene- d10; Chrysene- d12; Perylene- d12	x	yes	
11	Naphthalene-d8, Acenaphthene-d10 and Benzo[a]pyrene-d12	x				
12	Naphthalene-d8, Acenaphtene-d10, Phenanthrene-d10, Chrysene-d12, Perylene-d12		Fluorene-d10, Benzo(a)pyrene-d12	x	no	
13						
14	Naphthalene-d8, Phenanthrene-d10, Fluoranthene-d10	x				
15	naphthalene-d8, acenaphthylene-d8, phenanthrene-d10, pyrene-d10, benzo(a)pyrene-d12, benzo(ghi)perylene-d12		2-fluorobiphenyl, p-terphenyl-d14, chrysene-d12, dibenzo(ah)anthracene-d14	x		
16	Naphthalene-d8, Acenaphthene-d10, Phenanthrene-d10, Benzo(a)pyrene-d12		Fluorene-d10, Chrysene-d12	x	yes	
17	Naphthalene-d8, Acenaphthene-d10, Phenanthrene-d10, 5 alpha-Androstane, Chrysene-d12, Perylene-d12		Fluorene-d10, Pyrene-d10, Benzo(a)pyrene-d12	x	yes	
18	1-methyl Napthalene-d10			x	no	

Quantification of Alkylated PAHs (cont)

			Alkylated PAHs		corrected for	
Lab #	IS/surrogate added prior to extraction	Used?	added prior to analysis	Used?	recovery?	
19	surr - 2-fluorobiphenyl, nitrobenzene-d5, terphenyl-d14		IS - Naphthalene-d8, Acenaphthalene-d10, Phenanthrene-d10, Chrysene-d12, Perylene-d12	x	no	
20	Surrogates: Nitrobenzene-d5; 2-Fluorobiphenyl; Terphenyl-d14		Naphthalene-d8; Acenaphthene-d10; Phenanthrene-d10; Chrysene-d12; Perylene-d12			
21	surrogates: Nitrobenzene-d5, 2-Fluorobiphenyl, Terphenyl-d14		Internal standards: Naphthalene-d8, Acenaphthene-d10, Phenathrene-d10, Chrysene-d12,	x	no	
22	d10-2-methylnaphthalene, d12-2,6-dimethylnaphthalene, d8-acenaphthylene, d10-phenanthrene, d10-fluoranthene, d12-chrysene	x	d10-acenaphthene, d10-pyrene, d12-benzo[e]pyrene, used to quantify labeled surrogates only.			
23	d8-Naphthalene, d10-Acenaphthene, d10-Phenanthrene, d12-Chrysene, d12-Perylene	x	d10-Fluorene, d12-Benzo(a)pyrene			
24a	Naphthalene-d8, Acenaphthene-d10, Benzo(a)-pyrene-d21	x	Hexamethylbenzene			
24b						
25	2-Flourophenyl, phenol-d5, nitrobenzene-d5, 2,4,6-tribromophenol, Terphenyl-d14, 2-Fluorobiphenyl		1,4-dichlorobenzene-d4, Naphthalene-d8, Acenaphthene-d10, Phenanthrene-d10, Chrysene-d12, Perylene-d12	x	yes	
26	Fluorene-d10, Fluoranthene-d10, Terphenyl-d14	sur	Naphthalene-d8, Acenapthene-d10, Phenanthrene-d10, Chrysene-d12, Perylene-d12	IS	yes	
27	SU-Naphthalene-d8, Acenaphthene-d10, Phenanthrene-d10, Chrysene-d12, Perylene-d12		IS-Fluorene-d10, Pyrene-d10, Benzo(a)pyrene-d12	x	yes	
28	naphthalene-d8; acenaphthene-d10; benzo[a]pyrene-d12	x	hexamethylbenzene			phenanthrene-d10 (prior to size-exclusion LC)
29	d8-Napthalene, d8-1-Methylnapthalene, d10-Acenaphthene, d10-Fluorene, d8-Dibenzothiophene, d10-Anthracene, d10-Fluoranthene, d12-Chrysene, d12-Benzo(e)pyrene	x	d14-p-terphenyl			
30	2-fluorobiphenyl, terphenyl d14		naph d8, acenaph d10, phenan d10, chry d12, pery d12	x	no	
31	Nitrobenzene-d5, 2-fluorobiphenyl, Terphenyl-d-14	x	Naphthalene-d8, acenaphthalene-d10, phenanthrene-d10, chrysene-d12, perylene-d12			
32	d8-Naphthalene, d10-Acenaphthene, d10-Phenanthrene, d12-Chrysene, d12-Perylene		d10-Fluorene, d10-Pyrene, d12-Benzo(a)pyrene	x	no	
33	D8Napthalene, D10Acenapthene, D12 BAP	x				
34	Surrogates: Naphthalene-d8, Phenanthrene-d10, Benzo[a]pyrene-d12, 5b(H)Cholane	x	IS: Acenaphthene-d10, Chrysene-d12	x	yes	

Quantification of Biomarkers

			Biomarkers		corrected for	
Lab #	IS/surrogate added prior to extraction	Used?	added prior to analysis	Used?	recovery?	others?
1	naphthalene-d8;biphenyl-d10; acenaphthalene-d10; phenanthrene-d10; fluoranthene-d10; pyrene-d10; B[a]A-d12; B[a]P-d12; perylene-d12; B[ghi]P-d12;DB[a,h]A-d14	x				
2						
3	Nitrobenzene-d5, 2-Fluorobiphenyl, Terphenyl-d14		Naphthalene-d8, Acenaphthene-d10, Phenanthrene-d10, Chrysene-d10	x	no	
4						
5						
6						
7						
8						
9						
10	Nitrobenzene- d5; 2- Fluorobiphenyl; Terphenyl- d14		Naphthalene- d8; Acenapthene- d10; Chrysene- d12; Perylene- d12	x	yes	
11						
12	Naphthalene-d8, Acenaphtene-d10, Phenanthrene-d10, Chrysene-d12, Perylene-d12		Fluorene-d10, Benzo(a)pyrene-d12	x	no	
13						
14	n-triacontane-d62	x				
15						
16	5b(H)-Cholane		Chrysene-d12	x	yes	
17	Naphthalene-d8, Acenaphthene-d10, Phenanthrene-d10, 5 alpha-Androstane, Chrysene-d12, Perylene-d12		Fluorene-d10, Pyrene-d10, Benzo(a)pyrene-d12	x	yes	
18						

Quantification of Biomarkers (cont)

			Biomarkers		corrected for	
Lab #	IS/surrogate added prior to extraction	Used?	added prior to analysis	Used?	recovery?	
19	surr - 2-fluorobiphenyl, nitrobenzene-d5, terphenyl-d14		IS - Naphthalene-d8, Acenaphthalene-d10, Phenanthrene-d10, Chrysene-d12, Perylene-d12	x	no	
20	Surrogates: Nitrobenzene-d5; 2-Fluorobiphenyl; Terphenyl-d14		Naphthalene-d8; Acenaphthene-d10; Phenanthrene-d10; Chrysene-d12; Perylene-d12			
21						
22	d10-phenanthrene, d50-tetracosane	x	d10-pyrene, used to quantify labeled surrogates only			
23						
24						
25	2-Flourophenyl, phenol-d5, nitrobenzene-d5, 2,4,6-tribromophenol, Terphenyl-d14, 2-Fluorobiphenyl		1,4-dichlorobenzene-d4, Naphthalene-d8, Acenaphthene-d10, Phenanthrene-d10, Chrysene-d12, Perylene-d12	x	yes	
26	Fluorene-d10, Fluoranthene-d10, Terphenyl-d14	sur	Naphthalene-d8, Acenapthene-d10, Phenanthrene-d10, Chrysene-d12, Perylene-d12	IS	yes	
27						
28						
29						
30						
31	Nitrobenzene-d5, 2-fluorobiphenyl, Terphenyl-d-14	x	Naphthalene-d8, acenaphthalene-d10, phenanthrene-d10, chrysene-d12, perylene-d12			
32						
33						
34	Surrogates: Naphthalene-d8, Phenanthrene-d10, Benzo[a]pyrene-d12, 5b(H)Cholane	x	IS: Acenaphthene-d10, Chrysene-d12	x	yes	

PAHs - IS/surrogate used for quantitation

	Lab 1	Lab 2	Lab 3	Lab 4	Lab 5	Lab 6
naphthalene	naphthalene-d8		Naphthalene-d8	Naphthalene-D8	NPH-d8	
biphenyl	biphenyl-d10		Naphthalene-d8	Naphthalene-D8	ACE-d10	
acenaphthene	acenaphthene-d10		Acenaphthene-d10	Acenapthene-D10	ACE-d10	
acenaphthylene	acenaphthene-d10		Acenaphthene-d10	Acenapthene-D10	ACE-d10	
fluorene	phenanthrene-d10		Acenaphthene-d10	Acenapthene-D10	ACE-d10	
phenanthrene	phenanthrene-d10		Phenanthrene-d10	Phenanthrene-D10	ACE-d10	
anthracene	phenanthrene-d10		Phenanthrene-d10	Phenanthrene-D10	ACE-d10	
fluoranthene	fluoranathene-d10		Phenanthrene-d10	Phenanthrene-D10	BaP-d12	
pyrene	pyrene-d10		Chrysene-d12	Chrysene-D12	BaP-d12	
benzo[b]fluorene	NA		NA	Perylene-D12		
benz[a]anthracene	B[a]A-d12		Chrysene-d12	Chrysene-D12	BaP-d12	
chrysene	B[a]A-d12		Chrysene-d12	Chrysene-D12	BaP-d12	
triphenylene	B[a]A-d12		NA			
benzo[*b*]fluoranthene	B[a]P-d12		Chrysene-d12	Perylene-D12	BaP-d12	
benzo[*j*]fluoranthene	B[a]P-d12		NA			
benzo[*k*]fluoranthene	B[a]P-d12		Chrysene-d12	Perylene-D12	BaP-d12	
benzo[a]fluoranthene	B[a]P-d12		NA	Perylene-D12		
benzo[e]pyrene	B[a]P-d12		Chrysene-d12	Perylene-D12	BaP-d12	
benzo[a]pyrene	B[a]P-d12		Chrysene-d12	Perylene-D12	BaP-d12	
perylene	perylene-d12		Chrysene-d12	Perylene-D12	BaP-d12	
indeno[1,2,3-cd]pyrene	B[ghi]P-d12		Chrysene-d12	Perylene-D12	BaP-d12	
benzo[ghi]perylene	B[ghi]P-d12		Chrysene-d12	Perylene-D12	BaP-d12	
dibenz[a,h]anthracene	DB[a,h]A-d14		Chrysene-d12	Perylene-D12	BaP-d12	
cis/trans-decalin	NA		NA	Naphthalene-D8		
dibenzofuran	NA		Acenaphthene-d10	Acenapthene-D10		
retene	NA		NA	Chrysene-D12	ACE-d10	
benzothiophene	NA		NA	Naphthalene-D8		
dibenzothiophene	fluoranathene-d10		Acenaphthene-d10	Phenanthrene-D10	ACE-d10	
naphthobenzothiophene	NA		NA	Chrysene-D12		

PAHs - IS/surrogate used for quantitation

	Lab 7	Lab 8	Lab 9	Lab 10	Lab 11	Lab 12
naphthalene	d8-Naphthalene	13C naphthalene		Napthalene- d8	Naphthalene-d8	Fluorene-d10
biphenyl	d10-Acenaphthylene	NA		Acenapthene- d10		Fluorene-d10
acenaphthene	d10-Acenaphthene	13C acenaphthene		Acenapthene- d10		Fluorene-d10
acenaphthylene	d10-Acenaphthylene	13C acenaphthylene		Acenapthene- d10		Fluorene-d10
fluorene	d10-Fluorene	13C Fluorene		Acenapthene- d10	Acenaphthene-d10	Fluorene-d10
phenanthrene	d10-Phenanthrene	13C phenathrene		Phananthrene- d10	Acenaphthene-d10	Fluorene-d10
anthracene	d10-Anthracene	13C anthracene		Phananthrene- d10	Acenaphthene-d10	Fluorene-d10
fluoranthene	d10-Fluoranthene	13C Fluoranthen		Phananthrene- d10	Acenaphthene-d10	Fluorene-d10
pyrene	d10-Pyrene	13C pyrene		Chyrsene- 12	Acenaphthene-d10	Benzo(a)pyrene-d12
benzo[b]fluorene		NA		NA		Benzo(a)pyrene-d12
benz[a]anthracene	d12-Benz[a]anthracene	13C ben[a]anthracene		Chyrsene- 12	Benzo[a]pyrene-d12	Benzo(a)pyrene-d12
chrysene	d12-Chrysene	13C chrysene		Chyrsene- 12	Benzo[a]pyrene-d12	Benzo(a)pyrene-d12
triphenylene		NA		NA		
benzo[*b*]fluoranthene	d12-Benzo[*b*]fluoranthene	13C benzo[b]fluoranthene		Chyrsene- 12	Benzo[a]pyrene-d12	Benzo(a)pyrene-d12
benzo[*j*]fluoranthene		NA		NA		
benzo[*k*]fluoranthene	d12-Benzo[*k*]fluoranthene	13C benzo[k]fluoranthene		Chyrsene- 12	Benzo[a]pyrene-d12	Benzo(a)pyrene-d12
benzo[a]fluoranthene		NA		NA		
benzo[e]pyrene	d12-Benzo[a]pyrene	13C benzo[a]pyrene		Chyrsene- 12		Benzo(a)pyrene-d12
benzo[a]pyrene	d12-Benzo[a]pyrene	13C benzo[a]pyrene		Chyrsene- 12	Benzo[a]pyrene-d12	Benzo(a)pyrene-d12
perylene	d12-Benzo[a]pyrene	NA		Chyrsene- 12		Benzo(a)pyrene-d12
indeno[1,2,3-cd]pyrene	d12-Indeno[1,2,3-cd]pyrene	13C indeno[1,2,3-cd]pyrene		Chyrsene- 12	Benzo[a]pyrene-d12	Benzo(a)pyrene-d12
benzo[ghi]perylene	d12-Benzo[ghi]perylene	13C benzo[ghi]perylene		Chyrsene- 12		Benzo(a)pyrene-d12
dibenz[a,h]anthracene	d14-Dibenz[a,h]anthracene	13C dibenz[a,h]anthracene		Chyrsene- 12	Benzo[a]pyrene-d12	Benzo(a)pyrene-d12
cis/trans-decalin		NA		NA		Fluorene-d10
dibenzofuran		NA		NA		Fluorene-d10
retene		NA		NA		
benzothiophene	d8-Naphthalene	NA		NA		Fluorene-d10
dibenzothiophene	d10-Fluorene	NA		Phananthrene- d10		Fluorene-d10
naphthobenzothiophene		NA		NA		Benzo(a)pyrene-d12

PAHs - IS/surrogate used for quantitation

	Lab 13	Lab 14	Lab 15	Lab 16	Lab 17	Lab 18
naphthalene	naphthalene-d8		2-fluorobiphenyl	Fluorene-d10 / Naphthalene-d8	Fluorene-d10 / Naphthalene-d8	Naphthalene-d8
biphenyl	naphthalene-d8		2-fluorobiphenyl	Fluorene-d10 / Acenaphthene-d10	Fluorene-d10 / Acenaphthene-d10	Naphthalene-d8
acenaphthene	acenaphthene-d10	napthalene-d8	2-fluorobiphenyl	Fluorene-d10 / Acenaphthene-d10	Fluorene-d10 / Acenaphthene-d10	Acenaphthene-d10
acenaphthylene	acenaphthylene-d8	napthalene-d8	2-fluorobiphenyl	Fluorene-d10 / Acenaphthene-d10	Fluorene-d10 / Acenaphthene-d10	Naphthalene-d8
fluorene	fluorene-d10	napthalene-d8	2-fluorobiphenyl	Fluorene-d10 / Acenaphthene-d10	Fluorene-d10 / Acenaphthene-d10	Acenaphthene-d10
phenanthrene	phenanthrene-d10	phenanthrene-d10	2-fluorobiphenyl	Fluorene-d10 / Phenanthrene-d10	Pyrene-d10 / Phenanthrene-d10	Phenanthrene-d10
anthracene	anthracene-d10	phenanthrene-d10	2-fluorobiphenyl	Fluorene-d10 / Phenanthrene-d10	Pyrene-d10 / Phenanthrene-d10	Phenanthrene-d10
fluoranthene	fluoranthene-d10	fluoranthene-d10	p-terphenyl-d14	Fluorene-d10 / Phenanthrene-d10	Pyrene-d10 / Chrysene-d12	Phenanthrene-d10
pyrene	pyrene-d10	pyrene-d10	p-terphenyl-d14	Fluorene-d10 / Phenanthrene-d10	Pyrene-d10 / Chrysene-d12	Phenanthrene-d10
benzo[b]fluorene			NA		Pyrene-d10 / Chrysene-d12	
benz[a]anthracene	benz[a]anthracene-d12	benz[a]anthracene-d12	chrysene-d12	Chrysene-d12 / Phenanthrene-d10	Pyrene-d10 / Chrysene-d12	Phenanthrene-d10
chrysene	chrysene-d12	benz[a]anthracene-d12	chrysene-d12	Chrysene-d12 / Phenanthrene-d10	Pyrene-d10 / Chrysene-d12	Chrysene-d12
triphenylene		benz[a]anthracene-d12	NA		Pyrene-d10 / Chrysene-d12	Chrysene-d12
benzo[*b*]fluoranthene	benzo[*b*]fluoranthene-d12	benzo[a]pyrene-d12	chrysene-d12	Chrysene-d12 / Benzo(a)pyrene-d12	Benzo(a)pyrene-d12 / Perylene-d12	Chrysene-d12
benzo[*j*]fluoranthene		benzo[a]pyrene-d12	chrysene-d12		Benzo(a)pyrene-d12 / Perylene-d12	
benzo[*k*]fluoranthene	benzo[*k*]fluoranthene-d12	benzo[a]pyrene-d12	chrysene-d12	Chrysene-d12 / Benzo(a)pyrene-d12	Benzo(a)pyrene-d12 / Perylene-d12	Chrysene-d12
benzo[a]fluoranthene		benzo[a]pyrene-d12	NA		Benzo(a)pyrene-d12 / Perylene-d12	
benzo[e]pyrene	benzo[*k*]fluoranthene-d12	benzo[a]pyrene-d12	NA	Chrysene-d12 / Benzo(a)pyrene-d12	Benzo(a)pyrene-d12 / Perylene-d12	Chrysene-d12
benzo[a]pyrene	benzo[a]pyrene-d12	benzo[a]pyrene-d12	chrysene-d12	Chrysene-d12 / Benzo(a)pyrene-d12	Benzo(a)pyrene-d12 / Perylene-d12	Chrysene-d12
perylene	benzo[a]pyrene-d12	perylene-d12	chrysene-d12	Chrysene-d12 / Benzo(a)pyrene-d12	Benzo(a)pyrene-d12 / Perylene-d12	Perylene-d12
indeno[1,2,3-cd]pyrene	indeno[1,2,3-cd]pyrene-d12	benzo[ghi]perylene-d12	dibenzo(ah)anthracene-d14	Chrysene-d12 / Benzo(a)pyrene-d12	Benzo(a)pyrene-d12 / Perylene-d12	Perylene-d12
benzo[ghi]perylene	benzo[ghi]perylene-d12	perylene-d12	dibenzo(ah)anthracene-d14	Chrysene-d12 / Benzo(a)pyrene-d12	Benzo(a)pyrene-d12 / Perylene-d12	Perylene-d12
dibenz[a,h]anthracene	dibenz[a,h]anthracene-d14	dibenz[a,h]anthracene-d14	dibenzo(ah)anthracene-d14	Chrysene-d12 / Benzo(a)pyrene-d12	Benzo(a)pyrene-d12 / Perylene-d12	Perylene-d12
cis/trans-decalin			NA	Fluorene-d10 / Naphthalene-d8	Fluorene-d10 / Naphthalene-d8	
dibenzofuran	acenaphthylene-d8		NA	Fluorene-d10 / Acenaphthene-d10	Fluorene-d10 / Acenaphthene-d10	
retene		fluoranthene-d10	p-terphenyl-d14	Fluorene-d10 / Phenanthrene-d10	Pyrene-d10 / Chrysene-d12	
benzothiophene			NA	Fluorene-d10 / Acenaphthene-d10	Fluorene-d10 / Naphthalene-d8	
dibenzothiophene	fluorene-d10	phenanthrene-d10	p-terphenyl-d14	Fluorene-d10 / Phenanthrene-d10	Pyrene-d10 / Phenanthrene-d10	Acenaphthene-d10
naphthobenzothiophene			NA	Fluorene-d10 / Phenanthrene-d10	Pyrene-d10 / Chrysene-d12	

PAHs - IS/surrogate used for quantitation

	Lab 19	Lab 20	Lab 21	Lab 22	Lab 23	Lab 24a	Lab 24b
naphthalene	Naphthalene-d8	Naphthalene-d8	naphthalene-d8	d8-naphthalene	d8-Naphthalene	NA	
biphenyl	Naphthalene-d8	Acenaphthene-d10		d10-biphenyl	d10-Acenaphthene	NA	
acenaphthene	Acenaphthalene-d10	Acenaphthene-d10	acenaphthene-d10	d8-acenaphthylene	d10-Acenaphthene	NA	
acenaphthylene	Acenaphthalene-d10	Acenaphthene-d10	acenaphthene-d10	d8-acenaphthylene	d10-Acenaphthene	Acenaphthene-d10	
fluorene	Acenaphthalene-d10	Acenaphthene-d10	acenaphthene-d10	d10-phenanthrene	d10-Acenaphthene	Acenaphthene-d10	
phenanthrene	Phenanthrene-d10	Phenanthrene-d10	phenanthrene-d10	d10-phenanthrene	d10-Phenanthrene	Acenaphthene-d10	
anthracene	Phenanthrene-d10	Phenanthrene-d10	phenanthrene-d10	d10-phenanthrene	d10-Phenanthrene	Acenaphthene-d10	
fluoranthene	Phenanthrene-d10	Phenanthrene-d10	phenanthrene-d10	d10-fluoranthene	d10-Phenanthrene	Acenaphthene-d10	
pyrene	Chrysene-d12	Chrysene-d12	chrysene-d12	d10-fluoranthene	d10-Phenanthrene	Acenaphthene-d10	
benzo[b]fluorene		_____		NA		Benzo(a)pyrene-d12	
benz[a]anthracene	Chrysene-d12	Chrysene-d12	chrysene-d12	d12-benz[a]anthracene	d12-Chrysene	Benzo(a)pyrene-d12	
chrysene	Chrysene-d12	Chrysene-d12	chrysene-d12	d12-chrysene	d12-Chrysene	NA	
triphenylene		_____		other		Benzo(a)pyrene-d12	
benzo[*b*]fluoranthene	Chrysene-d12	Chrysene-d12	perylene-d12	d12-benzo[b]fluoranthene	d12-Chrysene	NA	
benzo[*j*]fluoranthene		_____		other		Benzo(a)pyrene-d12	
benzo[*k*]fluoranthene	Chrysene-d12	Chrysene-d12	perylene-d12	d12-benzo[k]fluoranthene	d12-Chrysene	NA	
benzo[a]fluoranthene		_____		NA		NA	
benzo[e]pyrene	Chrysene-d12	Chrysene-d12		d12-benzo[a]pyrene	d12-Chrysene	Benzo(a)pyrene-d12	
benzo[a]pyrene	Chrysene-d12	Chrysene-d12	perylene-d12	d12-benzo[a]pyrene	d12-Chrysene	NA	
perylene	Chrysene-d12	Chrysene-d12		d12-perylene	d12-Perylene	Benzo(a)pyrene-d12	
indeno[1,2,3-cd]pyrene	Chrysene-d12	Chrysene-d12	perylene-d12	d12-indeno[1,2,3-cd]pyrene	d12-Chrysene	NA	
benzo[ghi]perylene	Chrysene-d12	Chrysene-d12	perylene-d12	d12-benzo[ghi]perylene	d12-Chrysene	Benzo(a)pyrene-d12	
dibenz[a,h]anthracene	Chrysene-d12	Chrysene-d12	perylene-d12	d14-dibenz[a,h]anthracene	d12-Chrysene	NA	
cis/trans-decalin		_____		NA		NA	
dibenzofuran	Acenaphthalene-d10	Acenaphthene-d10		NA		NA	
retene		_____		d10-fluoranthene		NA	
benzothiophene		_____		NA		NA	
dibenzothiophene	Acenaphthalene-d10	Phenanthrene-d10		d10-phenanthrene	d10-Phenanthrene	NA	
naphthobenzothiophene		_____		NA			

PAHs - IS/surrogate used for quantitation

	Lab 25	Lab 26	Lab 27	Lab 28	Lab 29	Lab 30
naphthalene	Naphthalene-d8	Naphthalene-d8/Fluorene-d10	Fluorene-d10/Naphthalene-d8	naphthalene-d8	d8-Naphthalene	naphthalene d8
biphenyl	Naphthalene-d8	Naphthalene-d8/Fluorene-d10	Fluorene-d10/Acenaphthene-d10		d8-1-Methylnaphthalene	naphthalene d8
acenaphthene	Acenaphthene-d10	Acenaphthene-d10/Fluorene-d10	Fluorene-d10/Acenaphthene-d10		d10Acenapthene	acenaphthene d10
acenaphthylene	Acenaphthene-d10	Acenaphthene-d10/Fluorene-d10	Fluorene-d10/Acenaphthene-d10		d8-Acenapthylene	acenaphthene d10
fluorene	Acenaphthene-d10	Acenaphthene-d10/Fluorene-d10	Fluorene-d10/Acenaphthene-d10	acenaphthene-d10	d10-Fluorene	acenaphthene d10
phenanthrene	Phenanthrene-d10	Phenanthrene-d10/Fluoranthene-d10	Pyrene-d10/Phenanthrene-d10	acenaphthene-d10	d10-Phenanthrene	phenanthrene d10
anthracene	Phenanthrene-d10	Phenanthrene-d10/Fluoranthene-d10	Pyrene-d10/Phenanthrene-d10	acenaphthene-d10	d10-Anthracene	phenanthrene d10
fluoranthene	Phenanthrene-d10	Phenanthrene-d10/Fluoranthene-d10	Pyrene-d10/Phenanthrene-d10	acenaphthene-d10	d10-Fluoranthene	phenanthrene d10
pyrene	Chrysene-d12	Chrysene-d12/Fluoranthene-d10	Pyrene-d10/Phenanthrene-d10	acenaphthene-d10	d10-Pyrene	phenanthrene d10
benzo[b]fluorene	Chrysene-d12	Chrysene-d12/Fluoranthene-d10	Pyrene-d10/Phenanthrene-d10		d12-Benzo(b)fluoranthene	phenanthrene d10
benz[a]anthracene	Chrysene-d12	Chrysene-d12/Terphenyl-d14	Pyrene-d10/Chrysene-d12	benzo[a]pyrene-d12	d12-Benz(a)anthracene	chrysene d12
chrysene	Chrysene-d12	Chrysene-d12/Terphenyl-d14	Pyrene-d10/Chrysene-d12	benzo[a]pyrene-d12	d12-Chrysene	chrysene d12
triphenylene		Chrysene-d12/Terphenyl-d14	NA		d12-Chrysene	NA
benzo[*b*]fluoranthene	Chrysene-d12	Perylene-d12Terphenyl-d14	Benzo(a)pyrene-d12/Chrysene-d12	benzo[a]pyrene-d12	d12-Benzo(b)fluoranthene	perylene d12
benzo[*j*]fluoranthene		Perylene-d12Terphenyl-d14	Benzo(a)pyrene-d12/Chrysene-d12		d12-Benzo(k)fluoranthene	perylene d12
benzo[*k*]fluoranthene	Chrysene-d12	Perylene-d12Terphenyl-d14	NA	benzo[a]pyrene-d12	d12-Benzo(k)fluoranthene	perylene d12
benzo[a]fluoranthene		Perylene-d12Terphenyl-d14	Benzo(a)pyrene-d12/Chrysene-d12		d12-Benzo(e)pyrene	NA
benzo[e]pyrene	Chrysene-d12	Perylene-d12Terphenyl-d14	Benzo(a)pyrene-d12/Chrysene-d12		d12-Benzo(e)pyrene	perylene d12
benzo[a]pyrene	Chrysene-d12	Perylene-d12Terphenyl-d14	Benzo(a)pyrene-d12/Chrysene-d12	benzo[a]pyrene-d12	d12benzo(a)pyrene	perylene d12
perylene	Chrysene-d12	Perylene-d12Terphenyl-d14	Benzo(a)pyrene-d12/Perylene-d12		d12-perylene	perylene d12
indeno[1,2,3-cd]pyrene	Chrysene-d12	Perylene-d12Terphenyl-d14	Benzo(a)pyrene-d12/Chrysene-d12	benzo[a]pyrene-d12	d12-benzo(ghi)perylene	perylene d12
benzo[ghi]perylene	Chrysene-d12	Perylene-d12Terphenyl-d14	Benzo(a)pyrene-d12/Chrysene-d12		d12-benzo(ghi)perylene	perylene d12
dibenz[a,h]anthracene	Chrysene-d12	Perylene-d12Terphenyl-d14	Benzo(a)pyrene-d12/Chrysene-d12	benzo[a]pyrene-d12	d12-benzo(ghi)perylene	perylene d12
cis/trans-decalin		Naphthalene-d8/Fluorene-d10	Fluorene-d10/Naphthalene-d8		d8-Naphthalene	naphthalene d8
dibenzofuran	Acenaphthene-d10	Acenaphthene-d10/Fluorene-d10	Fluorene-d10/Acenaphthene-d10		d10-Acenapthene	acenaphthene d10
retene		Chrysene-d12/Fluoranthene-d10	Pyrene-d10/Phenanthrene-d10		d10-Pyrene	NA
benzothiophene		Naphthalene-d8/Fluorene-d10	Fluorene-d10/Acenaphthene-d10		d8-Naphthalene	naphthalene d8
dibenzothiophene	Acenaphthene-d10	Phenanthrene-d10/Fluoranthene-d10	Pyrene-d10/Phenanthrene-d10		d10-Phenanthrene	acenaphthene d10
naphthobenzothiophene		Chrysene-d12/Terphenyl-d14	Pyrene-d10/Phenanthrene-d10			

PAHs - IS/surrogate used for quantitation

	Lab 31	Lab 32	Lab 33	Lab 34
naphthalene		d10-Fluorene	D8 Napthalene	Acenaphthene-d10
biphenyl		d10-Fluorene	D10 Acenapthene	Acenaphthene-d10
acenaphthene		d10-Fluorene	D12 Benzo a pyrene	Acenaphthene-d10
acenaphthylene		d10-Fluorene		Acenaphthene-d10
fluorene		d10-Fluorene		Acenaphthene-d10
phenanthrene		d10-Fluorene		Acenaphthene-d10
anthracene		d10-Fluorene		Acenaphthene-d10
fluoranthene		d10-Pyrene		Acenaphthene-d10
pyrene		d10-Pyrene		Acenaphthene-d10
benzo[b]fluorene				Acenaphthene-d10
benz[a]anthracene		d12-Benzo(a)pyrene		Chrysene-d12
chrysene		d12-Benzo(a)pyrene		Chrysene-d12
triphenylene				Chrysene-d12
benzo[*b*]fluoranthene				Chrysene-d12
benzo[*j*]fluoranthene				Chrysene-d12
benzo[*k*]fluoranthene		d12-Benzo(a)pyrene		Chrysene-d12
benzo[a]fluoranthene				Chrysene-d12
benzo[e]pyrene		d12-Benzo(a)pyrene		Chrysene-d12
benzo[a]pyrene		d12-Benzo(a)pyrene		Chrysene-d12
perylene		d12-Benzo(a)pyrene		Chrysene-d12
indeno[1,2,3-cd]pyrene		d12-Benzo(a)pyrene		Chrysene-d12
benzo[ghi]perylene		d12-Benzo(a)pyrene		Chrysene-d12
dibenz[a,h]anthracene		d12-Benzo(a)pyrene		Chrysene-d12
cis/trans-decalin		d10-Fluorene		Acenaphthene-d10
dibenzofuran		d10-Fluorene		Acenaphthene-d10
retene		d10-Pyrene		Acenaphthene-d10
benzothiophene		d10-Fluorene		Acenaphthene-d10
dibenzothiophene		d10-Fluorene		Acenaphthene-d10
naphthobenzothiophene		d10-Pyrene		Acenaphthene-d10

Alkylated PAHs - IS/surrogate used for quantitation

	Lab 1	Lab 2	Lab 3	Lab 4	Lab 5	Lab 6
1-methylnaphthalene	naphthalene-d8		Naphthalene-d8	Naphthalene-D8	NPH-d8	
2-methylnaphthalene	naphthalene-d8		Naphthalene-d8	Naphthalene-D8	NPH-d8	
2,6-dimethylnaphthalene	naphthalene-d8		Naphthalene-d8	Naphthalene-D8	ACE-d10	
1,6,7-trimethylnaphthalene	naphthalene-d8		Acenaphthene-d10	Naphthalene-D8	ACE-d10	
1-methylphenanthrene	phenanthrene-d10		Phenanthrene-d10	Phenanthrene-D10	ACE-d10	
C1-decalins	NA		NA	Naphthalene-D8		
C2-decalins	NA		NA	Naphthalene-D8		
C3-decalins	NA		NA	Naphthalene-D8		
C4-decalins	NA		NA	Naphthalene-D8		
C1-naphthalenes	naphthalene-d8		Naphthalene-d8	Naphthalene-D8	ACE-d10	
C2-naphthalenes	naphthalene-d8		Naphthalene-d8	Naphthalene-D8	ACE-d10	
C3-naphthalenes	naphthalene-d8		Naphthalene-d8	Naphthalene-D8	ACE-d10	
C4-naphthalenes	naphthalene-d8		Naphthalene-d8	Naphthalene-D8	ACE-d10	
C1-benzothiophenes	NA		NA	Naphthalene-D8		
C2-benzothiophenes	NA		NA	Naphthalene-D8		
C3-benzothiophenes	NA		NA	Naphthalene-D8		
C4-benzothiophenes	NA		NA	Naphthalene-D8		
C1-fluorenes	phenanthrene-d10		Acenaphthene-d10	Acenapthene-D10	ACE-d10	
C2-fluorenes	phenanthrene-d10		Acenaphthene-d10	Acenapthene-D10	ACE-d10	
C3-fluorenes	phenanthrene-d10		Acenaphthene-d10	Acenapthene-D10	ACE-d10	
C1-phenanthrenes/anthracenes	phenanthrene-d10		Phenanthrene-d10	Phenanthrene-D10	ACE-d10	
C2-phenanthrenes/anthracenes	phenanthrene-d10		Phenanthrene-d10	Phenanthrene-D10	ACE-d10	
C3-phenanthrenes/anthracenes	phenanthrene-d10		Phenanthrene-d10	Phenanthrene-D10	ACE-d10	
C4-phenanthrenes/anthracenes	phenanthrene-d10		Phenanthrene-d10	Phenanthrene-D10	ACE-d10	
C1-dibenzothiophenes	phenanthrene-d10		Acenaphthene-d10	Phenanthrene-D10	ACE-d10	
C2-dibenzothiophenes	phenanthrene-d10		Acenaphthene-d10	Phenanthrene-D10	ACE-d10	
C3-dibenzothiophenes	phenanthrene-d10		Acenaphthene-d10	Phenanthrene-D10	ACE-d10	
C4-dibenzothiophenes	phenanthrene-d10		Acenaphthene-d10	Phenanthrene-D10	ACE-d10	
C1-fluoranthenes/pyrenes	fluoranthene-d10		Chrysene-d12	Phenanthrene-D10	BaP-d12	
C2-fluoranthenes/pyrenes	fluoranthene-d10		Chrysene-d12	Phenanthrene-D10	BaP-d12	
C3-fluoranthenes/pyrenes	fluoranthene-d10		Chrysene-d12	Phenanthrene-D10	BaP-d12	
C4-fluoranthenes/pyrenes	fluoranthene-d10		NA	Phenanthrene-D10	BaP-d12	
C1-naphthobenzothiophenes	NA		NA	Chrysene-D12	ACE-d10	
C2-naphthobenzothiophenes	NA		NA	Chrysene-D12	ACE-d10	
C3-naphthobenzothiophenes	NA		NA	Chrysene-D12	ACE-d10	
C4-naphthobenzothiophenes	NA		NA	Chrysene-D12	ACE-d10	
C1-chrysenes	B[a]A-d12		Chrysene-d12	Chrysene-D12	BaP-d12	
C2-chrysenes	B[a]A-d12		Chrysene-d12	Chrysene-D12	BaP-d12	
C3-chrysenes	B[a]A-d12		Chrysene-d12	Chrysene-D12	BaP-d12	
C4-chrysenes	B[a]A-d12		Chrysene-d12	Chrysene-D12	BaP-d12	

Alkylated PAHs - IS/surrogate used for quantitation

	Lab 7	Lab 8	Lab 9	Lab 10	Lab 11	Lab 12
1-methylnaphthalene	d8-Naphthalene	13C Acenaphthylene		Napthalene- d8	Naphthalene-d8	Fluorene-d10
2-methylnaphthalene	d8-Naphthalene	13C Acenaphthylene		Napthalene- d8	Naphthalene-d8	Fluorene-d10
2,6-dimethylnaphthalene		13C Acenaphthylene		NA	Naphthalene-d8	Fluorene-d10
1,6,7-trimethylnaphthalene		NA		NA		Fluorene-d10
1-methylphenanthrene		13C Phenanthrene		NA	Acenaphthene-d10	Fluorene-d10
C1-decalins		NA		NA		
C2-decalins		NA		NA		
C3-decalins		NA		NA		
C4-decalins		NA		NA		
C1-naphthalenes		NA		Napthalene- d8		Fluorene-d10
C2-naphthalenes		NA		Napthalene- d8		Fluorene-d10
C3-naphthalenes		NA		Napthalene- d8		Fluorene-d10
C4-naphthalenes		NA		Napthalene- d8		Fluorene-d10
C1-benzothiophenes		NA		NA		
C2-benzothiophenes		NA		NA		
C3-benzothiophenes		NA		NA		
C4-benzothiophenes		NA		NA		
C1-fluorenes		NA		Acenapthene- d10		Fluorene-d10
C2-fluorenes		NA		Acenapthene- d10		Fluorene-d10
C3-fluorenes		NA		Acenapthene- d10		Fluorene-d10
C1-phenanthrenes/anthracenes		NA		Phananthrene- d10		Fluorene-d10
C2-phenanthrenes/anthracenes		NA		Phananthrene- d10		Fluorene-d10
C3-phenanthrenes/anthracenes		NA		Phananthrene- d10		Fluorene-d10
C4-phenanthrenes/anthracenes		NA		Phananthrene- d10		Fluorene-d10
C1-dibenzothiophenes		NA		Phananthrene- d10		Fluorene-d10
C2-dibenzothiophenes		NA		Phananthrene- d10		Fluorene-d10
C3-dibenzothiophenes		NA		Phananthrene- d10		Fluorene-d10
C4-dibenzothiophenes		NA		Phananthrene- d10		Fluorene-d10
C1-fluoranthenes/pyrenes		NA		Chyrsene- 12		Benzo(a)pyrene-d12
C2-fluoranthenes/pyrenes		NA		Chyrsene- 12		Benzo(a)pyrene-d12
C3-fluoranthenes/pyrenes		NA		Chyrsene- 12		Benzo(a)pyrene-d12
C4-fluoranthenes/pyrenes		NA		NA		
C1-naphthobenzothiophenes		NA		NA		
C2-naphthobenzothiophenes		NA		NA		
C3-naphthobenzothiophenes		NA		NA		
C4-naphthobenzothiophenes		NA		NA		
C1-chrysenes		NA		Chyrsene- 12		Benzo(a)pyrene-d12
C2-chrysenes		NA		Chyrsene- 12		Benzo(a)pyrene-d12
C3-chrysenes		NA		Chyrsene- 12		Benzo(a)pyrene-d12
C4-chrysenes		NA		NA		Benzo(a)pyrene-d12

Alkylated PAHs - IS/surrogate used for quantitation

	Lab 13	Lab 14	Lab 15	Lab 16	Lab 17	Lab 18
1-methylnaphthalene	naphthalene-d8	napthalene-d8	2-fluorobiphenyl	Fluorene-d10 / Naphthalene-d8	Fluorene-d10 / Naphthalene-d8	Naphthalene-d8
2-methylnaphthalene	naphthalene-d8	napthalene-d8	2-fluorobiphenyl	Fluorene-d10 / Naphthalene-d8	Fluorene-d10 / Naphthalene-d8	Naphthalene-d8
2,6-dimethylnaphthalene	naphthalene-d8	napthalene-d8	NA	Fluorene-d10 / Acenaphthene-d10	Fluorene-d10 / Acenaphthene-d10	Naphthalene-d8
1,6,7-trimethylnaphthalene	acenaphthylene-d8		NA	Fluorene-d10 / Acenaphthene-d10	Fluorene-d10 / Acenaphthene-d10	Acenphthene-d10
1-methylphenanthrene	phenanthrene-d10	phenanthrene-d10	NA	Fluorene-d10 / Phenanthrene-d10	Pyrene-d10 / Chrysene-d12	Phenanthrene-d10
C1-decalins			NA	Fluorene-d10 / Naphthalene-d8	Fluorene-d10 / Naphthalene-d8	
C2-decalins			NA	Fluorene-d10 / Naphthalene-d8	Fluorene-d10 / Naphthalene-d8	
C3-decalins			NA	Fluorene-d10 / Naphthalene-d8	Fluorene-d10 / Naphthalene-d8	
C4-decalins			NA	Fluorene-d10 / Naphthalene-d8	Fluorene-d10 / Naphthalene-d8	
C1-naphthalenes			NA	Fluorene-d10 / Naphthalene-d8	Fluorene-d10 / Naphthalene-d8	
C2-naphthalenes			2-fluorobiphenyl	Fluorene-d10 / Acenaphthene-d10	Fluorene-d10 / Naphthalene-d8	
C3-naphthalenes			2-fluorobiphenyl	Fluorene-d10 / Acenaphthene-d10	Fluorene-d10 / Naphthalene-d8	
C4-naphthalenes			2-fluorobiphenyl	Fluorene-d10 / Acenaphthene-d10	Fluorene-d10 / Naphthalene-d8	
C1-benzothiophenes			NA	Fluorene-d10 / Acenaphthene-d10	Fluorene-d10 / Naphthalene-d8	
C2-benzothiophenes			NA	Fluorene-d10 / Acenaphthene-d10	Fluorene-d10 / Naphthalene-d8	
C3-benzothiophenes			NA	Fluorene-d10 / Acenaphthene-d10	Fluorene-d10 / Naphthalene-d8	
C4-benzothiophenes			NA	Fluorene-d10 / Acenaphthene-d10	Fluorene-d10 / Naphthalene-d8	
C1-fluorenes			2-fluorobiphenyl	Fluorene-d10 / Acenaphthene-d10	Fluorene-d10 / Acenaphthene-d10	
C2-fluorenes			2-fluorobiphenyl	Fluorene-d10 / Acenaphthene-d10	Fluorene-d10 / Phenanthrene-d10	
C3-fluorenes			2-fluorobiphenyl	Fluorene-d10 / Acenaphthene-d10	Fluorene-d10 / Phenanthrene-d10	
C1-phenanthrenes/anthracenes			p-terphenyl-d14	Fluorene-d10 / Phenanthrene-d10	Pyrene-d10 / Phenanthrene-d10	
C2-phenanthrenes/anthracenes			p-terphenyl-d14	Fluorene-d10 / Phenanthrene-d10	Pyrene-d10 / Phenanthrene-d10	
C3-phenanthrenes/anthracenes			p-terphenyl-d14	Fluorene-d10 / Phenanthrene-d10	Pyrene-d10 / Phenanthrene-d10	
C4-phenanthrenes/anthracenes			p-terphenyl-d14	Fluorene-d10 / Phenanthrene-d10	Pyrene-d10 / Phenanthrene-d10	
C1-dibenzothiophenes			p-terphenyl-d14	Fluorene-d10 / Phenanthrene-d10	Pyrene-d10 / Phenanthrene-d10	
C2-dibenzothiophenes			p-terphenyl-d14	Fluorene-d10 / Phenanthrene-d10	Pyrene-d10 / Phenanthrene-d10	
C3-dibenzothiophenes			p-terphenyl-d14	Fluorene-d10 / Phenanthrene-d10	Pyrene-d10 / Phenanthrene-d10	
C4-dibenzothiophenes			p-terphenyl-d14	Fluorene-d10 / Phenanthrene-d10	Pyrene-d10 / Phenanthrene-d10	
C1-fluoranthenes/pyrenes			p-terphenyl-d14	Fluorene-d10 / Phenanthrene-d10	Pyrene-d10 / Chrysene-d12	
C2-fluoranthenes/pyrenes			p-terphenyl-d14	Fluorene-d10 / Phenanthrene-d10	Pyrene-d10 / Chrysene-d12	
C3-fluoranthenes/pyrenes			p-terphenyl-d14	Fluorene-d10 / Phenanthrene-d10	Pyrene-d10 / Chrysene-d12	
C4-fluoranthenes/pyrenes			NA		Pyrene-d10 / Chrysene-d12	
C1-naphthobenzothiophenes			NA	Fluorene-d10 / Phenanthrene-d10	Pyrene-d10 / Chrysene-d12	
C2-naphthobenzothiophenes			NA	Fluorene-d10 / Phenanthrene-d10	Pyrene-d10 / Chrysene-d12	
C3-naphthobenzothiophenes			NA	Fluorene-d10 / Phenanthrene-d10	Pyrene-d10 / Chrysene-d12	
C4-naphthobenzothiophenes			NA	Fluorene-d10 / Phenanthrene-d10	Pyrene-d10 / Chrysene-d12	
C1-chrysenes			NA	Chrysene-d12 / Phenanthrene-d10	Pyrene-d10 / Chrysene-d12	
C2-chrysenes			NA	Chrysene-d12 / Phenanthrene-d10	Pyrene-d10 / Chrysene-d12	
C3-chrysenes			NA	Chrysene-d12 / Phenanthrene-d10	Pyrene-d10 / Chrysene-d12	
C4-chrysenes			NA	Chrysene-d12 / Phenanthrene-d10	Pyrene-d10 / Chrysene-d12	

Alkylated PAHs - IS/surrogate used for quantitation

	Lab 19	Lab 20	Lab 21	Lab 22	Lab 23	Lab 24a	Lab 24b
1-methylnaphthalene	Naphthalene-d8	Naphthalene-d8	naphthalene-d8	d10-2-methylnaphthalene	d8-Naphthalene	Naphthalene-d8	
2-methylnaphthalene	Naphthalene-d8	Acenaphthene-d10	acenaphthene-d10	d10-2-methylnaphthalene	d8-Naphthalene	Naphthalene-d8	
2,6-dimethylnaphthalene	Naphthalene-d8	Acenaphthene-d10	naphthalene-d8	d12-2,6-dimethylnaphthalene	d10-Acenaphthene	Naphthalene-d8	
1,6,7-trimethylnaphthalene	Phenanthrene-d10	Acenaphthene-d10		NA	d10-Acenaphthene	NA	
1-methylphenanthrene	Phenanthrene-d10	Phenanthrene-d10	phenanthrene-d10	d10-phenanthrene	d10-Phenanthrene	Acenaphthene-d10	
C1-decalins		_____		NA		NA	
C2-decalins		_____		NA		NA	
C3-decalins		_____		NA		NA	
C4-decalins		_____		NA		NA	
C1-naphthalenes	Naphthalene-d8	Naphthalene-d8	naphthalene-d8	d10-2-methylnaphthalene		Naphthalene-d8	
C2-naphthalenes	Naphthalene-d8	Acenaphthene-d10	naphthalene-d8	d12-2,6-dimethylnaphthalene		Naphthalene-d8	
C3-naphthalenes	Naphthalene-d8	Acenaphthene-d10	naphthalene-d8	d12-2,6-dimethylnaphthalene		Acenaphthene-d10	
C4-naphthalenes	Naphthalene-d8	Phenanthrene-d10	naphthalene-d8	d12-2,6-dimethylnaphthalene		Acenaphthene-d10	
C1-benzothiophenes		_____		NA		NA	
C2-benzothiophenes		_____		NA		NA	
C3-benzothiophenes		_____		NA		NA	
C4-benzothiophenes		_____		NA		NA	
C1-fluorenes	Acenaphthalene-d10	Phenanthrene-d10	acenaphthene-d10	d10-phenanthrene		Acenaphthene-d10	
C2-fluorenes	Acenaphthalene-d10	Phenanthrene-d10	acenaphthene-d10	d10-phenanthrene		Acenaphthene-d10	
C3-fluorenes	Acenaphthalene-d10	Phenanthrene-d10	acenaphthene-d10	d10-phenanthrene		Acenaphthene-d10	
C1-phenanthrenes/anthracenes	Phenanthrene-d10	Phenanthrene-d10	phenanthrene-d10	d10-phenanthrene		Acenaphthene-d10	
C2-phenanthrenes/anthracenes	Phenanthrene-d10	Phenanthrene-d10	phenanthrene-d10	d10-fluoranthene		Acenaphthene-d10	
C3-phenanthrenes/anthracenes	Phenanthrene-d10	Chrysene-d12	phenanthrene-d10	d10-fluoranthene		Acenaphthene-d10	
C4-phenanthrenes/anthracenes	Phenanthrene-d10	Chrysene-d12		d10-fluoranthene		Acenaphthene-d10	
C1-dibenzothiophenes	Phenanthrene-d10	Phenanthrene-d10		d10-phenanthrene		NA	
C2-dibenzothiophenes	Phenanthrene-d10	Phenanthrene-d10		d10-phenanthrene		NA	
C3-dibenzothiophenes	Phenanthrene-d10	Phenanthrene-d10		d10-phenanthrene		NA	
C4-dibenzothiophenes	Phenanthrene-d10	Chrysene-d12		d10-phenanthrene		NA	
C1-fluoranthenes/pyrenes	Chrysene-d12	Chrysene-d12	chrysene-d12	d10-fluoranthene		Acenaphthene-d10	
C2-fluoranthenes/pyrenes	Chrysene-d12	Chrysene-d12	chrysene-d12	d10-fluoranthene		Acenaphthene-d10	
C3-fluoranthenes/pyrenes	Chrysene-d12	Chrysene-d12		d10-fluoranthene		Acenaphthene-d10	
C4-fluoranthenes/pyrenes		_____		d10-fluoranthene		Acenaphthene-d10	
C1-naphthobenzothiophenes		_____		NA		NA	
C2-naphthobenzothiophenes		_____		NA		NA	
C3-naphthobenzothiophenes		_____		NA		NA	
C4-naphthobenzothiophenes		_____		NA		NA	
C1-chrysenes	Chrysene-d12	Chrysene-d12		d12-chrysene		NA	
C2-chrysenes	Chrysene-d12	Chrysene-d12		d12-chrysene		NA	
C3-chrysenes	Chrysene-d12	Chrysene-d12		d12-chrysene		NA	
C4-chrysenes	Chrysene-d12	Chrysene-d12		d12-chrysene		NA	

Alkylated PAHs - IS/surrogate used for quantitation

	Lab 25	Lab 26	Lab 27	Lab 28	Lab 29	Lab 30
1-methylnaphthalene	Naphthalene-d8	Naphthalene-d8/Fluorene-d10	Fluorene-d10/Naphthalene-d8	naphthalene-d8	d8-1-Methylnaphthalene	naphthalene d8
2-methylnaphthalene	Naphthalene-d8	Naphthalene-d8/Fluorene-d10	Fluorene-d10/Naphthalene-d8	naphthalene-d8	d8-1-Methylnaphthalene	naphthalene d8
2,6-dimethylnaphthalene	Naphthalene-d8	Naphthalene-d8/Fluorene-d10	Fluorene-d10/Acenaphthene-d10	naphthalene-d8	d8-1-Methylnaphthalene	naphthalene d8
1,6,7-trimethylnaphthalene		Naphthalene-d8/Fluorene-d10	Fluorene-d10/Acenaphthene-d10		d10-Fluorene	NA
1-methylphenanthrene	Phenanthrene-d10	Phenanthrene-d10/Fluoranthene-d10	Pyrene-d10/Phenanthrene-d10	acenaphthene-d10	d8-Dibenzothiophene	NA
C1-decalins		Naphthalene-d8/Fluorene-d10	Fluorene-d10/Naphthalene-d8		d8-1-Methylnaphthalene	NA
C2-decalins		Naphthalene-d8/Fluorene-d10	Fluorene-d10/Naphthalene-d8		d8-1-Methylnaphthalene	NA
C3-decalins		Naphthalene-d8/Fluorene-d10	Fluorene-d10/Naphthalene-d8		d8-1-Methylnaphthalene	NA
C4-decalins		Naphthalene-d8/Fluorene-d10	Fluorene-d10/Naphthalene-d8		d8-1-Methylnaphthalene	NA
C1-naphthalenes	Naphthalene-d8	Naphthalene-d8/Fluorene-d10	Fluorene-d10/Naphthalene-d8	naphthalene-d8	d8-1-Methylnaphthalene	NA
C2-naphthalenes	Naphthalene-d8	Naphthalene-d8/Fluorene-d10	Fluorene-d10/Acenaphthene-d10	naphthalene-d8	d10Acenapthene	NA
C3-naphthalenes	Naphthalene-d8	Naphthalene-d8/Fluorene-d10	Fluorene-d10/Acenaphthene-d10	acenaphthene-d10	d10Fluorene	NA
C4-naphthalenes	Naphthalene-d8	Naphthalene-d8/Fluorene-d10	Fluorene-d10/Acenaphthene-d10	acenaphthene-d10	d10Fluorene	NA
C1-benzothiophenes		Naphthalene-d8/Fluorene-d10	Fluorene-d10/Acenaphthene-d10		d8-1-Methylnaphthalene	NA
C2-benzothiophenes		Naphthalene-d8/Fluorene-d10	Fluorene-d10/Acenaphthene-d10		d8-1-Methylnaphthalene	NA
C3-benzothiophenes		Naphthalene-d8/Fluorene-d10	Fluorene-d10/Acenaphthene-d10		d8-1-Methylnaphthalene	NA
C4-benzothiophenes		Naphthalene-d8/Fluorene-d10	Fluorene-d10/Acenaphthene-d10		d8-1-Methylnaphthalene	NA
C1-fluorenes	Acenaphthene-d10	Acenaphthene-d10/Fluorene-d10	Fluorene-d10/Acenaphthene-d10	acenaphthene-d10	d10-Fluorene	NA
C2-fluorenes	Acenaphthene-d10	Acenaphthene-d10/Fluorene-d10	Fluorene-d10/Acenaphthene-d10	acenaphthene-d10	d10-Fluorene	NA
C3-fluorenes	Acenaphthene-d10	Acenaphthene-d10/Fluorene-d10	Fluorene-d10/Acenaphthene-d10	acenaphthene-d10	d10-Fluorene	NA
C1-phenanthrenes/anthracenes	Phenanthrene-d10	Phenanthrene-d10/Fluoranthene-d10	Pyrene-d10/Phenanthrene-d10	acenaphthene-d10	d10-Anthracene	NA
C2-phenanthrenes/anthracenes	Phenanthrene-d10	Phenanthrene-d10/Fluoranthene-d10	Pyrene-d10/Phenanthrene-d10	acenaphthene-d10	d10-Anthracene	NA
C3-phenanthrenes/anthracenes	Phenanthrene-d10	Phenanthrene-d10/Fluoranthene-d10	Pyrene-d10/Phenanthrene-d10	acenaphthene-d10	d10-Anthracene	NA
C4-phenanthrenes/anthracenes	Phenanthrene-d10	Phenanthrene-d10/Fluoranthene-d10	Pyrene-d10/Phenanthrene-d10	acenaphthene-d10	d10-Anthracene	NA
C1-dibenzothiophenes	Phenanthrene-d10	Phenanthrene-d10/Fluoranthene-d10	Pyrene-d10/Phenanthrene-d10		d8-Dibenzothiophene	NA
C2-dibenzothiophenes	Phenanthrene-d10	Phenanthrene-d10/Fluoranthene-d10	Pyrene-d10/Phenanthrene-d10		d8-Dibenzothiophene	NA
C3-dibenzothiophenes	Phenanthrene-d10	Phenanthrene-d10/Fluoranthene-d10	Pyrene-d10/Phenanthrene-d10		d8-Dibenzothiophene	NA
C4-dibenzothiophenes	Phenanthrene-d10	Phenanthrene-d10/Fluoranthene-d10	Pyrene-d10/Phenanthrene-d10		d8-Dibenzothiophene	NA
C1-fluoranthenes/pyrenes	Chrysene-d12	Phenanthrene-d10/Fluoranthene-d10	Pyrene-d10/Phenanthrene-d10		d10-Fluoranthene	NA
C2-fluoranthenes/pyrenes	Chrysene-d12	Phenanthrene-d10/Fluoranthene-d10	Pyrene-d10/Phenanthrene-d10		d10-Fluoranthene	NA
C3-fluoranthenes/pyrenes	Chrysene-d12	Phenanthrene-d10/Fluoranthene-d10	Pyrene-d10/Phenanthrene-d10		d10-Fluoranthene	NA
C4-fluoranthenes/pyrenes		Phenanthrene-d10/Fluoranthene-d10	Pyrene-d10/Phenanthrene-d10		d10-Fluoranthene	NA
C1-naphthobenzothiophenes		Chrysene-d12/Terphenyl-d14	Pyrene-d10/Phenanthrene-d10			NA
C2-naphthobenzothiophenes		Chrysene-d12/Terphenyl-d14	Pyrene-d10/Phenanthrene-d10			NA
C3-naphthobenzothiophenes		Chrysene-d12/Terphenyl-d14	Pyrene-d10/Phenanthrene-d10			NA
C4-naphthobenzothiophenes		Chrysene-d12/Terphenyl-d14	Pyrene-d10/Phenanthrene-d10			NA
C1-chrysenes	Chrysene-d12	Chrysene-d12/Terphenyl-d14	Pyrene-d10/Chrysene-d12		d12-Chrysene	NA
C2-chrysenes	Chrysene-d12	Chrysene-d12/Terphenyl-d14	Pyrene-d10/Chrysene-d12		d12-Chrysene	NA
C3-chrysenes	Chrysene-d12	Chrysene-d12/Terphenyl-d14	Pyrene-d10/Chrysene-d12		d12-Chrysene	NA
C4-chrysenes	Chrysene-d12	Chrysene-d12/Terphenyl-d14	Pyrene-d10/Chrysene-d12		d12-Chrysene	NA

Alkylated PAHs - IS/surrogate used for quantitation

	Lab 31	Lab 32	Lab 33	Lab 34
1-methylnaphthalene		d10-Fluorene		Acenaphthene-d10
2-methylnaphthalene		d10-Fluorene		Acenaphthene-d10
2,6-dimethylnaphthalene		d10-Fluorene		Acenaphthene-d10
1,6,7-trimethylnaphthalene		d10-Fluorene		Acenaphthene-d10
1-methylphenanthrene		d10-Pyrene		Acenaphthene-d10
C1-decalins		d10-Fluorene		Acenaphthene-d10
C2-decalins		d10-Fluorene		Acenaphthene-d10
C3-decalins		d10-Fluorene		Acenaphthene-d10
C4-decalins		d10-Fluorene		Acenaphthene-d10
C1-naphthalenes		d10-Fluorene		Acenaphthene-d10
C2-naphthalenes		d10-Fluorene		Acenaphthene-d10
C3-naphthalenes		d10-Fluorene		Acenaphthene-d10
C4-naphthalenes		d10-Fluorene		Acenaphthene-d10
C1-benzothiophenes		d10-Fluorene		Acenaphthene-d10
C2-benzothiophenes		d10-Fluorene		Acenaphthene-d10
C3-benzothiophenes		d10-Fluorene		Acenaphthene-d10
C4-benzothiophenes				Acenaphthene-d10
C1-fluorenes		d10-Fluorene		Acenaphthene-d10
C2-fluorenes		d10-Fluorene		Acenaphthene-d10
C3-fluorenes		d10-Fluorene		Acenaphthene-d10
C1-phenanthrenes/anthracenes		d10-Pyrene		Acenaphthene-d10
C2-phenanthrenes/anthracenes		d10-Pyrene		Acenaphthene-d10
C3-phenanthrenes/anthracenes		d10-Pyrene		Acenaphthene-d10
C4-phenanthrenes/anthracenes		d10-Pyrene		Acenaphthene-d10
C1-dibenzothiophenes		d10-Fluorene		Acenaphthene-d10
C2-dibenzothiophenes		d10-Fluorene		Acenaphthene-d10
C3-dibenzothiophenes		d10-Fluorene		Acenaphthene-d10
C4-dibenzothiophenes				Acenaphthene-d10
C1-fluoranthenes/pyrenes		d10-Pyrene		Acenaphthene-d10
C2-fluoranthenes/pyrenes		d10-Pyrene		Acenaphthene-d10
C3-fluoranthenes/pyrenes		d10-Pyrene		Acenaphthene-d10
C4-fluoranthenes/pyrenes				Acenaphthene-d10
C1-naphthobenzothiophenes		d10-Pyrene		Acenaphthene-d10
C2-naphthobenzothiophenes		d10-Pyrene		Acenaphthene-d10
C3-naphthobenzothiophenes		d10-Pyrene		Acenaphthene-d10
C4-naphthobenzothiophenes				Acenaphthene-d10
C1-chrysenes				Chrysene-d12
C2-chrysenes		d12-Benzo(a)pyrene		Chrysene-d12
C3-chrysenes		d12-Benzo(a)pyrene		Chrysene-d12
C4-chrysenes		d12-Benzo(a)pyrene		Chrysene-d12

Biomarkers - IS/surrogate used for quantitation

	Lab 1	Lab 3	Lab 10	Lab 12	Lab 14	Lab 16	Lab 17	Lab 19	Lab 20	Lab 22	Lab 25	Lab 26	Lab 30	Lab 34
Carbazole	NA	NA	NA				Pyrene-d10 / Phenanthrene-d10			d10-phenanthrene	Chrysene-d12	Phenanthrene-d10/Fluoranthene d10	phenanthrene d10	Chrysene-d12
18a(H)-22,29,30-Trisnorhopane	NA	Chrysene-d12	Chyrsene- 12	Benzo(a)pyrene-d12		Chrysene-d12 / 5b(H)-Cholane		Chrysene-d12	Chrysene-d12	NA	Chrysene-d12		NA	Chrysene-d12
17a(H)-22,29,30-Trisnorhopane	B[a]A-d12	Chrysene-d12	Chyrsene- 12	Benzo(a)pyrene-d12	Benz[a]anthracene-d12	Chrysene-d12 / 5b(H)-Cholane		Chrysene-d12	Chrysene-d12	d50-tetracosane	Chrysene-d12		NA	Chrysene-d12
17α(H),21β(H)-30-Norhopane	B[a]A-d12	Chrysene-d12	Chyrsene- 12	Benzo(a)pyrene-d12	Benz[a]anthracene-d12	Chrysene-d12 / 5b(H)-Cholane		Chrysene-d12	Chrysene-d12	d50-tetracosane	Chrysene-d12		NA	Chrysene-d12
18a(H)-30-Norneohopane	NA	Chrysene-d12	Chyrsene- 12	Benzo(a)pyrene-d12		Chrysene-d12 / 5b(H)-Cholane		Chrysene-d12	Chrysene-d12	NA	Chrysene-d12		NA	Chrysene-d12
17a(H)-Diahopane	NA	Chrysene-d12	Chyrsene- 12	Benzo(a)pyrene-d12		Chrysene-d12 / 5b(H)-Cholane		Chrysene-d12	Chrysene-d12	NA	Chrysene-d12		NA	Chrysene-d12
17α(H),21β(H)-Hopane	B[a]A-d12	Chrysene-d12	Chyrsene- 12	Benzo(a)pyrene-d12	Benz[a]anthracene-d12	Chrysene-d12 / 5b(H)-Cholane	Benzo(a)pyrene-d12 / 5-alpha Androstane	Chrysene-d12	Chrysene-d12	d50-tetracosane	Chrysene-d12	Chrysene-d12/Terphenyl-d14	NA	Chrysene-d12
17α(H),21β(H)-22R-Homohopane	B[a]A-d12	Chrysene-d12	Chyrsene- 12	Benzo(a)pyrene-d12	Benz[a]anthracene-d12	Chrysene-d12 / 5b(H)-Cholane		Chrysene-d12	Chrysene-d12	d50-tetracosane	Chrysene-d12		NA	Chrysene-d12
17α(H),21β(H)-22S-Homohopane	B[a]A-d12	Chrysene-d12	Chyrsene- 12	Benzo(a)pyrene-d12	Benz[a]anthracene-d12	Chrysene-d12 / 5b(H)-Cholane		Chrysene-d12	Chrysene-d12	d50-tetracosane	Chrysene-d12		NA	Chrysene-d12
13b(H)17a(H)-Diacholestane 20S	NA	Chrysene-d12	Chyrsene- 12	Benzo(a)pyrene-d12		Chrysene-d12 / 5b(H)-Cholane		Chrysene-d12	Chrysene-d12	NA	Chrysene-d12		NA	Chrysene-d12
5a(H),14a(H),17a(H)-Cholestane 20S	NA	Chrysene-d12	NA	Benzo(a)pyrene-d12		Chrysene-d12 / 5b(H)-Cholane		Chrysene-d12	Chrysene-d12	NA	Chrysene-d12		NA	Chrysene-d12
5a(H),14a(H),17a(H)-Cholestane 20R	B[a]A-d12	Chrysene-d12	Chyrsene- 12	Benzo(a)pyrene-d12	Benz[a]anthracene-d12	Chrysene-d12 / 5b(H)-Cholane		Chrysene-d12	Chrysene-d12	d50-tetracosane	Chrysene-d12		NA	Chrysene-d12
5a(H),14a(H),17a(H)-24-Ethylcholestane 20S	NA	Chrysene-d12	Chyrsene- 12	Benzo(a)pyrene-d12	Benz[a]anthracene-d12	Chrysene-d12 / 5b(H)-Cholane		Chrysene-d12	Chrysene-d12	NA	Chrysene-d12		NA	Chrysene-d12
5a(H),14a(H),17a(H)-24-Ethylcholestane 20R	B[a]A-d12	Chrysene-d12	Chyrsene- 12	Benzo(a)pyrene-d12		Chrysene-d12 / 5b(H)-Cholane		Chrysene-d12	Chrysene-d12	d50-tetracosane	Chrysene-d12		NA	Chrysene-d12
5a(H),14b(H),17b(H)-Cholestane 20R	B[a]A-d12	Chrysene-d12	Chyrsene- 12	Benzo(a)pyrene-d12	Benz[a]anthracene-d12	Chrysene-d12 / 5b(H)-Cholane		Chrysene-d12	Chrysene-d12	d50-tetracosane	Chrysene-d12		NA	Chrysene-d12
5a(H),14b(H),17b(H)-Cholestane 20S	NA	Chrysene-d12	Chyrsene- 12	Benzo(a)pyrene-d12		Chrysene-d12 / 5b(H)-Cholane		Chrysene-d12	Chrysene-d12	NA	Chrysene-d12		NA	Chrysene-d12
5a(H),14b(H),17b(H)-24-Ethylcholestane 20R	B[a]A-d12	Chrysene-d12	Chyrsene- 12	Benzo(a)pyrene-d12	Benz[a]anthracene-d12	Chrysene-d12 / 5b(H)-Cholane		Chrysene-d12	Chrysene-d12	d50-tetracosane	Chrysene-d12		NA	Chrysene-d12
5a(H),14b(H),17b(H)-24-Ethylcholestane 20S	NA	Chrysene-d12	Chyrsene- 12	Benzo(a)pyrene-d12		Chrysene-d12 / 5b(H)-Cholane		Chrysene-d12	Chrysene-d12	NA	Chrysene-d12		NA	Chrysene-d12

PAHs - Associated % recovery / acceptance ranges

	Lab 3	Lab 10	Lab 16	Lab 17	Lab 19	Lab 20	Lab 21	Lab 23	Lab 25	Lab 26	Lab 27	Lab 28	Lab 30	Lab 33	Lab 34
naphthalene	60-140	minus 50 to plus 100	40 to 120	1%-33%	60-140	60 - 140	50-200	50-120	50-200% of IS value in CCV	40-120	60-120	+/-30%	NA	60-130%	40-120
biphenyl	60-140	minus 50 to plus 100	40 to 120	1%-42%	60-140			50-120	50-200% of IS value in CCV	40-120	60-120		NA		40-120
acenaphthene	60-140	minus 50 to plus 100	40 to 120	1%-42%	60-140	60 - 140	50-200	50-120	50-200% of IS value in CCV	40-120	60-120		NA		40-120
acenaphthylene	60-140	minus 50 to plus 100	40 to 120	1%-42%	60-140	60 - 140	50-200	50-120	50-200% of IS value in CCV	40-120	60-120		NA		40-120
fluorene	60-140	minus 50 to plus 100	40 to 120	1%-42%	60-140	60 - 140	50-200	50-120	50-200% of IS value in CCV	40-120	60-120	+/-30%	NA		40-120
phenanthrene	60-140	minus 50 to plus 100	40 to 120	4%-54%	60-140	60 - 140	50-200	50-120	50-200% of IS value in CCV	40-120	60-120	+/-30%	NA		40-120
anthracene	60-140	minus 50 to plus 100	40 to 120	4%-54%	60-140	60 - 140	50-200	50-120	50-200% of IS value in CCV	40-120	60-120	+/-30%	NA		40-120
fluoranthene	60-140	minus 50 to plus 100	40 to 120	24%-68%	60-140	60 - 140	50-200	50-120	50-200% of IS value in CCV	40-120	60-120	+/-30%	NA		40-120
pyrene	60-140	minus 50 to plus 100	40 to 120	24%-68%	60-140	60 - 140	50-200	50-120	50-200% of IS value in CCV	40-120	60-120	+/-30%	NA		40-120
benzo[b]fluorene	NA	minus 50 to plus 100		24%-68%					50-200% of IS value in CCV	40-120	60-120		NA		40-120
benz[a]anthracene	60-140	minus 50 to plus 100	40 to 120	24%-68%	60-140	60 - 140	50-200	50-120	50-200% of IS value in CCV	40-120	60-120	+/-30%	NA		40-120
chrysene	60-140	minus 50 to plus 100	40 to 120	24%-68%	60-140	60 - 140	50-200	50-120	50-200% of IS value in CCV	40-120	60-120	+/-30%	NA		40-120
triphenylene	NA	minus 50 to plus 100		24%-68%					50-200% of IS value in CCV	40-120	NA		NA		40-120
benzo[*b*]fluoranthene	60-140	minus 50 to plus 100	40 to 120	1%-73%	60-140	60 - 140	50-200	50-120	50-200% of IS value in CCV	40-120	60-120	+/-30%	NA		40-120
benzo[*j*]fluoranthene	NA	minus 50 to plus 100		1%-73%					50-200% of IS value in CCV	40-120	60-120		NA		40-120
benzo[*k*]fluoranthene	60-140	minus 50 to plus 100	40 to 120	1%-73%	60-140	60 - 140	50-200	50-120	50-200% of IS value in CCV	40-120	NA	+/-30%	NA		40-120
benzo[a]fluoranthene	NA	minus 50 to plus 100		1%-73%					50-200% of IS value in CCV	40-120	60-120		NA		40-120
benzo[e]pyrene	60-140	minus 50 to plus 100	40 to 120	1%-73%	60-140			50-120	50-200% of IS value in CCV	40-120	60-120		NA		40-120
benzo[a]pyrene	60-140	minus 50 to plus 100	40 to 120	1%-73%	60-140	60 - 140	50-200	50-120	50-200% of IS value in CCV	40-120	60-120	+/-30%	NA		40-120
perylene	60-140	minus 50 to plus 100	40 to 120	1%-73%	60-140			50-120	50-200% of IS value in CCV	40-120	60-120		NA		40-120
indeno[1,2,3-cd]pyrene	60-140	minus 50 to plus 100	40 to 120	1%-73%	60-140	60 - 140	50-200	50-120	50-200% of IS value in CCV	40-120	60-120	+/-30%	NA		40-120
benzo[ghi]perylene	60-140	minus 50 to plus 100	40 to 120	1%-73%	60-140	60 - 140	50-200	50-120	50-200% of IS value in CCV	40-120	60-120		NA		40-120
dibenz[a,h]anthracene	60-140	minus 50 to plus 100	40 to 120	1%-73%	60-140	60 - 140	50-200	50-120	50-200% of IS value in CCV	40-120	60-120	+/-30%	NA		40-120
cis/trans-decalin	NA	minus 50 to plus 100	40 to 120	1%-33%					50-200% of IS value in CCV	40-120	60-120		NA		40-120
dibenzofuran	60-140	minus 50 to plus 100	40 to 120	1%-42%	60-140				50-200% of IS value in CCV	40-120	60-120		NA		40-120
retene	NA	minus 50 to plus 100	40 to 120	24%-68%					50-200% of IS value in CCV	40-120	60-120		NA		40-120
benzothiophene	NA	minus 50 to plus 100	40 to 120	1%-33%					50-200% of IS value in CCV	40-120	60-120		NA		40-120
dibenzothiophene	60-140	minus 50 to plus 100	40 to 120	4%-54%	60-140			50-120	50-200% of IS value in CCV	40-120	60-120		NA		40-120
naphthobenzothiophene	NA	minus 50 to plus 100	40 to 120	24%-68%						40-120	60-120				40-120

AlkylatedPAHs - Associated % recovery / acceptance ranges

	Lab 3	Lab 10	Lab 16	Lab 17	Lab 19	Lab 20	Lab 21	Lab 23	Lab 25	Lab 26	Lab 27	Lab 28	Lab 34
1-methylnaphthalene	60-140	- 50 to +100	40 to 120	1%-33%	60-140		50-200	50-120	50-200% of IS value in CCV	40-120	60-120	+/-30%	40-120
2-methylnaphthalene	60-140	- 50 to +100	40 to 120	1%-33%	60-140	60 - 140	50-200	50-120	50-200% of IS value in CCV	40-120	60-120	+/-30%	40-120
2,6-dimethylnaphthalene	60-140	- 50 to +100	40 to 120	1%-42%	60-140		50-200	50-120	50-200% of IS value in CCV	40-120	60-120	+/-30%	40-120
1,6,7-trimethylnaphthalene	60-140	- 50 to +100	40 to 120	1%-42%	60-140			50-120	50-200% of IS value in CCV	40-120	60-120		40-120
1-methylphenanthrene	60-140	- 50 to +100	40 to 120	24%-68%	60-140		50-200	50-120	50-200% of IS value in CCV	40-120	60-120	+/-30%	40-120
C1-decalins	NA	- 50 to +100	40 to 120	1%-33%					50-200% of IS value in CCV	40-120	NA		40-120
C2-decalins	NA	- 50 to +100	40 to 120	1%-33%					50-200% of IS value in CCV	40-120	NA		40-120
C3-decalins	NA	- 50 to +100	40 to 120	1%-33%					50-200% of IS value in CCV	40-120	NA		40-120
C4-decalins	NA	- 50 to +100	40 to 120	1%-33%					50-200% of IS value in CCV	40-120	NA		40-120
C1-naphthalenes	NA	- 50 to +100	40 to 120	1%-33%	60-140		50-200		50-200% of IS value in CCV	40-120	NA	N/A	40-120
C2-naphthalenes	NA	- 50 to +100	40 to 120	1%-33%	60-140		50-200		50-200% of IS value in CCV	40-120	NA	N/A	40-120
C3-naphthalenes	NA	- 50 to +100	40 to 120	1%-33%	60-140		50-200		50-200% of IS value in CCV	40-120	NA	N/A	40-120
C4-naphthalenes	NA	- 50 to +100	40 to 120	1%-33%	60-140		50-200		50-200% of IS value in CCV	40-120	NA	N/A	40-120
C1-benzothiophenes	NA	- 50 to +100	40 to 120	1%-33%					50-200% of IS value in CCV	40-120	NA		40-120
C2-benzothiophenes	NA	- 50 to +100	40 to 120	1%-33%					50-200% of IS value in CCV	40-120	NA		40-120
C3-benzothiophenes	NA	- 50 to +100	40 to 120	1%-33%					50-200% of IS value in CCV	40-120	NA		40-120
C4-benzothiophenes	NA	- 50 to +100	40 to 120	1%-33%					50-200% of IS value in CCV	40-120	NA		40-120
C1-fluorenes	NA	- 50 to +100	40 to 120	1%-42%	60-140		50-200		50-200% of IS value in CCV	40-120	NA	N/A	40-120
C2-fluorenes	NA	- 50 to +100	40 to 120	4%-54%	60-140		50-200		50-200% of IS value in CCV	40-120	NA	N/A	40-120
C3-fluorenes	NA	- 50 to +100	40 to 120	4%-54%	60-140		50-200		50-200% of IS value in CCV	40-120	NA	N/A	40-120
C1-phenanthrenes/anthracenes	NA	- 50 to +100	40 to 120	4%-54%	60-140		50-200		50-200% of IS value in CCV	40-120	NA	N/A	40-120
C2-phenanthrenes/anthracenes	NA	- 50 to +100	40 to 120	4%-54%	60-140		50-200		50-200% of IS value in CCV	40-120	NA	N/A	40-120
C3-phenanthrenes/anthracenes	NA	- 50 to +100	40 to 120	4%-54%	60-140		50-200		50-200% of IS value in CCV	40-120	NA	N/A	40-120
C4-phenanthrenes/anthracenes	NA	- 50 to +100	40 to 120	4%-54%	60-140				50-200% of IS value in CCV	40-120	NA	N/A	40-120
C1-dibenzothiophenes	NA	- 50 to +100	40 to 120	4%-54%	60-140				50-200% of IS value in CCV	40-120	NA		40-120
C2-dibenzothiophenes	NA	- 50 to +100	40 to 120	4%-54%	60-140				50-200% of IS value in CCV	40-120	NA		40-120
C3-dibenzothiophenes	NA	- 50 to +100	40 to 120	4%-54%	60-140				50-200% of IS value in CCV	40-120	NA		40-120
C4-dibenzothiophenes	NA	- 50 to +100	40 to 120	4%-54%	60-140				50-200% of IS value in CCV	40-120	NA		40-120
C1-fluoranthenes/pyrenes	NA	- 50 to +100	40 to 120	24%-68%	60-140		50-200		50-200% of IS value in CCV	40-120	NA		40-120
C2-fluoranthenes/pyrenes	NA	- 50 to +100	40 to 120	24%-68%	60-140		50-200		50-200% of IS value in CCV	40-120	NA		40-120
C3-fluoranthenes/pyrenes	NA	- 50 to +100	40 to 120	24%-68%	60-140				50-200% of IS value in CCV	40-120	NA		40-120
C4-fluoranthenes/pyrenes	NA	- 50 to +100		24%-68%	60-140				50-200% of IS value in CCV	40-120	NA		40-120
C1-naphthobenzothiophenes	NA	- 50 to +100	40 to 120	24%-68%					50-200% of IS value in CCV	40-120	NA		40-120
C2-naphthobenzothiophenes	NA	- 50 to +100	40 to 120	24%-68%					50-200% of IS value in CCV	40-120	NA		40-120
C3-naphthobenzothiophenes	NA	- 50 to +100	40 to 120	24%-68%					50-200% of IS value in CCV	40-120	NA		40-120
C4-naphthobenzothiophenes	NA	- 50 to +100	40 to 120	24%-68%					50-200% of IS value in CCV	40-120	NA		40-120
C1-chrysenes	NA	- 50 to +100	40 to 120	24%-68%	60-140				50-200% of IS value in CCV	40-120	NA		40-120
C2-chrysenes	NA	- 50 to +100	40 to 120	24%-68%	60-140				50-200% of IS value in CCV	40-120	NA		40-120
C3-chrysenes	NA	- 50 to +100	40 to 120	24%-68%	60-140				50-200% of IS value in CCV	40-120	NA		40-120
C4-chrysenes	NA	- 50 to +100	40 to 120	24%-68%	60-140				50-200% of IS value in CCV	40-120	NA		40-120

Biomarkers - Associated % recovery / acceptance ranges

	Lab 3	Lab 10	Lab 16	Lab 17	Lab 19	Lab 25	Lab 26	Lab 27	Lab 30	Lab 34
Carbazole	NA	minus 50 to plus 100		4%-54%		50-200% of IS value in CCV	40-120	NA	NA	50-130
18a(H)-22,29,30-Trisnorhopane	NA	minus 50 to plus 100	40 to 120		60-140	50-200% of IS value in CCV		NA	NA	50-130
17a(H)-22,29,30-Trisnorhopane	NA	minus 50 to plus 100	40 to 120		60-140	50-200% of IS value in CCV		NA	NA	50-130
17α(H),21β(H)-30-Norhopane	NA	minus 50 to plus 100	40 to 120		60-140	50-200% of IS value in CCV		NA	NA	50-130
18a(H)-30-Norneohopane	NA	minus 50 to plus 100	40 to 120		60-140	50-200% of IS value in CCV		NA	NA	50-130
17a(H)-Diahopane	NA	minus 50 to plus 100	40 to 120		60-140	50-200% of IS value in CCV		NA	NA	50-130
17α(H),21β(H)-Hopane	60-140	minus 50 to plus 100	40 to 120	17%-60%	60-140	50-200% of IS value in CCV	40-120	NA	NA	50-130
17α(H),21β(H)-22R-Homohopane	NA	minus 50 to plus 100	40 to 120		60-140	50-200% of IS value in CCV		NA	NA	50-130
17α(H),21β(H)-22S-Homohopane	NA	minus 50 to plus 100	40 to 120		60-140	50-200% of IS value in CCV		NA	NA	50-130
13b(H)17a(H)-Diacholestane 20S	NA	minus 50 to plus 100	40 to 120		60-140	50-200% of IS value in CCV		NA	NA	50-130
5a(H),14a(H),17a(H)-Cholestane 20S	NA	minus 50 to plus 100	40 to 120		60-140	50-200% of IS value in CCV		NA	NA	50-130
5a(H),14a(H),17a(H)-Cholestane 20R	NA	minus 50 to plus 100	40 to 120		60-140	50-200% of IS value in CCV		NA	NA	50-130
5a(H),14a(H),17a(H)-24-Ethylcholestane 20S	NA	minus 50 to plus 100	40 to 120		60-140	50-200% of IS value in CCV		NA	NA	50-130
5a(H),14a(H),17a(H)-24-Ethylcholestane 20R	NA	minus 50 to plus 100	40 to 120		60-140	50-200% of IS value in CCV		NA	NA	50-130
5a(H),14b(H),17b(H)-Cholestane 20R	NA	minus 50 to plus 100	40 to 120		60-140	50-200% of IS value in CCV		NA	NA	50-130
5a(H),14b(H),17b(H)-Cholestane 20S	NA	minus 50 to plus 100	40 to 120		60-140	50-200% of IS value in CCV		NA	NA	50-130
5a(H),14b(H),17b(H)-24-Ethylcholestane 20R	NA	minus 50 to plus 100	40 to 120		60-140	50-200% of IS value in CCV		NA	NA	50-130
5a(H),14b(H),17b(H)-24-Ethylcholestane 20S	NA	minus 50 to plus 100	40 to 120		60-140	50-200% of IS value in CCV		NA	NA	50-130

PAHs -If "representative compound" used for quantitation, list the compound

	Lab 5	Lab 8	Lab 18	Lab 19	Lab 27
naphthalene				naphthalene	NA
biphenyl				biphenyl	NA
acenaphthene				acenaphthene	NA
acenaphthylene				acenaphthylene	NA
fluorene				fluorene	NA
phenanthrene				phenanthrene	NA
anthracene				anthracene	NA
fluoranthene				fluoranthene	NA
pyrene				pyrene	NA
benzo[b]fluorene					NA
benz[a]anthracene				benz[a]anthracene	NA
chrysene				chrysene	NA
triphenylene			Chrysene		chrysene
benzo[*b*]fluoranthene				benzo[b]fluoranthene	NA
benzo[*j*]fluoranthene					benzo[k]fluoranthene
benzo[*k*]fluoranthene				benzo[k]fluoranthene	NA
benzo[a]fluoranthene					benzo[k]fluoranthene
benzo[e]pyrene		13C benzo[a]pyrene		benzo[e]pyrene	NA
benzo[a]pyrene				benzo[a]pyrene	NA
perylene				perylene	NA
indeno[1,2,3-cd]pyrene				indeno[1,2,3-cd]pyrene	NA
benzo[ghi]perylene				benzo[ghi]perylene	NA
dibenz[a,h]anthracene				dibenz[a,h]anthracene	NA
cis/trans-decalin					NA
dibenzofuran				dibenzofuran	NA
retene	1-methylphenanthrene				NA
benzothiophene					NA
dibenzothiophene				dibenzothiophene	NA
naphthobenzothiophene	dibenzothiophene				NA

Alkylated PAHs -If "representative compound" used for quantitation, list the compound

	Lab 1	Lab 3	Lab 4	Lab 5	Lab 8	Lab 10	Lab 12	Lab 15
1-methylnaphthalene		NA			13C Acenaphthylene	NA		
2-methylnaphthalene		NA			13C Acenaphthylene	NA		
2,6-dimethylnaphthalene		NA			13C Acenaphthylene	NA		
1,6,7-trimethylnaphthalene		NA				NA		
1-methylphenanthrene		NA			13C Phenanthrene	NA		
C1-decalins		NA	cis/trans-decalin			NA		
C2-decalins		NA	cis/trans-decalin			NA		
C3-decalins		NA	cis/trans-decalin			NA		
C4-decalins		NA	cis/trans-decalin			NA		
C1-naphthalenes	1-me and 2-menaphthalene	Naphthalene	Naphthalene			Napthalene	Naphthalene	
C2-naphthalenes	2,6-dimehtylnaphthalene	Naphthalene	Naphthalene	2,6-dimethylnaphthalene		Napthalene	Naphthalene	
C3-naphthalenes	2,3,5-trimethylnaphthalene	Naphthalene	Naphthalene	1,6,7-trimethylnaphthalene		Napthalene	Naphthalene	
C4-naphthalenes	2,3,5-trimethylnaphthalene	Naphthalene	Naphthalene	1,6,7-trimethylnaphthalene		Napthalene	Naphthalene	C3-naphthalenes
C1-benzothiophenes		NA	benzothiophene			NA		
C2-benzothiophenes		NA	benzothiophene			NA		
C3-benzothiophenes		NA	benzothiophene			NA		
C4-benzothiophenes		NA	benzothiophene			NA		
C1-fluorenes	fluorene	Fluorene	Fluorene	fluorene		Flourene	Fluorene	fluorene
C2-fluorenes		Fluorene	Fluorene	fluorene		Flourene	Fluorene	fluorene
C3-fluorenes		Fluorene	Fluorene	fluorene		Flourene	Fluorene	fluorene
C1-phenanthrenes/anthracenes	1-me, 2-me, 3-me, and 9-mephenanthrene plus 2-meanthracene	Phenanthrene	Phenanthrene	1-methylphenanthrene		Phenanthrene	Phenanthrene	
C2-phenanthrenes/anthracenes	1,7-dimethylphenanthrene	Phenanthrene	Phenanthrene	1-methylphenanthrene		Phenanthrene	Phenanthrene	C1-phenanthrenes/anthracenes
C3-phenanthrenes/anthracenes	1,7-dimethylphenanthrene	Phenanthrene	Phenanthrene	1-methylphenanthrene		Phenanthrene	Phenanthrene	C1-phenanthrenes/anthracenes
C4-phenanthrenes/anthracenes	1,7-dimethylphenanthrene	Phenanthrene	Phenanthrene	1-methylphenanthrene		Phenanthrene	Phenanthrene	retene
C1-dibenzothiophenes	dibenzothiophene	Dibenzothiophene	Dibenzothiophene	dibenzothiophene		Dibenzothiophene	Dibenzothiophene	dibenzothiophene
C2-dibenzothiophenes	dibenzothiophene	Dibenzothiophene	Dibenzothiophene	dibenzothiophene		Dibenzothiophene	Dibenzothiophene	dibenzothiophene
C3-dibenzothiophenes	dibenzothiophene	Dibenzothiophene	Dibenzothiophene	dibenzothiophene		Dibenzothiophene	Dibenzothiophene	dibenzothiophene
C4-dibenzothiophenes	dibenzothiophene	Dibenzothiophene	Dibenzothiophene	dibenzothiophene		Dibenzothiophene	Dibenzothiophene	dibenzothiophene
C1-fluoranthenes/pyrenes	1-me and 3-mefluoranthene plus 1 me and 4-mepyrene	Pyrene	Fluoranthene	fluoranthene		Pyrene	Pyrene	pyrene
C2-fluoranthenes/pyrenes	1-me and 3-mefluoranthene plus 1 me and 4-mepyrene	Pyrene	Fluoranthene	fluoranthene		Pyrene	Pyrene	pyrene
C3-fluoranthenes/pyrenes	1-me and 3-mefluoranthene plus 1 me and 4-mepyrene	Pyrene	Fluoranthene	fluoranthene		Pyrene	Pyrene	pyrene
C4-fluoranthenes/pyrenes	1-me and 3-mefluoranthene plus 1 me and 4-mepyrene	NA	Fluoranthene	fluoranthene		NA		
C1-naphthobenzothiophenes		NA	naphthobenzothiophene	dibenzothiophene		NA		
C2-naphthobenzothiophenes		NA	naphthobenzothiophene	dibenzothiophene		NA		
C3-naphthobenzothiophenes		NA	naphthobenzothiophene	dibenzothiophene		NA		
C4-naphthobenzothiophenes		NA	naphthobenzothiophene	dibenzothiophene		NA		
C1-chrysenes	3-me and 6-mechyrsne	Chrysene	Chysene	chrysene		Chyrsene	Chrysene	
C2-chrysenes	3-me and 6-mechyrsne	Chrysene	Chysene	chrysene		Chyrsene	Chrysene	
C3-chrysenes	3-me and 6-mechyrsne	Chrysene	Chysene	chrysene		Chyrsene	Chrysene	
C4-chrysenes	3-me and 6-mechyrsne	Chrysene	Chysene	chrysene		NA	Chrysene	

Alkylated PAHs -If "representative compound" used for quantitation, list the compound

	Lab 16	Lab 17	Lab 19	Lab 20	Lab 21	Lab 22	Lab 26	Lab 27
1-methylnaphthalene			1-methylnaphthalene					NA
2-methylnaphthalene			2-methylnaphthalene					NA
2,6-dimethylnaphthalene			2,6-dimethylnaphthalene					NA
1,6,7-trimethylnaphthalene			1,6,7-trimethylnaphthalene					NA
1-methylphenanthrene		phenanthrene	1-methylphenanthrene				Phenanthrene	phenanthrene
C1-decalins	trans-decalin	cis/trans-decalin					Decalin	cis/trans-decalin
C2-decalins	trans-decalin	cis/trans-decalin					Decalin	cis/trans-decalin
C3-decalins	trans-decalin	cis/trans-decalin					Decalin	cis/trans-decalin
C4-decalins	trans-decalin	cis/trans-decalin					Decalin	cis/trans-decalin
C1-naphthalenes	naphthalene	naphthalene	Naphthalene	Naphthalene	1-methylnaphthalene	1- & 2-methylnaphthalene	Naphthalene	naphthalene
C2-naphthalenes	naphthalene	naphthalene	Naphthalene	Naphthalene	2,6-dimethylnaphthalene	2,6- & 1,2-dimethylnaphthalene	Naphthalene	naphthalene
C3-naphthalenes	naphthalene	naphthalene	Naphthalene	Naphthalene	1,3,5-trimethylnaphthalene	2,3,5- & 2,3,6-trimethylnaphthalene	Naphthalene	naphthalene
C4-naphthalenes	naphthalene	naphthalene	Naphthalene	Naphthalene	1,3,5-trimethylnaphthalene	1,4,6,7-tetramethylnaphthalene	Naphthalene	naphthalene
C1-benzothiophenes	benzo(b)thiophene	benzothiophene					Benzothiophene	benzothiophene
C2-benzothiophenes	benzo(b)thiophene	benzothiophene					Benzothiophene	benzothiophene
C3-benzothiophenes	benzo(b)thiophene	benzothiophene					Benzothiophene	benzothiophene
C4-benzothiophenes	benzo(b)thiophene	benzothiophene					Benzothiophene	benzothiophene
C1-fluorenes	Fluorene	fluorene	fluorene	Fluorene	fluorene	2-methylfluorene	Fluorene	fluorene
C2-fluorenes	Fluorene	fluorene	fluorene	Fluorene	fluorene	1,7-dimethylfluorene	Fluorene	fluorene
C3-fluorenes	Fluorene	fluorene	fluorene	Fluorene	fluorene	1,7-dimethylfluorene	Fluorene	fluorene
C1-phenanthrenes/anthracenes	phenanthrene	phenanthrene	phenanthrene	Phenanthrene	1-methylphenenthrene	1- & 2-methylphenanthrene & 2-methylanthracene	Phenanthrene	phenanthrene
C2-phenanthrenes/anthracenes	phenanthrene	phenanthrene	phenanthrene	Phenanthrene	1-methylphenenthrene	3,6- & 1,7-dimethylphenanthrene	Phenanthrene	phenanthrene
C3-phenanthrenes/anthracenes	phenanthrene	phenanthrene	phenanthrene	Phenanthrene	1-methylphenenthrene	1,2,6-trimethylphenanthrene	Phenanthrene	phenanthrene
C4-phenanthrenes/anthracenes	phenanthrene	phenanthrene	phenanthrene	Phenanthrene		retene	Phenanthrene	phenanthrene
C1-dibenzothiophenes	dibenzothiophene	dibenzothiophene	dibenzothiophene	Dibenzothiophene		2/3-methyldibenzothiophenes	Dibenzothiophene	dibenzothiophene
C2-dibenzothiophenes	dibenzothiophene	dibenzothiophene	dibenzothiophene	Dibenzothiophene		2,4-dimethyldibenzothiophene	Dibenzothiophene	dibenzothiophene
C3-dibenzothiophenes	dibenzothiophene	dibenzothiophene	dibenzothiophene	Dibenzothiophene		2,4-dimethyldibenzothiophene	Dibenzothiophene	dibenzothiophene
C4-dibenzothiophenes	dibenzothiophene	dibenzothiophene	dibenzothiophene	Dibenzothiophene		2,4-dimethyldibenzothiophene	Dibenzothiophene	dibenzothiophene
C1-fluoranthenes/pyrenes	pyrene	pyrene	pyrene	Pyrene	pyrene	3-methylfluoranthene	Fluoranthene	fluoranthene
C2-fluoranthenes/pyrenes	pyrene	pyrene	pyrene	Pyrene	pyrene	3-methylfluoranthene	Fluoranthene	fluoranthene
C3-fluoranthenes/pyrenes	pyrene	pyrene	pyrene	Pyrene		3-methylfluoranthene	Fluoranthene	fluoranthene
C4-fluoranthenes/pyrenes		pyrene	pyrene			3-methylfluoranthene	Fluoranthene	fluoranthene
C1-naphthobenzothiophenes	benzo(b)naphtho(2,1-d)thiophene	naphthobenzothiophene					Naphthobenzothiophene	naphthobenzothiophene
C2-naphthobenzothiophenes	benzo(b)naphtho(2,1-d)thiophene	naphthobenzothiophene					Naphthobenzothiophene	naphthobenzothiophene
C3-naphthobenzothiophenes	benzo(b)naphtho(2,1-d)thiophene	naphthobenzothiophene					Naphthobenzothiophene	naphthobenzothiophene
C4-naphthobenzothiophenes	benzo(b)naphtho(2,1-d)thiophene	naphthobenzothiophene					Naphthobenzothiophene	naphthobenzothiophene
C1-chrysenes	Chrysene	chrysene/triphenylene	chrysene	Chrysene		1- & 6-methylchrysene	Chrysene	chrysene
C2-chrysenes	Chrysene	chrysene/triphenylene	chrysene	Chrysene		5,9-dimethylchrysene	Chrysene	chrysene
C3-chrysenes	Chrysene	chrysene/triphenylene	chrysene	Chrysene		5,9-dimethylchrysene	Chrysene	chrysene
C4-chrysenes	Chrysene	chrysene/triphenylene	chrysene	Chrysene		5,9-dimethylchrysene	Chrysene	chrysene

Alkylated PAHs -If "representative compound" used for quantitation, list the compound

	Lab 28	Lab 29	Lab 32	Lab 33	Lab 34
1-methylnaphthalene					
2-methylnaphthalene					
2,6-dimethylnaphthalene					
1,6,7-trimethylnaphthalene					
1-methylphenanthrene					
C1-decalins		cis+trans decalin	Decalin		trans-decalin
C2-decalins		cis+trans decalin	Decalin		trans-decalin
C3-decalins		cis+trans decalin	Decalin		trans-decalin
C4-decalins		cis+trans decalin	Decalin		trans-decalin
C1-naphthalenes	1-methylnaphthalene/2-methylnaphthalene	1+2-methylnaphthalene	Naphthalene	1 methyl napthalene	naphthalene
C2-naphthalenes	2,6-dimethylnaphthalene	Sum of five DMNs	Naphthalene	2,6 dimethyl napthalene	naphthalene
C3-naphthalenes	2,3,5-trimethylnaphthalene	1,6,7-TMN	Naphthalene	2,3,5 trimethyl napthalene	naphthalene
C4-naphthalenes	1,2,5,6-tetramethylnaphthalene	1,6,7-TMN		1,2,5,6 tetramethylnapthalene	naphthalene
C1-benzothiophenes		benzothiophene	Benzothiophene		benzothiophene
C2-benzothiophenes		benzothiophene	Benzothiophene		benzothiophene
C3-benzothiophenes		benzothiophene	Benzothiophene		benzothiophene
C4-benzothiophenes		benzothiophene			benzothiophene
C1-fluorenes	1-methylfluorene	1-methylfluorene	Fluorene	1 methyl fluorene	fluorene
C2-fluorenes	1,7-dimethylfluorene	1-methylfluorene	Fluorene	1,7 dimethyl fluorene	fluorene
C3-fluorenes	9-n-propylfluorene	1-methylfluorene	Fluorene	9-n propyl fluorene	fluorene
C1-phenanthrenes/anthracenes	1-methylphenanthrene	Sum of five methylphenanthrenes and anthracenes	Anthracene	1-methylphenanthrene	phenanthrene
C2-phenanthrenes/anthracenes	1,3-dimethylphenanthrene	9,10-dimethylanthracene	Anthracene	1,3 dimethylphenanthrene	phenanthrene
C3-phenanthrenes/anthracenes	1,2,6-trimethylphenanthrene	9,10-dimethylanthracene	Anthracene	1,2,6 trimethylphenanthrene	phenanthrene
C4-phenanthrenes/anthracenes	1,2,6,9-tetramethylphenanthrene	9,10-dimethylanthracene	Anthracene	1,2,6,9 tetramethylphenanthrene	phenanthrene
C1-dibenzothiophenes		2+4-methyldibenzothiophene	Dibenzothiophene		dibenzothiophene
C2-dibenzothiophenes		2+4-methyldibenzothiophene	Dibenzothiophene		dibenzothiophene
C3-dibenzothiophenes		2+4-methyldibenzothiophene	Dibenzothiophene		dibenzothiophene
C4-dibenzothiophenes		2+4-methyldibenzothiophene			dibenzothiophene
C1-fluoranthenes/pyrenes		benzo(a+b)fluorene	Fluoranthene		pyrene
C2-fluoranthenes/pyrenes		benzo(a+b)fluorene	Fluoranthene		pyrene
C3-fluoranthenes/pyrenes		benzo(a+b)fluorene	Fluoranthene		pyrene
C4-fluoranthenes/pyrenes		benzo(a+b)fluorene			pyrene
C1-naphthobenzothiophenes			Naphthobenzothiophene		naphthobenzothiophene
C2-naphthobenzothiophenes			Naphthobenzothiophene		naphthobenzothiophene
C3-naphthobenzothiophenes			Naphthobenzothiophene		naphthobenzothiophene
C4-naphthobenzothiophenes					naphthobenzothiophene
C1-chrysenes		Chrysene+Triphenylene			chrysene
C2-chrysenes		Chrysene+Triphenylene	Chrysene		chrysene
C3-chrysenes		Chrysene+Triphenylene	Chrysene		chrysene
C4-chrysenes		Chrysene+Triphenylene	Chrysene		chrysene

Biomarkers -If "representative compound" used for quantitation, list the compound

	Lab 3	Lab 10	Lab 12	Lab 16	Lab 19	Lab 20	Lab 34
Carbazole	NA						
18a(H)-22,29,30-Trisnorhopane	17β(H),21β(H)-Hopane	17α(H),21β(H)-Hopane	17b(H)21b(H) Hopane	17B(h),21B(h)-hopane	17b(H)21b(H) Hopane	17b(H)21b(H)Hopane	17α(H),21β(H)-Hopane
17a(H)-22,29,30-Trisnorhopane	17β(H),21β(H)-Hopane	17α(H),21β(H)-Hopane	17b(H)21b(H) Hopane	17B(h),21B(h)-hopane	17b(H)21b(H) Hopane	17b(H)21b(H)Hopane	17α(H),21β(H)-Hopane
17α(H),21β(H)-30-Norhopane	17β(H),21β(H)-Hopane	17α(H),21β(H)-Hopane	17b(H)21b(H) Hopane	17B(h),21B(h)-hopane	17b(H)21b(H) Hopane	17b(H)21b(H)Hopane	17α(H),21β(H)-Hopane
18a(H)-30-Norneohopane	17β(H),21β(H)-Hopane	17α(H),21β(H)-Hopane	17b(H)21b(H) Hopane	17B(h),21B(h)-hopane	17b(H)21b(H) Hopane	17b(H)21b(H)Hopane	17α(H),21β(H)-Hopane
17a(H)-Diahopane	17β(H),21β(H)-Hopane	17α(H),21β(H)-Hopane	17b(H)21b(H) Hopane	17B(h),21B(h)-hopane	17b(H)21b(H) Hopane	17b(H)21b(H)Hopane	17α(H),21β(H)-Hopane
17α(H),21β(H)-Hopane	17β(H),21β(H)-Hopane	17α(H),21β(H)-Hopane	17b(H)21b(H) Hopane	17B(h),21B(h)-hopane	17b(H)21b(H) Hopane	17b(H)21b(H)Hopane	
17α(H),21β(H)-22R-Homohopane	17β(H),21β(H)-Hopane	17α(H),21β(H)-Hopane	17b(H)21b(H) Hopane	17B(h),21B(h)-hopane	17b(H)21b(H) Hopane	17b(H)21b(H)Hopane	17α(H),21β(H)-Hopane
17α(H),21β(H)-22S-Homohopane	17β(H),21β(H)-Hopane	17α(H),21β(H)-Hopane	17b(H)21b(H) Hopane	17B(h),21B(h)-hopane	17b(H)21b(H) Hopane	17b(H)21b(H)Hopane	17α(H),21β(H)-Hopane
13b(H)17a(H)-Diacholestane 20S	5α - Cholestane	5(a) Cholestane	5a-Cholestane	Cholestane	5a-Cholestane	5a-Cholestane	5b(H)Cholane
5a(H),14a(H),17a(H)-Cholestane 20S	5α - Cholestane		5a-Cholestane	Cholestane	5a-Cholestane	5a-Cholestane	5b(H)Cholane
5a(H),14a(H),17a(H)-Cholestane 20R	5α - Cholestane	5(a) Cholestane	5a-Cholestane	Cholestane	5a-Cholestane	5a-Cholestane	5b(H)Cholane
5a(H),14a(H),17a(H)-24-Ethylcholestane 20S	5α - Cholestane	5(a) Cholestane	5a-Cholestane	Cholestane	5a-Cholestane	5a-Cholestane	5b(H)Cholane
5a(H),14a(H),17a(H)-24-Ethylcholestane 20R	5α - Cholestane	5(a) Cholestane	5a-Cholestane	Cholestane	5a-Cholestane	5a-Cholestane	5b(H)Cholane
5a(H),14b(H),17b(H)-Cholestane 20R	5α - Cholestane	5(a) Cholestane	5a-Cholestane	Cholestane	5a-Cholestane	5a-Cholestane	5b(H)Cholane
5a(H),14b(H),17b(H)-Cholestane 20S	5α - Cholestane	5(a) Cholestane	5a-Cholestane	Cholestane	5a-Cholestane	5a-Cholestane	5b(H)Cholane
5a(H),14b(H),17b(H)-24-Ethylcholestane 20R	5α - Cholestane	5(a) Cholestane	5a-Cholestane	Cholestane	5a-Cholestane	5a-Cholestane	5b(H)Cholane
5a(H),14b(H),17b(H)-24-Ethylcholestane 20S	5α - Cholestane	5(a) Cholestane	5a-Cholestane	Cholestane	5a-Cholestane	5a-Cholestane	5b(H)Cholane

APPENDIX C

Laboratory Notes Submitted with the Data

Lab	Notes including data for additional analytes								
1		QA10TIS01 Sample 1 (ng/g dry mass)	QA10TIS01 Sample 2 (ng/g dry mass)	QA10TIS01 Sample 3 (ng/g dry mass)	SRM 1974b Sample 1 (ng/g dry mass)	SRM 1974b Sample 2 (ng/g dry mass)	SRM 1974b Sample 3 (ng/g dry mass)	IS/surrogate used	
	chrysene + triphenylene	145	140	146	111	100	103	B[a]A-d12	
5		QA10TIS01 Sample 1 (ng/g dry mass)	QA10TIS01 Sample 2 (ng/g dry mass)	QA10TIS01 Sample 3 (ng/g dry mass)	SRM 1974b Sample 1 (ng/g dry mass)	SRM 1974b Sample 2 (ng/g dry mass)	SRM 1974b Sample 3 (ng/g dry mass)	IS/surrogate used	"reprentative compound" used for quantitation
	benzo[b]naphtho[2,1-d]thiophene	16.0	16.1	16.3	23.4	24.0	23.7	ACE-d10	dibenzothiophene
	benzo[b]naphtho[1,2-d]thiophene	3.31	3.27	3.07	5.72	5.90	5.70	ACE-d10	dibenzothiophene
	benzo[b]naphtho[2,3-d]thiophene	2.70	2.45	2.38	5.26	5.41	4.99	ACE-d10	dibenzothiophene
	chrysene + triphenylene	130	139	147	155	156	168	BaP-d12	
	benzo[j+k]fluoranthene	31.6	33.6	33.2	62.3	62.2	61.9	BaP-d12	
	dibenz[a,h+a,c]anthracene	2.36	2.37	2.32	7.17	6.64	6.70	BaP-d12	
	1,6,7-trimethylnapthalene (also known as 2,3,5-trimethylnaphthalene, CAS # 2245-38-7), partially coelutes with another C3-naphthalene; this coeluting peak was split off during peak integration.								
	biphenyl is not reported due to the presence of an interference in the chromatograms introduced from the ASE.								
	NPH-d8 recovery range 92-96%								
	ACE-d10 recovery range 99-102%								
	BaP-d12 recovery range 91-103%								
	These recoveries were within the acceptable range of 60-130%								
6	Benzo[ghi]perylene results (wet tissue) is below MDL of 0.60 ng/g (wet tissue) for oyster tissue								
	acenaphthene MDL (wet tissue) is 0.18 ng/g								
	dibenz[a,h]anthracene MDL (wet tissue) is 0.55 ng/g								
	indeno[1,2,3-cd]pyrene MDL (wet tissue) is 0.07 ng/g								
	Conservative Estimate of total PAH dry basis Sample 1 5824 ng/g, sample 2 5318 ng/g, sample 3 5744 ng/g								
	Benzo[ghi]perylene has a consistent interferring peak, the peak area is corrected for the interference in standards and samples.								
7	ALKYLATED PAH ANALYSES	QA10TIS01 Batch A Sample 1	QA10TIS01 Batch B Sample 2	QA10TIS01 Batch C Sample 3	SRM 1974b Batch A Sample 1	SRM 1974b Batch B Sample 2	SRM 1974b Batch C Sample 3		
		(ng/g dry mass)	(ng/g dry mass)	(ng/g dry mass)	(ng/g dry mass)	(ng/g dry mass)	ng/g dry mass)	IS/surrogate used	
	4-methylbiphenyl	25.1	22.2	20.4	<14.8	<14.8	NA	d10-Acenaphthylene	
	2,3,5-trimethylnaphthalene	44.2	41.7	37	<14.8	<14.8	NA	d10-Acenaphthylene	
	1-methylfluorene	42.9	44.1	39.9	<14.8	<14.8	NA	d10-Fluorene	
	2-methylphenanthrene	92.3	96.8	82.5	<14.8	<14.8	NA	d10-Phenanthrene	
	3,6-dimethylphenanthrene	60.4	63.8	51.4	<14.8	<14.8	NA	d10-Phenanthrene	
8	Other: QA10TIS01 anthracene coeluting with an interfering peak at both quantitation and confirmation ions 178 and 177 respectively. Ion ratios out of range.								
	note: calibration is based on wet weight basis.								
9	other = interference noted for naphthalene and benz[a]anthracene								

Lab	Notes including data for additional analytes
10	Any values less than RL will be considered as estimated "J" values. NA are compounds not calibrated for Samples were analyzed at a dilution due to the matrix of the sample
11	Other = Blank contaminated with naphthalene.
12	* Percent moisture value used for the SRM Material (89.9%) was taken from the SRM Certificate of analysis.
13	(NOTES: Typical quantitation limit for all analytes in samples and SRM in this matix are <30 ng/g) Other = An unknown interferent peak did not allow for quantitation

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	QA10TIS01 Sample 1 (ng/g dry mass)	QA10TIS01 Sample 2 (ng/g dry mass)	QA10TIS01 Sample 3 (ng/g dry mass)	SRM 1974b Sample 1 (ng/g dry mass)	SRM 1974b Sample 2 (ng/g dry mass)	SRM 1974b Sample 3 ng/g dry mass)
abb 20R 24R-methylcholestane	19.6	18.8	19.2	59.8	68.6	67.2
1,2-dimethylnaphthalene	13.7	15.4	14.3	coelution	coelution	coelution
3-methylphenanthrene	116	124	116	11.6	11.5	12.6
2-methylphenanthrene	143	158	140	16.9	17.6	20.3
2-methylanthracene	17.8	19.0	17.9	9.6	9.8	10.5
9-methylphenanthrene	76.1	79.4	79.0	13.0	11.7	12.7
3-methy+1-methylfluoranthene	12.5	13.8	13.2	14.0	13.5	15.0
1-methylpyrene	24.8	26.4	24.2	24.1	26.5	25.7
4-methylpyrene	13.6	14.3	13.8	15.1	16.7	16.2
3-methylchrysene	3.47	3.96	3.86	4.65	4.71	5.00
6-methylchrysene	2.97	3.20	2.98	3.60	3.85	3.69
benzo[ghi]fluoranthene	19.7	21.3	19.9	20.7	23.2	23.4
benzo[c]phenanthrene	14.8	15.4	15.1	19.1	19.6	21.2
dibenz[aj]anthracene	<1.5	<1.5	<1.5	4.64	4.58	5.32
dibenz[ac]anthracene	<1.5	<1.5	<1.5	4.24	4.59	3.86
benzo[b]chrysene	<1.5	<1.5	<1.5	4.02	4.00	3.88
picene	<1.5	<1.5	<1.5	7.98	7.78	7.98

Lab	Notes including data for additional analytes														
15	Unable to obtain SRM 1974b as NIST could not ship it across the border to Canada.														
		QA10TIS01 Sample 1 (ng/g dry mass)	QA10TIS01 Sample 2 (ng/g dry mass)	QA10TIS01 Sample 3 (ng/g dry mass)											
	benzo[*b&j*]fluoranthene	0.031	0.021	0.029											
	Biomarkers calculated as ratios only:														
	SUMMARY	301004	1001012	1601021	601007										
	Terpanes	**Source**	**Source**	**Source**	**Source**	**Mean**	**Std Dev**	**RSD%**							
	DR-27Ts/27Tm - (DR-27Ts)	1.190246359	1.228033753	1.093023256	1.284924116	1.199056871	0.080692	6.7							
	DR-29ab/30ab - (DR-29ab)	0.492225719	0.481056548	0.481349995	0.48606703	0.485174823	0.0052313	1.1							
	DR-31abS/31abR - (DR-31ab)	1.438697831	1.442665855	1.377923908	1.385527025	1.411203655	0.0342181	2.4							
	DR-32abS/32abR - (DR-32ab)	1.510096344	1.46006357	1.613340105	1.434011665	1.504377921	0.0792057	5.3							
	DR-33abS/33abR - (DR-33ab)	1.318269399	1.352325746	1.245795021	1.293989136	1.302594825	0.0447926	3.4							
	Steranes	**Source**	**Source**	**Source**	**Source**										
	DR-(27bbR + 27bbS)/(28bbR + 28bbS	0.706424785	0.721822493	0.723710502	0.719873991	0.717957943	0.0078467	1.1							
	DR-(28bbR + 28bbS)/(27bbR + 27bbS	0.366375776	0.368973186	0.357914677	0.364834552	0.364524548	0.004726	1.3							
	DR-(29bbR + 29bbS)/(27bbR + 27bbS	0.466025548	0.451915025	0.463201472	0.4579969	0.459784736	0.0062116	1.4							
	Triaromatic steranes	**Source**	**Source**	**Source**	**Source**										
	DR-C26TA(20S)/C28TA(20S) - (DR-C	0.652599192	0.632985279	0.641149081	0.627700133	0.638608421	0.0108445	1.7							
	DR-C27TA(20R)/C28TA(20R) - (DR-C	0.9359524	0.965588774	0.965805785	0.940931607	0.952069641	0.0158668	1.7							
	DR-C28TA(20R)/C28TA(20S) - (DR-C	0.764082782	0.762307853	0.763949175	0.793219152	0.770889741	0.0149081	1.9							
	PAHs														
	C3-D/C3-P - (DR-C3D/C3P)	0.199698226	0.201890811	0.200803525		0.200797521	0.0010963	0.5							
	C2-D/C2-P - (DR-C2D/C2P)	0.155768311	0.160931939	0.156201044		0.157633764	0.0028645	1.8							
						CRITICAL DIFFERENCE ANALYSIS									
		DR-27Ts	DR-29ab	DR-31ab	DR-32ab	DR-33ab	DR-27bbR	DR-28bbR	DR-29bbR	DR-C26TA	DR-C27-TA	DR-C28TA	C3-D/C3-P	C2-D/C2-P	
	L981972-1	1.140323092	0.809296365	1.22763466	1.942802669	1.44149766	0.6355281	0.3721401	0.5156381	0.6980482	1.2392996	0.5901263	0.1394943	0.2543507	
	Difference	0.058733779	-0.324121542	0.183568994	-0.438424748	-0.138902834	0.0824298	-0.007616	-0.055853	-0.05944	-0.28723	0.1807634	0.0613032	-0.096717	
	Critical Difference	0.163756597	0.090612983	0.184718682	0.241302641	0.192086474	0.094744	0.0515665	0.0682796	0.093566	0.1533958	0.0952711	0.0238204	0.0288389	
	Conclusion	Match	No Match	Match	No Match	Match	Match	Match	Match	Match	No Match	No Match	No Match	No Match	
	L981972-2	1.350643777	0.787543882	1.169922762	1.574833174	1.461805556	0.6183365	0.3655331	0.5390136	0.866129	1.4419263	0.5693548	0.1687429	0.3083067	
	Difference	-0.151586906	-0.865468954	0.241280892	-0.070455253	-0.15921073	0.0996214	-0.001009	-0.079229	-0.227521	-0.489857	0.2015349	0.0320546	-0.150673	
	Critical Difference	0.178479045	0.089090309	0.180678849	0.215544777	0.193508027	0.0935406	0.051104	0.0699159	0.1053316	0.1675797	0.0938171	0.0258678	0.0326158	
	Conclusion	Match	No Match	No Match	Match	Match	No Match	Match	No Match	No Match	No Match	No Match	No Match	No Match	
	L981972-3	1.211646838	0.791306183	1.221881838	1.673452769	1.236477987	0.6592533	0.3662597	0.502869	0.8145859	1.4906977	0.5315204	0.142206	0.276259	
	Difference	-0.012589967	-0.30613136	0.189321817	-0.169074848	0.066116838	0.0587047	-0.001735	-0.043084	-0.175977	-0.538628	0.2393693	0.0585915	-0.118625	
	Critical Difference	0.16874926	0.08935367	0.184315984	0.222448148	0.177735097	0.0964048	0.0511549	0.0673858	0.1017236	0.1709937	0.0911687	0.0240102	0.0303725	
	Conclusion	Match	No Match	No Match	Match	Match	Match	Match	Match	No Match	No Match	No Match	No Match	No Match	

Lab	Notes including data for additional analytes								
16	cis/trans decalin were calculated seperately, the sum of the isomers is reported above.								
	Benzo(j)fluoranthene and Benzo(k)fluoranthene co-elute - both are reported together as Benzo(k) in the tables above								
	Chrysene and tryphenylin co-elute, if present in both samples (as in the SRM), the amounts are a combination of the two								
	Dates of measurements listed above are the extraction dates of the samples - these were used as they are the start of the process.								
		QA10TIS01 Sample 1 (ng/g dry mass)	QA10TIS01 Sample 2 (ng/g dry mass)	QA10TIS01 Sample 3 (ng/g dry mass)	SRM 1974b Sample 1 (ng/g dry mass)	SRM 1974b Sample 2 (ng/g dry mass)	SRM 1974b Sample 3 ng/g dry mass)	IS/surrogate used	% recovery acceptance
	chrysene/triphenylene	106	119	99.9	112	119	110	Chrysene-d12 / Phenanthrene-d10	40 to 120
	benzo[j+*k*]fluoranthene	31.1	35.8	28.2	57	54.8	54.3	Chrysene-d12 / Benzo(a)pyrene-d12	40 to 120
17	Chrysene and Triphenylene cannot be chromatographically separated.								
	Benzo(j)fluoranthene and Benzo(k)fluoranthene cannot be chromatographically separated.								
	No laboratory control data exists for surrogate recoveries in this matrix; control charts from a sediment matrix utilizing the same extraction procedure were used.								
	Matrix interference is evident at the retention time of 1-Methylphenanthrene; results may be biased high.								
		QA10TIS01 Sample 1 (ng/g dry mass)	QA10TIS01 Sample 2 (ng/g dry mass)	QA10TIS01 Sample 3 (ng/g dry mass)	SRM 1974b Sample 1 (ng/g dry mass)	SRM 1974b Sample 2 (ng/g dry mass)	SRM 1974b Sample 3 ng/g dry mass)	IS/surrogate used	% recovery acceptance
	chrysene+triphenylene	365	392	507	120	_____	_____	Pyrene-d10 / Chrysene-d12	24%-68%
	benzo[*j+k*]fluoranthene	141	144	296	63.8	_____	_____	Benzo(a)pyrene-d12 / Perylene-d12	1%-73%
22	"other" = analyte co-elutes with another reported analyte. Triphenylene co-elutes with chrysene. Benzo[j]fluoranthene co-elutes with benzo[k]fluoranthene. Dibenz[a,h]anthracene co-elutes with dibenz[a,c]anthracene								
		QA10TIS01 Sample 1 (ng/g dry mass)	QA10TIS01 Sample 2 (ng/g dry mass)	QA10TIS01 Sample 3 (ng/g dry mass)	SRM 1974b Sample 1 (ng/g dry mass)	SRM 1974b Sample 2 (ng/g dry mass)	SRM 1974b Sample 3 ng/g dry mass)	IS/surrogate used	
	chrysene + triphenylene	85.3	86.3	81.5	106	105	_____	d12-chrysene	
	benzo[j+*k*]fluoranthene	24	25.6	24.4	48.7	50.1	_____	d12-benzo[k]fluoranthene	
	dibenz[a,c+a,h]anthracene	2.00	1.94	1.81	5.80	5.60	_____	d14-dibenz[a,h]anthracene	
23		QA10TIS01 Sample 1 (ng/g dry mass)	QA10TIS01 Sample 2 (ng/g dry mass)	QA10TIS01 Sample 3 (ng/g dry mass)	SRM 1974b Sample 1 (ng/g dry mass)	SRM 1974b Sample 2 (ng/g dry mass)	SRM 1974b Sample 3 ng/g dry mass)	IS/surrogate used	% recovery acceptance
	chrysene + triphenylene	70.3	70.7	67.8	108	_____	_____	d12-Chrysene	50-120
24a	Triphenylene interferes with benzo(a)anthracene and chrysene quantitation								
	Benzo(j)fluoranthene interferes with benzo(b)fluoranthene quantitation								
26	*	Triphenylene cannot be resolved from Chrysene under the chromatographic conditions used							
	**	Benzo(j)fluoranthene cannot be resolved from Benzo(k)fluoranthene under the chromatographic condition used							
		QA10TIS01 Sample 1 (ng/g dry mass)	QA10TIS01 Sample 2 (ng/g dry mass)	QA10TIS01 Sample 3 (ng/g dry mass)	SRM 1974b Sample 1 (ng/g dry mass)	SRM 1974b Sample 2 (ng/g dry mass)	SRM 1974b Sample 3 ng/g dry mass)	IS/surrogate used	% recovery acceptance
	chrysene + triphenylene	75.9	78.3	83.7	91.5	_____	_____	Chrysene-d12/Terphenyl-d14	40-120
	benzo[*j+k*]fluoranthene	9.69	9.61	10.60	21.0	_____	_____	Perylene-d12Terphenyl-d14	40-120

Lab	Notes including data for additional analytes									
27	<symbol refers to values less than our MDL									
	The reported value of chrysene is the sum of chrysene and triphenylene									
	The reported value of benzo(j)fluoranthene is the sum of benzo(k)fluoranthene and benzo(j)fluoranthene									
		QA10TIS01 Sample 1 (ng/g dry mass)	QA10TIS01 Sample 2 (ng/g dry mass)	QA10TIS01 Sample 3 (ng/g dry mass)	SRM 1974b Sample 1 (ng/g dry mass)	SRM 1974b Sample 2 (ng/g dry mass)	SRM 1974b Sample 3 ng/g dry mass)	IS/surrogate used	% recovery acceptance	"reprentative compound" used for quantitation
	chrysene+triphenylene	90.9	86	98	116	102	NA	Pyrene-d10/Chrysene-d12	60-120	NA
	benzo[*j+k*]fluoranthene	15.8	14.5	13.9	55.4	55.4	NA	Benzo(a)pyrene-d12/Chrysene-d12	60-120	benzo[k]fluoranthene
29	Most of our detection limits ranged ~10 to 50 ng/g dry; some were lower or as high as ~200.									
	Other = We used a methyl PAH cocktail to calibrate and assess recoveries. Although it did not contain C4-Naphthalenes, we measured significant amounts using the standard protocol.									
	Our numbers were DL in 1974b and ~1300ng/g dry in QATISS10.									
	We also analyzed a suite of 28 MethylPAHs; only the above were detected.									
	Figures lacking three significant figures should be assumed to have lost trailing zeroes.									
	Chrysene and triphenylene quantified together as one chromatographic peak.									
	Benzo[j]fluoranthene and benzo[k]fluoranthene quantified together as one chromatographic peak.									
	2,6- and 2,7-methylnaphthalene were quantified together (although we do not assume both are present in samples) as one chromatographic peak.									
	Other Analytes:									
		QA10TIS01 Sample 1 (ng/g dry mass)	QA10TIS01 Sample 2 (ng/g dry mass)	QA10TIS01 Sample 3 (ng/g dry mass)	SRM 1974b Sample 1 (ng/g dry mass)	SRM 1974b Sample 2 (ng/g dry mass)	SRM 1974b Sample 3 ng/g dry mass)	IS/surrogate used		
	3-MePhenanthrene	126	137	137	15.0	16.5	12.9	d10-Anthracene		
	benzo[g,h,i]fluoranth+cyclopenta[c,d]py	32.1	30.3	31.3	41.3	43.7	42.8	d10-Pyrene		
	Benzo[c]phenanthrene	20.1	20.7	20.0	27.5	28.7	26.8	d10-Pyrene		
	chrysene + triphenylene	107	106	109	123	126	118	d12-Chrysene		
	benzo[j+*k*]fluoranthene	32.0	32.5	33.8	62.7	61.3	56.8	d12-Benzo(k)fluoranthene		
32		QA10TIS01 Sample 1 (ng/g dry mass)	QA10TIS01 Sample 2 (ng/g dry mass)	QA10TIS01 Sample 3 (ng/g dry mass)	SRM 1974b Sample 1 (ng/g dry mass)	SRM 1974b Sample 2 (ng/g dry mass)	SRM 1974b Sample 3 ng/g dry mass)			
	benzo[b+j+k]fluoranthenes	<25	<26	<25	106					
34	1) chrysene is reported as a coelution of both chrysene and triphenylene.									
	2) benzo[k]fluoranthene is reported as a coelution of both benzo[j]fluoranthene and benzo[k]fluoranthene.									
	3) Dibenz[a,h]anthracene is reported as a coelution of both Dibenz[a,h]anthracene and Dibenz[a,c]anthracene									
		QA10TIS01 Sample 1 (ng/g dry mass)	QA10TIS01 Sample 2 (ng/g dry mass)	QA10TIS01 Sample 3 (ng/g dry mass)	SRM 1974b Sample 1 (ng/g dry mass)	SRM 1974b Sample 2 (ng/g dry mass)	SRM 1974b Sample 3 ng/g dry mass)	IS/surrogate used	% recovery acceptance	
	chrysene/triphenylene	107	96.4	104	106	113	115	Chrysene-d12	40-120	
	benzo[j+k]fluoranthene	41.1	26.6	34	54	53.1	58.3	Chrysene-d12	40-120	
	dibenz[a,h+a,c]anthracene	4.04	2.72	4.14	7.21	4.83	4.84	Chrysene-d12	40-120	

APPENDIX D

Charts of QA10TIS01 and SRM 1974b Results by Analyte

See Tables 1 through 3 for results reported as <*number*, detection limit, etc.

For QA10TIS01 plots:

Solid line: exercise assigned value

Dotted line: z = ± 1, i. e., 25 % from assigned value

Dotted/dashed line: z = ± 2, i. e., 50 % from assigned value

Dashed line: z = ± 3, i. e., 75 % from assigned value

For SRM 1974b plots:

Solid line: material certified concentration or target value (see caption of each plot)

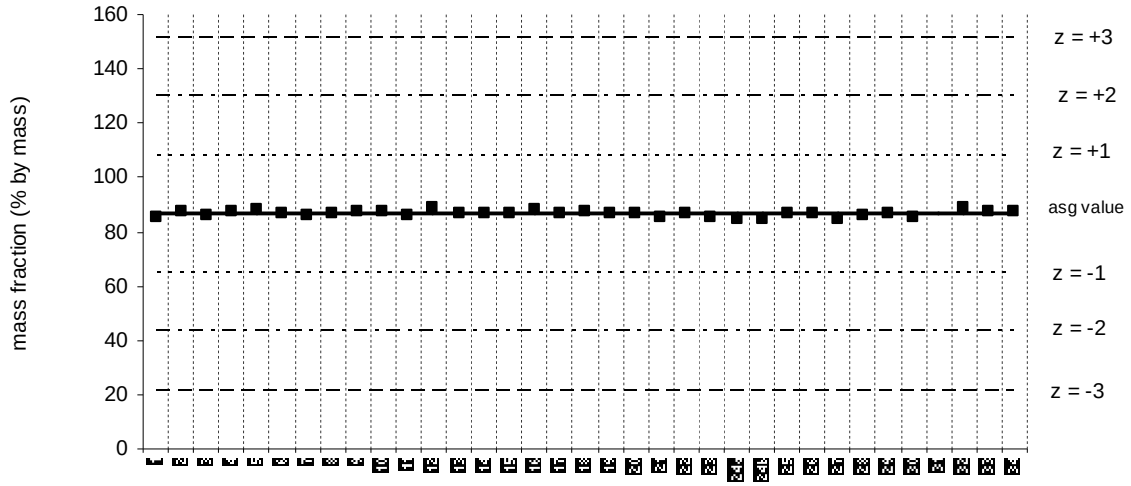
Dotted line: 95 % confidence interval (CI)

Dashed line: 30 % from 95 % confidence interval (CI)

Percent Water **QA10TIS01**

Assigned value = 86.7 % by mass s = 1.1 % by mass 95% CI = 0.4 % by mass Median value = 86.8 % by mass

Reported Results: 34 Quantitative Results: 34

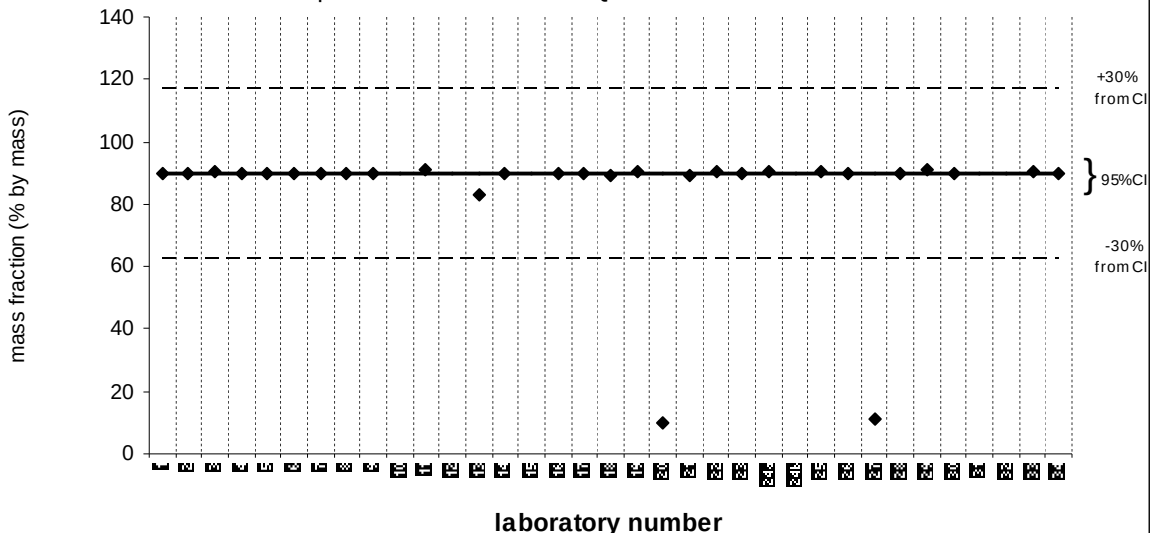


Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

Percent Water **SRM 1974b**

Target Value = 89.9 % by mass ; 95% CI 0.1 % by mass: Median value = 89.9 % by mass

Reported Results: 29 Quantitative Results: 29

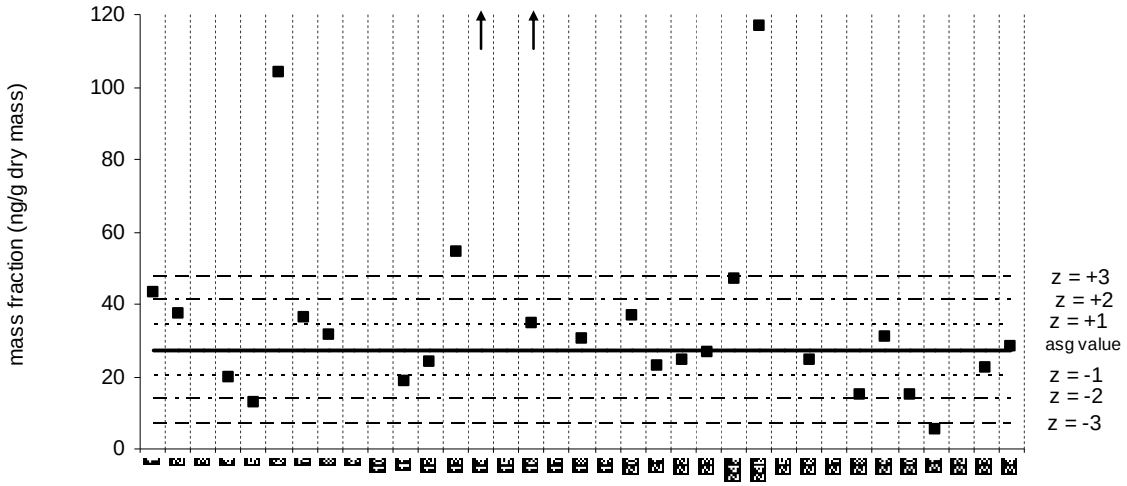


Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

naphthalene **QA10TIS01**

Assigned value = 27.2 ng/g dry mass s = 9.2 ng/g dry mass 95% CI = 4.1 ng/g dry mass Median value = 30.2 ng/g dry mass

Reported Results: 33 Quantitative Results: 27



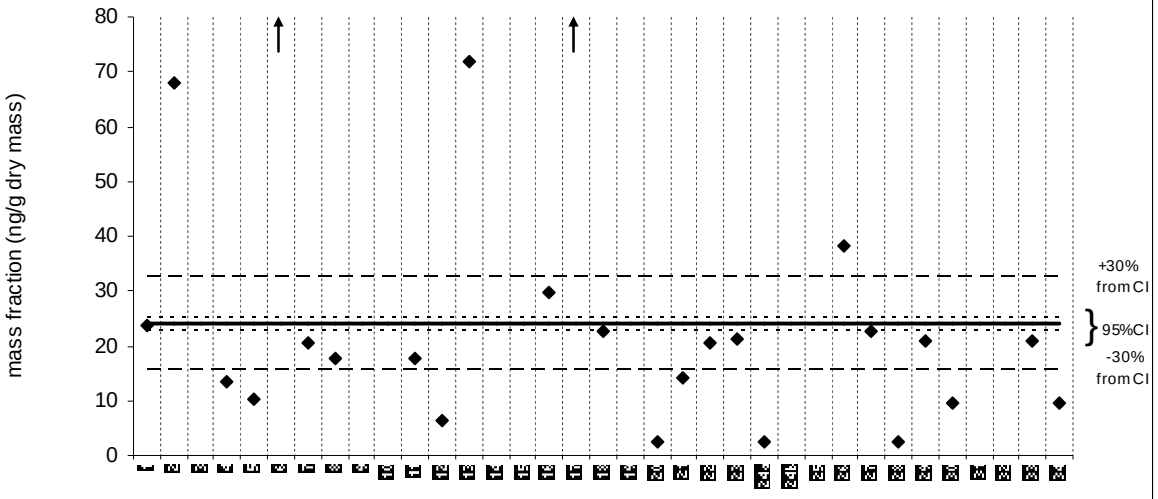
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

naphthalene **SRM 1974b**

Certified Value = 24.0 ng/g dry mass ; 95% CI 1.2 ng/g dry mass: Median value = 20.7 ng/g dry mass

Reported Results: 29 Quantitative Results: 25



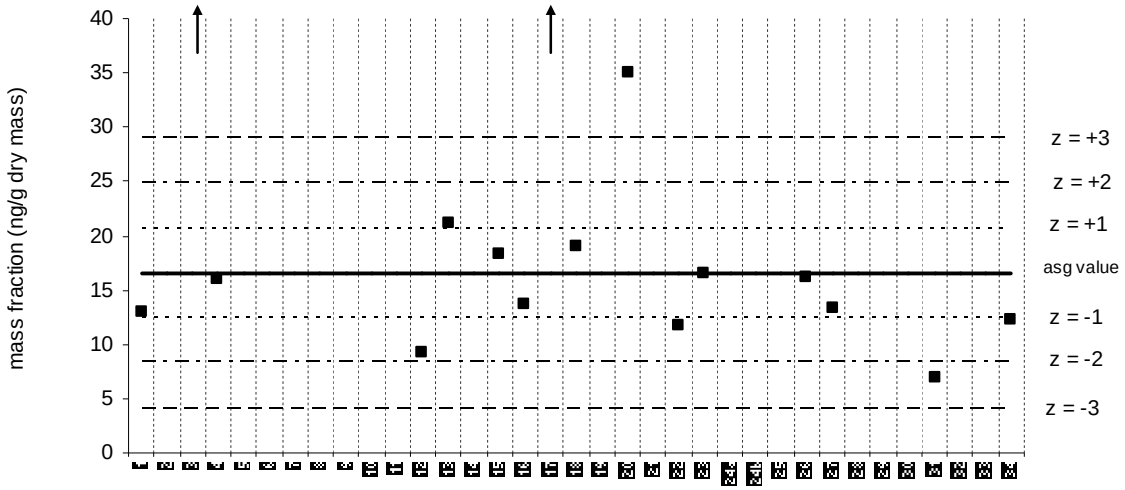
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

biphenyl **QA10TIS01**

Assigned value = 16.6 ng/g dry mass s = 6.4 ng/g dry mass 95% CI = 3.5 ng/g dry mass Median value = 16.1 ng/g dry mass

Reported Results: 22 Quantitative Results: 16



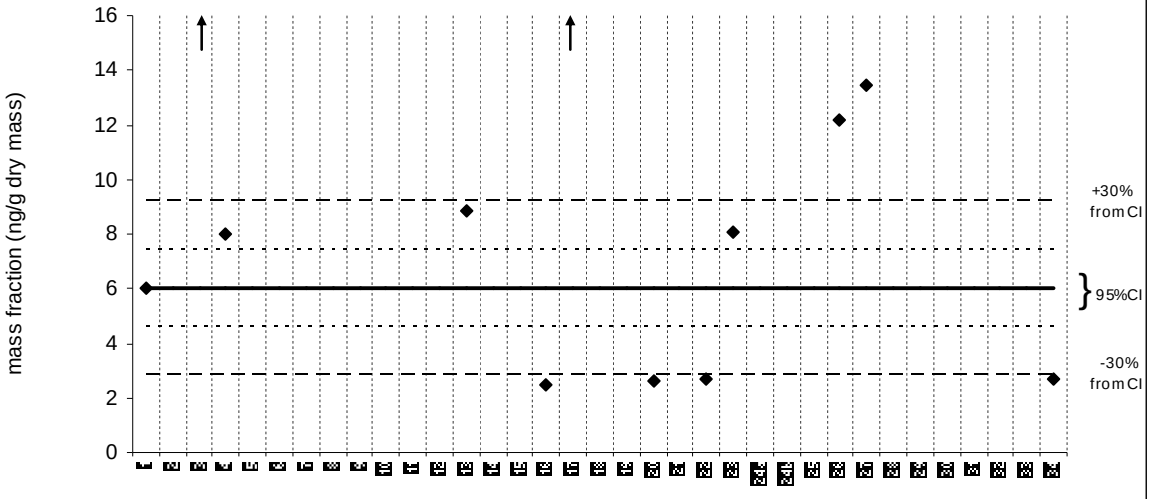
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

biphenyl **SRM 1974b**

Reference Value = 6.0 ng/g dry mass ; 95% CI 1.4 ng/g dry mass: Median value = 8.0 ng/g dry mass

Reported Results: 18 Quantitative Results: 12

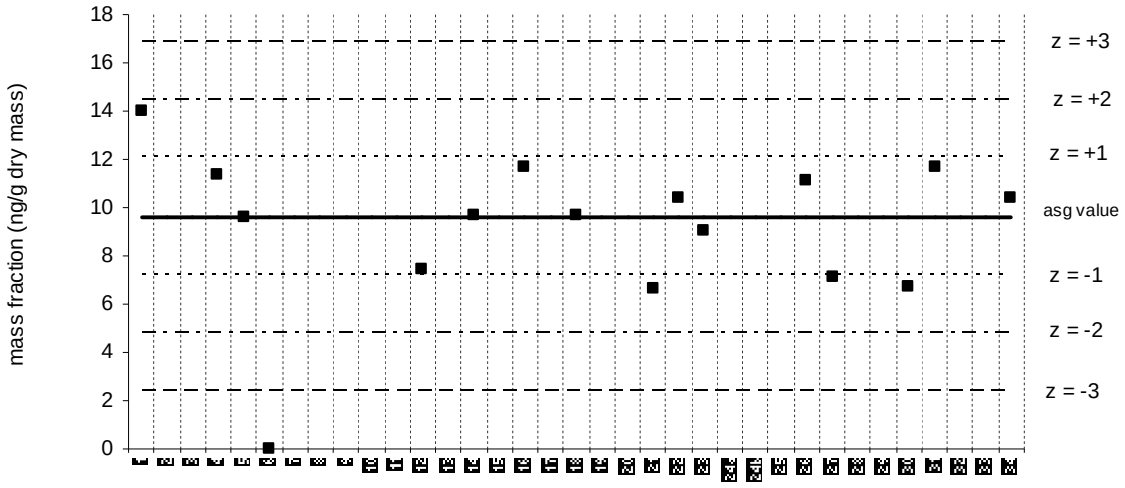


laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

acenaphthene **QA10TIS01**

Assigned value = 9.63 ng/g dry mass s = 2.13 ng/g dry mass 95% CI = 1.11 ng/g dry mass
Median value = 9.67 ng/g dry mass
Reported Results: 30 Quantitative Results: 16

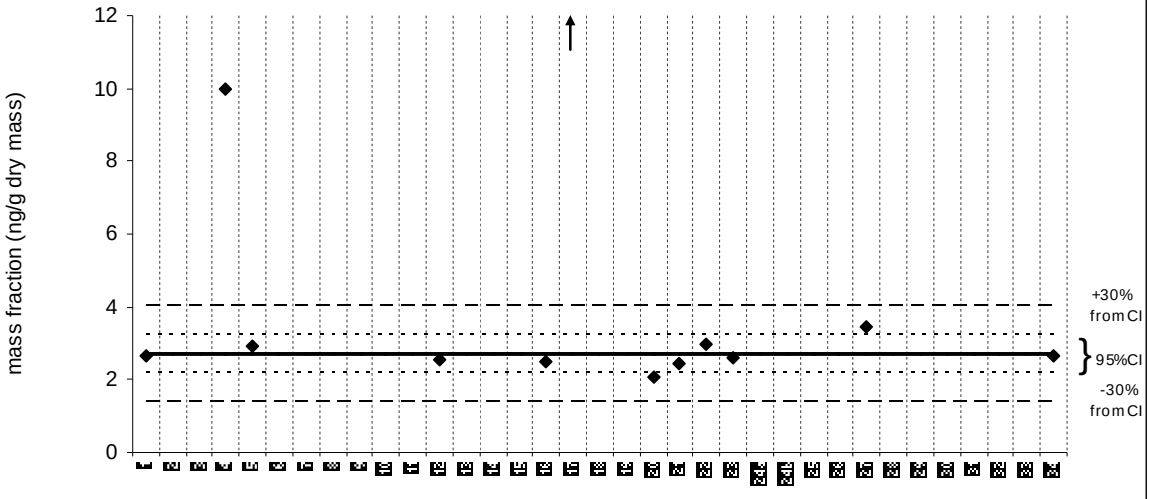


laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

acenaphthene **SRM 1974b**

Reference Value = 2.70 ng/g dry mass ; 95% CI 0.53 ng/g dry mass: Median value = 2.66 ng/g dry mass
Reported Results: 22 Quantitative Results: 12

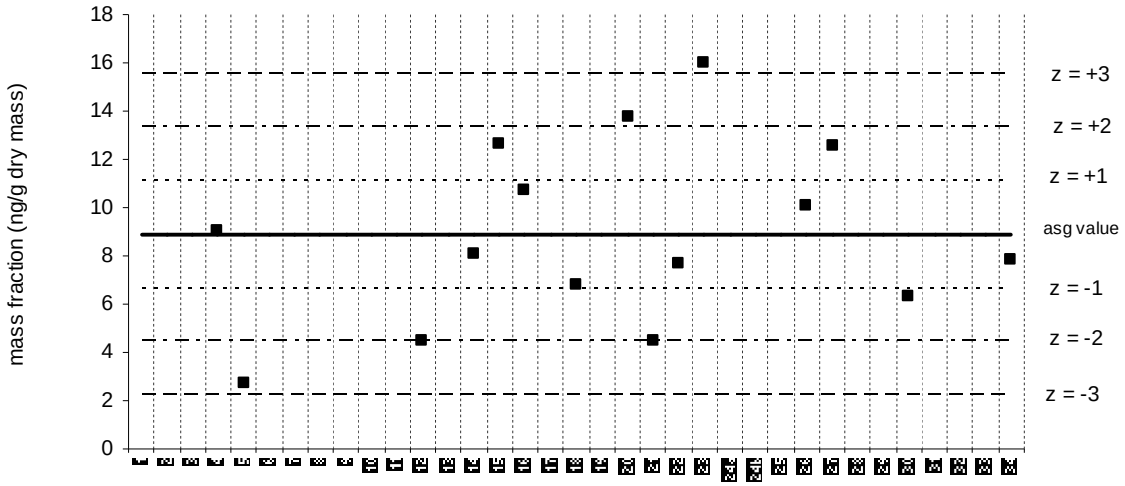


laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

acenaphthylene **QA10TIS01**

Assigned value = 8.88 ng/g dry mass s = 3.76 ng/g dry mass 95% CI = 1.90 ng/g dry mass
Median value = 8.08 ng/g dry mass
Reported Results: 26 Quantitative Results: 15

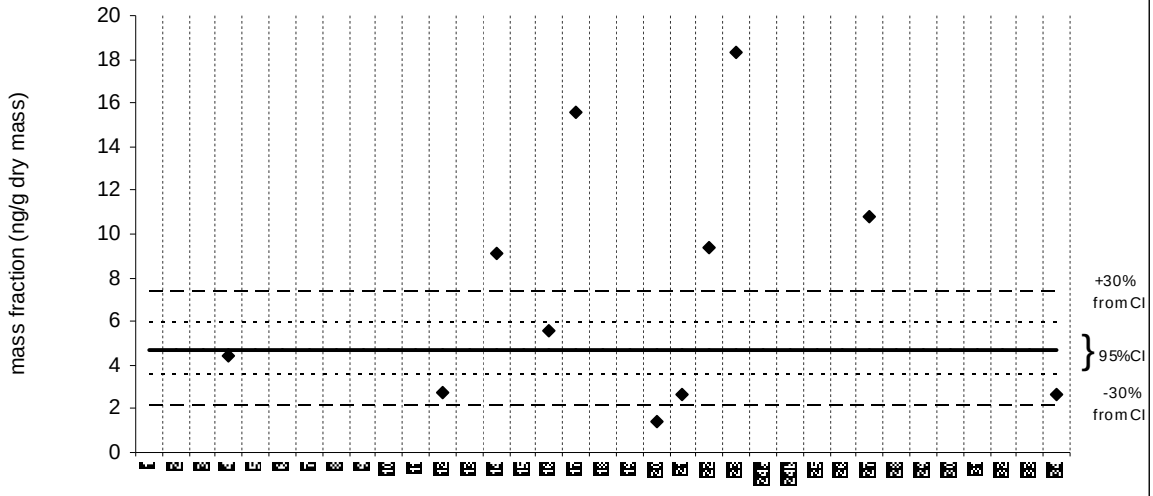


laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

acenaphthylene **SRM 1974b**

Reference Value = 4.70 ng/g dry mass ; 95% CI 1.20 ng/g dry mass: Median value = 5.60 ng/g dry mass
Reported Results: 21 Quantitative Results: 11



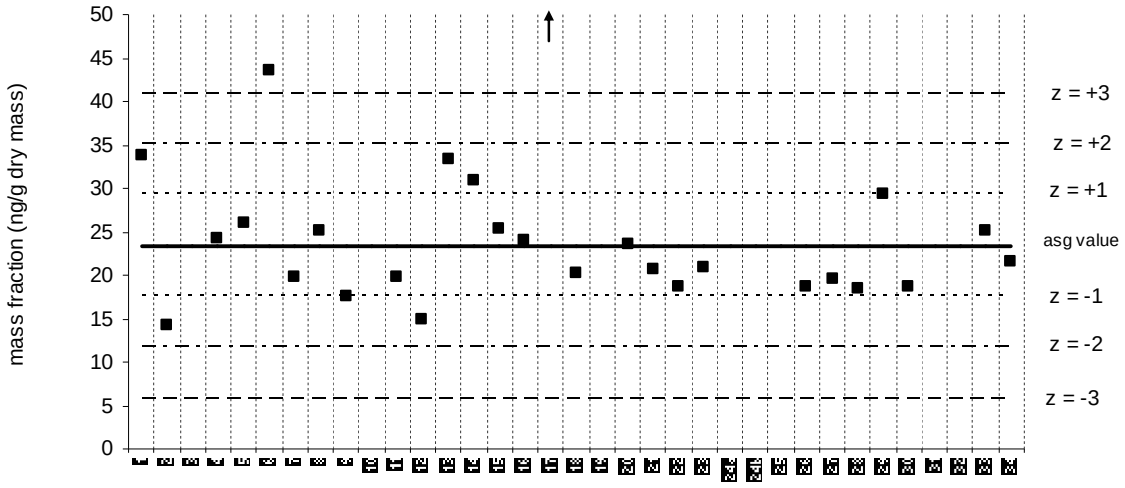
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

fluorene **QA10TIS01**

Assigned value = 23.4 ng/g dry mass s = 6.6 ng/g dry mass 95% CI = 2.5 ng/g dry mass Median value = 21.5 ng/g dry mass

Reported Results: 33 Quantitative Results: 27

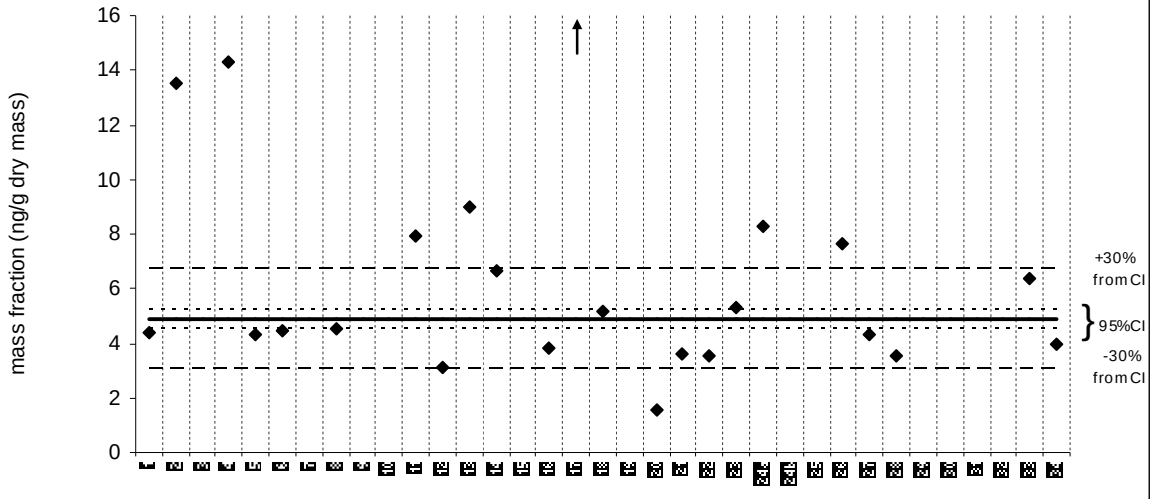


Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

fluorene **SRM 1974b**

Certified Value = 4.88 ng/g dry mass ; 95% CI 0.36 ng/g dry mass: Median value = 4.53 ng/g dry mass

Reported Results: 30 Quantitative Results: 23

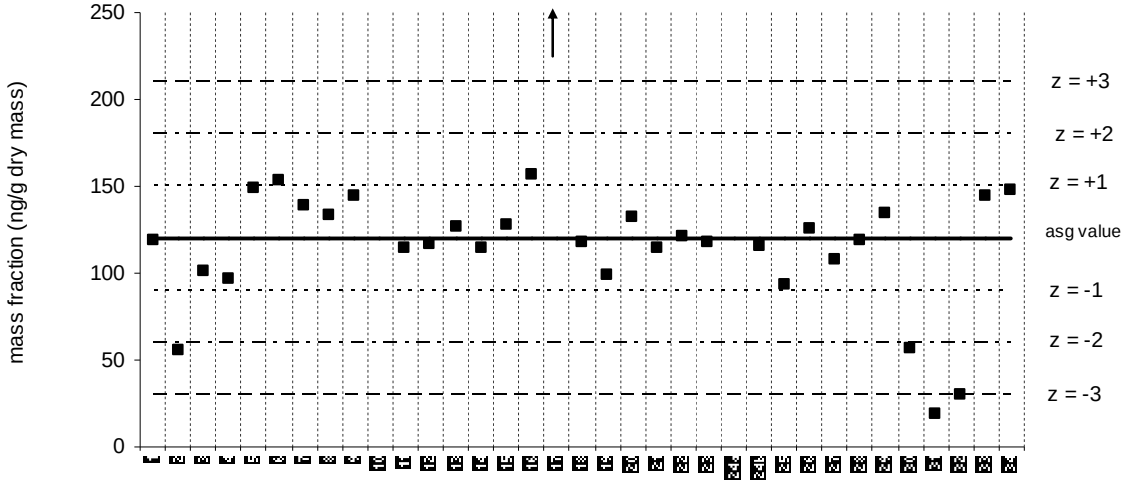


Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

phenanthrene **QA10TIS01**

Assigned value = 120 ng/g dry mass s = 24 ng/g dry mass 95% CI = 9 ng/g dry mass Median value = 119 ng/g dry mass

Reported Results: 34 Quantitative Results: 33



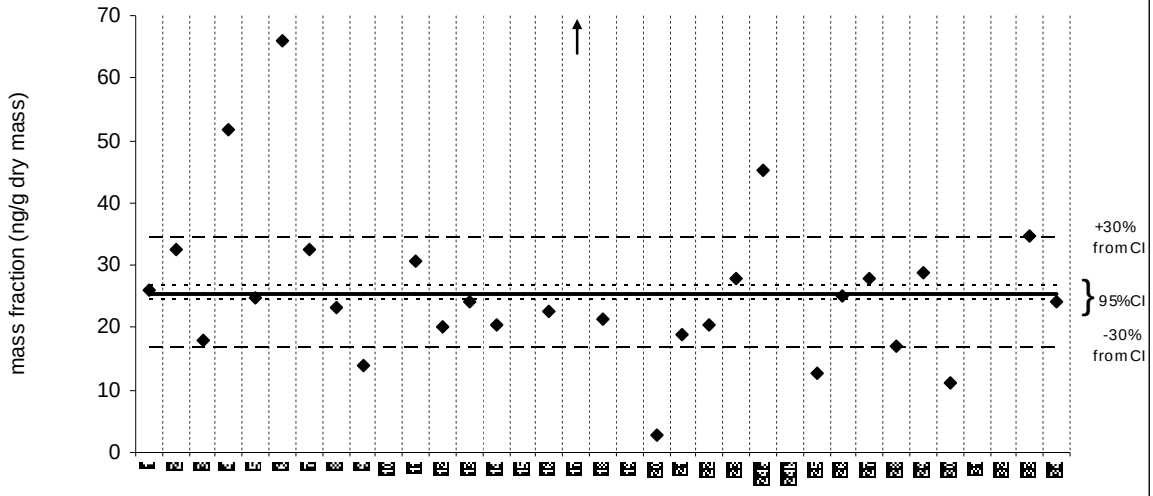
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

phenanthrene **SRM 1974b**

Certified Value = 25.5 ng/g dry mass ; 95% CI 1.1 ng/g dry mass: Median value = 24.2 ng/g dry mass

Reported Results: 31 Quantitative Results: 29



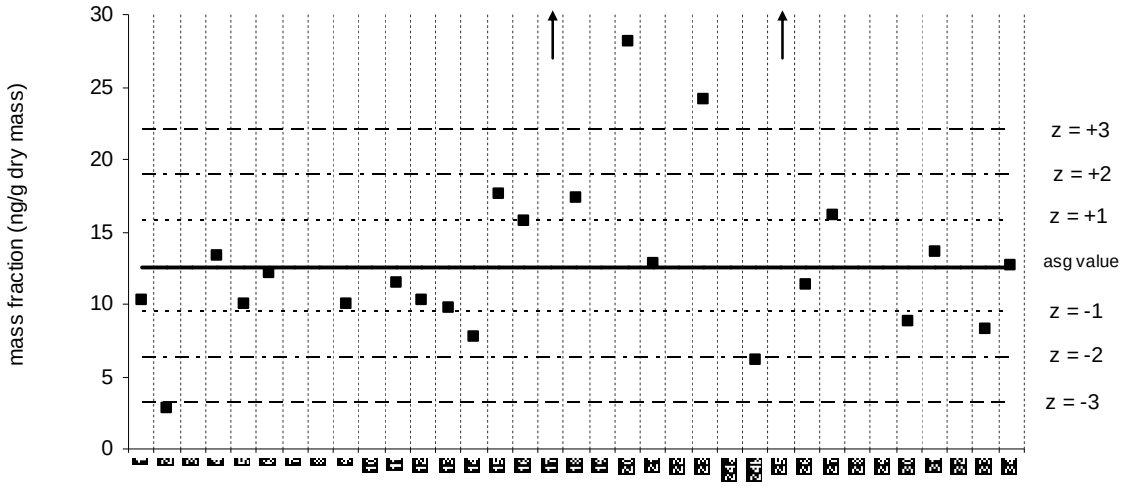
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

anthracene **QA10TIS01**

Assigned value = 12.6 ng/g dry mass s = 5.7 ng/g dry mass 95% CI = 2.4 ng/g dry mass Median value = 12.1 ng/g dry mass

Reported Results: 32 Quantitative Results: 25



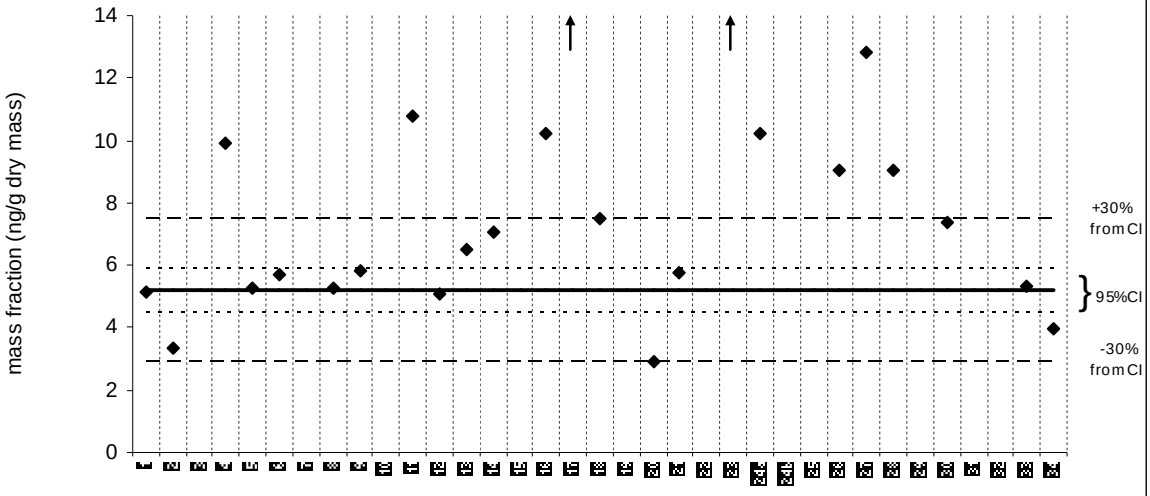
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

anthracene **SRM 1974b**

Certified Value = 5.20 ng/g dry mass ; 95% CI 0.71 ng/g dry mass: Median value = 6.77 ng/g dry mass

Reported Results: 30 Quantitative Results: 24



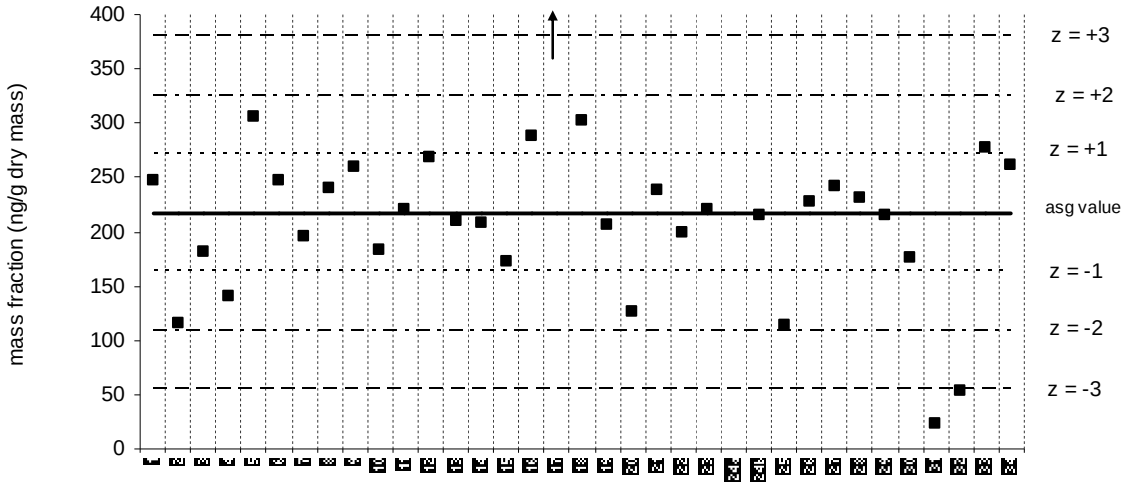
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

fluoranthene **QA10TIS01**

Assigned value = 217 ng/g dry mass s = 50 ng/g dry mass 95% CI = 17 ng/g dry mass Median value = 218 ng/g dry mass

Reported Results: 34 Quantitative Results: 34



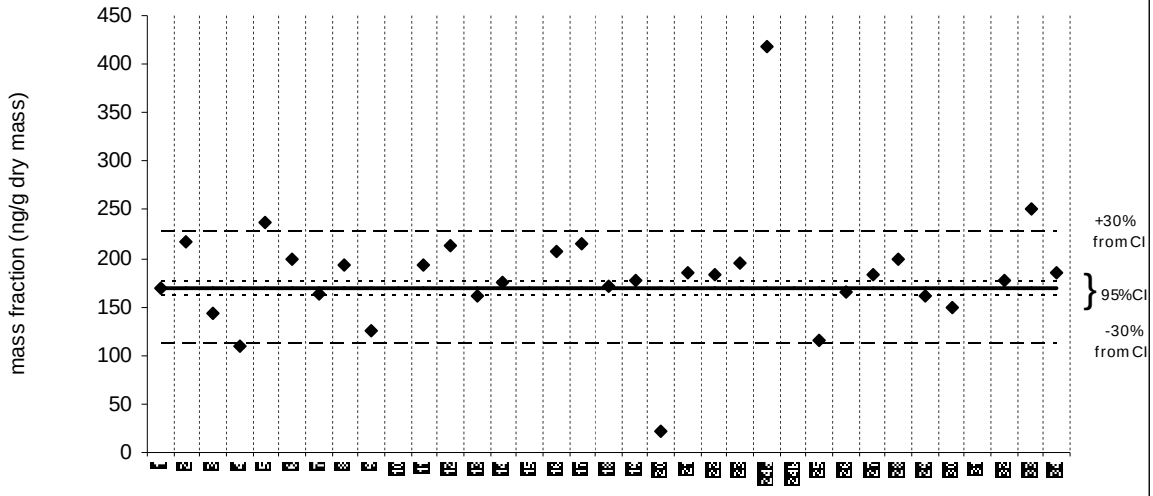
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

fluoranthene **SRM 1974b**

Certified Value = 169 ng/g dry mass ; 95% CI 7 ng/g dry mass: Median value = 184 ng/g dry mass

Reported Results: 31 Quantitative Results: 31



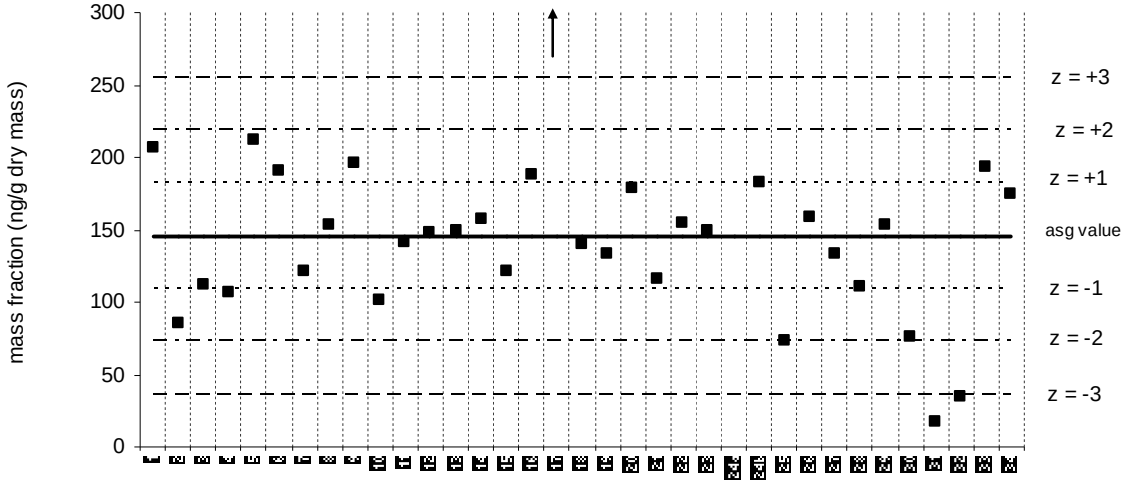
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

pyrene **QA10TIS01**

Assigned value = 146 ng/g dry mass s = 38 ng/g dry mass 95% CI = 13 ng/g dry mass Median value = 149 ng/g dry mass

Reported Results: 34 Quantitative Results: 34



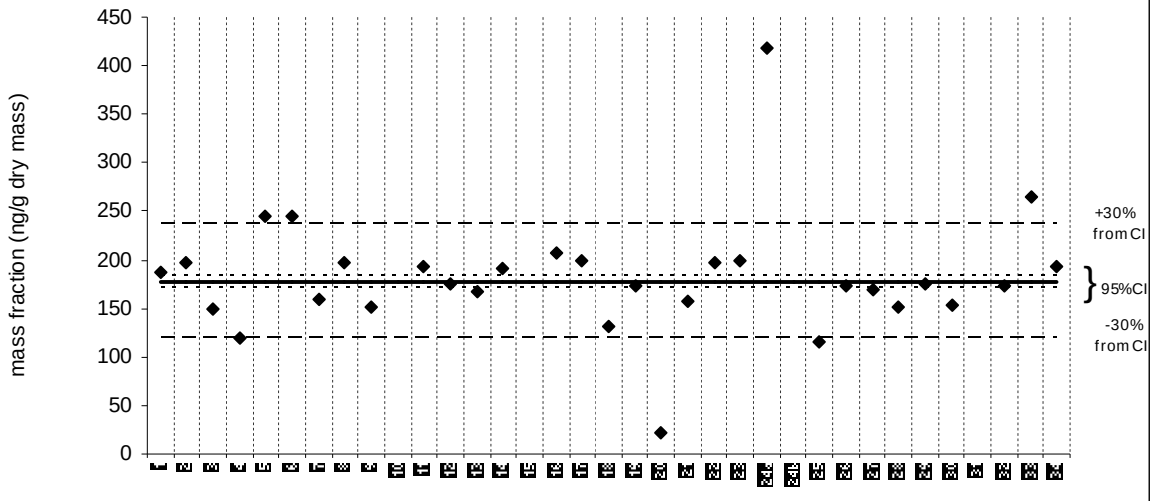
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

pyrene **SRM 1974b**

Certified Value = 178 ng/g dry mass ; 95% CI 6 ng/g dry mass: Median value = 175 ng/g dry mass

Reported Results: 31 Quantitative Results: 31



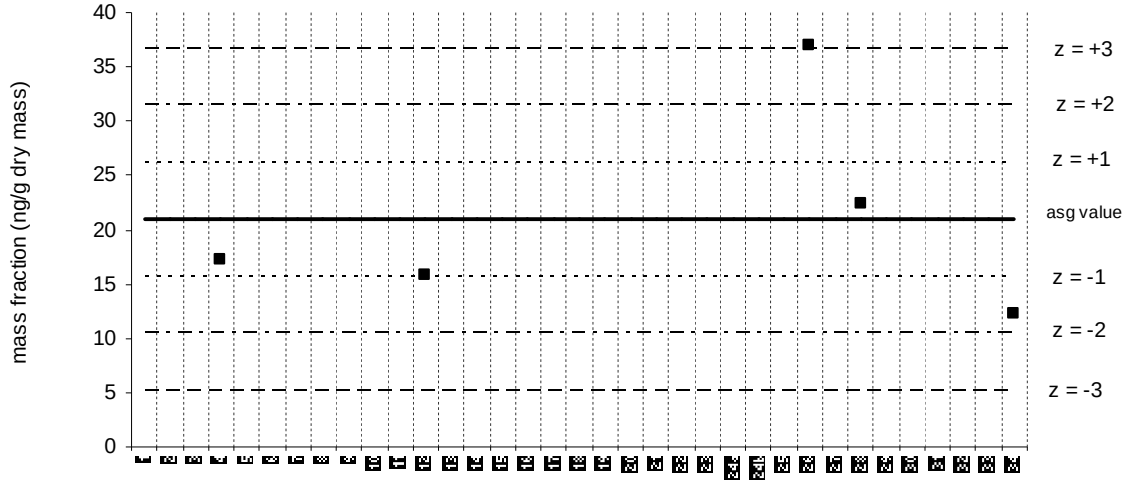
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

benzo[b]fluorene **QA10TIS01**

Assigned value = 20.9 ng/g dry mass s = 9.7 ng/g dry mass 95% CI = 8.5 ng/g dry mass Median value = 17.3 ng/g dry mass

Reported Results: 8 Quantitative Results: 5



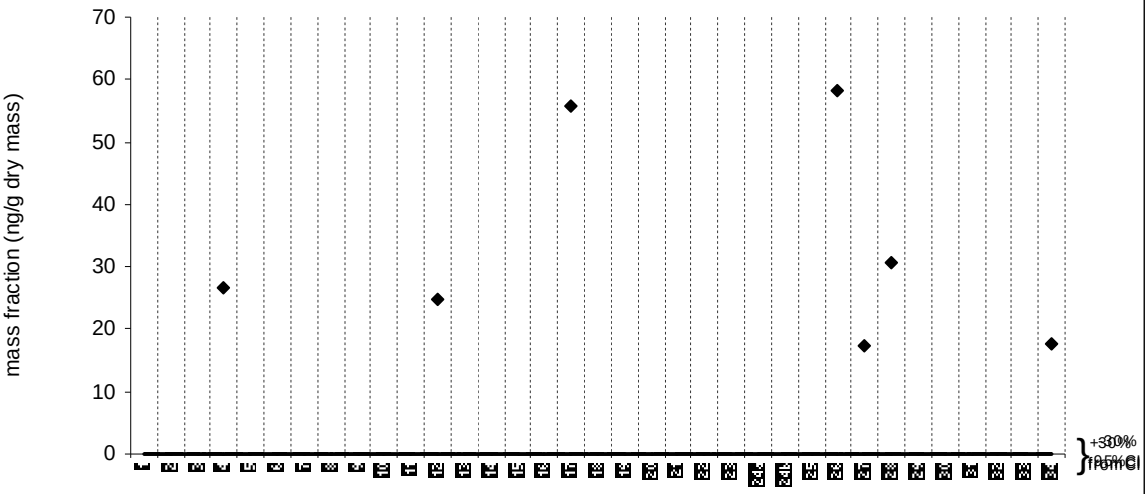
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

benzo[b]fluorene **SRM 1974b**

Target Value = no target ng/g (dry mass): Median value = 26.7 ng/g dry mass

Reported Results: 9 Quantitative Results: 7

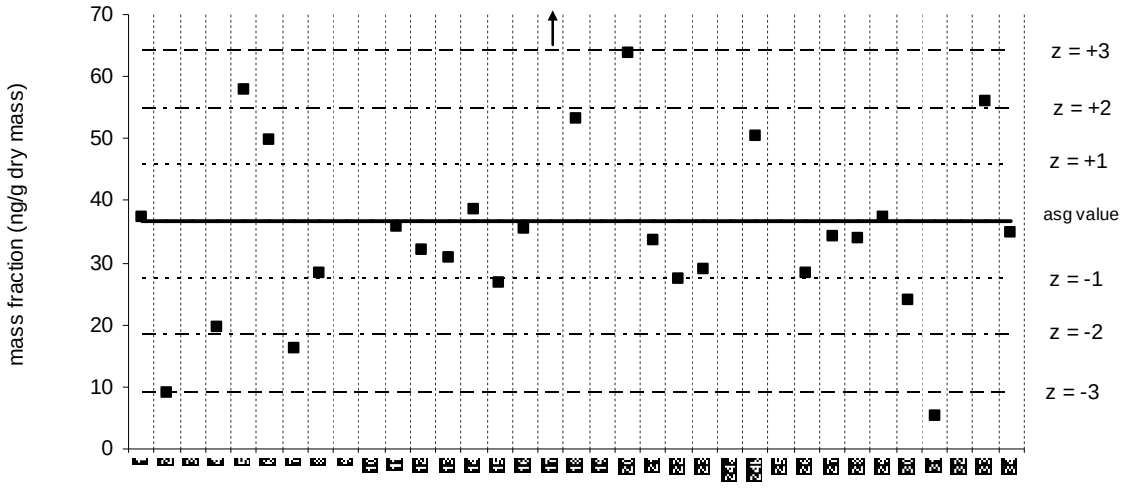


laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

benz[a]anthracene **QA10TIS01**

Assigned value = 36.6 ng/g dry mass s = 12.1 ng/g dry mass 95% CI = 4.7 ng/g dry mass
Median value = 34.0 ng/g dry mass
Reported Results: 33 Quantitative Results: 28

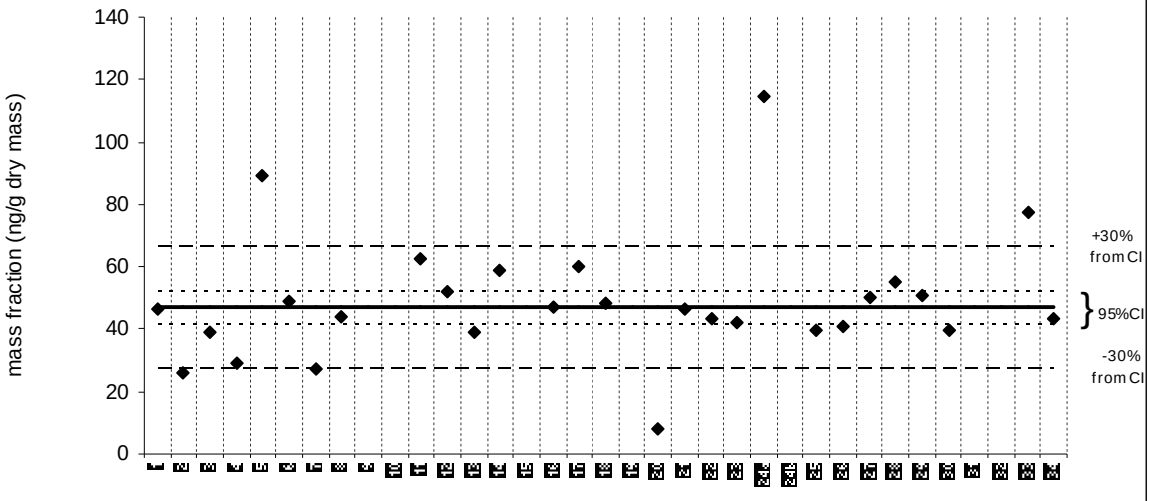


laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

benz[a]anthracene **SRM 1974b**

Certified Value = 46.8 ng/g dry mass ; 95% CI 5.2 ng/g dry mass: Median value = 46.5 ng/g dry mass
Reported Results: 30 Quantitative Results: 28



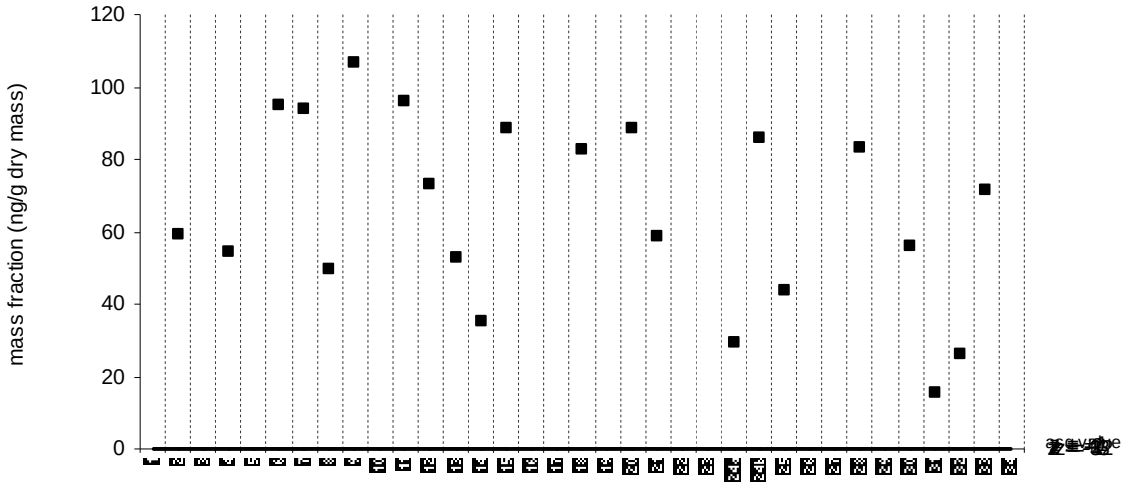
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

chrysene **QA10TIS01**

Assigned value = No Target ng/g (dry mass) Median value = 65.2 ng/g dry mass

Reported Results: 25 Quantitative Results: 22



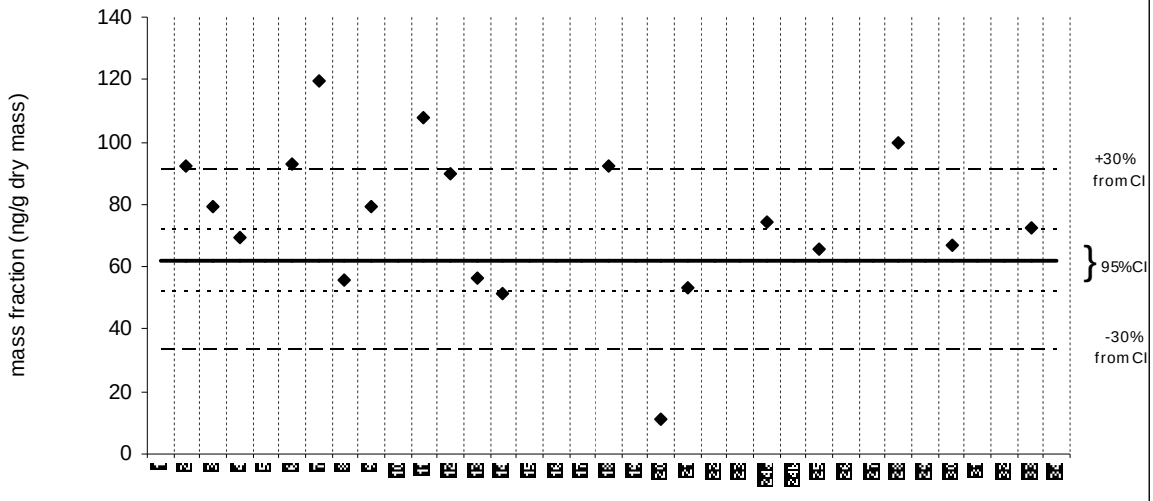
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

chrysene **SRM 1974b**

Certified Value = 62.2 ng/g dry mass ; 95% CI 9.9 ng/g dry mass: Median value = 74.6 ng/g dry mass

Reported Results: 21 Quantitative Results: 19



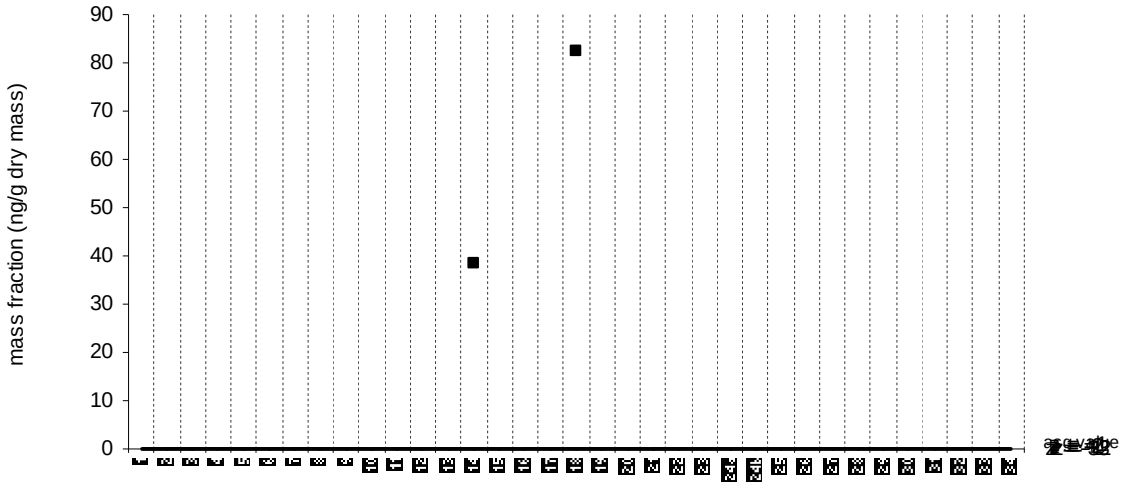
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

triphenylene **QA10TIS01**

Assigned value = No Target ng/g (dry mass) Median value = 60.4 ng/g dry mass

Reported Results: 2 Quantitative Results: 2



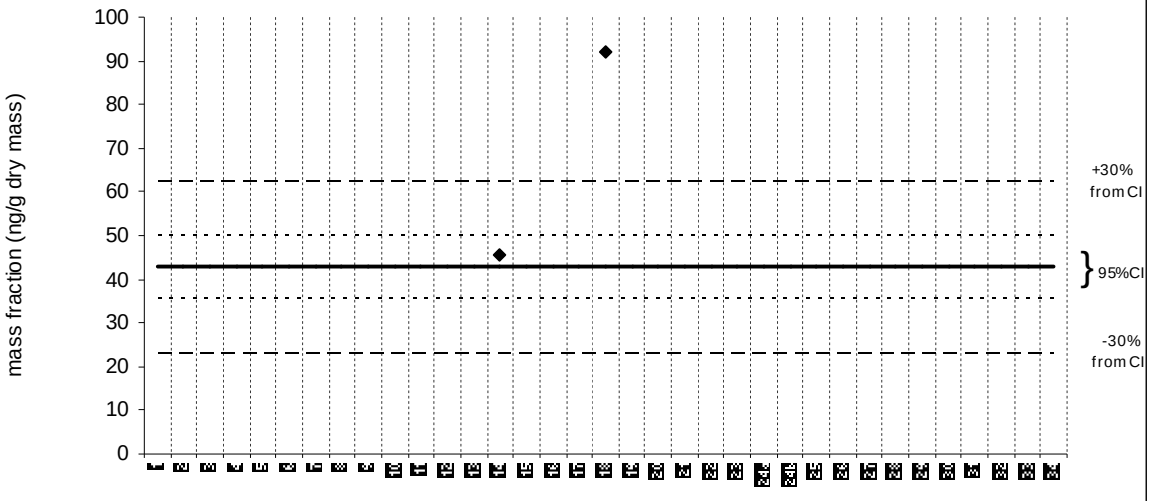
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

triphenylene **SRM 1974b**

Certified Value = 42.7 ng/g dry mass ; 95% CI 7.1 ng/g dry mass: Median value = 68.9 ng/g dry mass

Reported Results: 2 Quantitative Results: 2



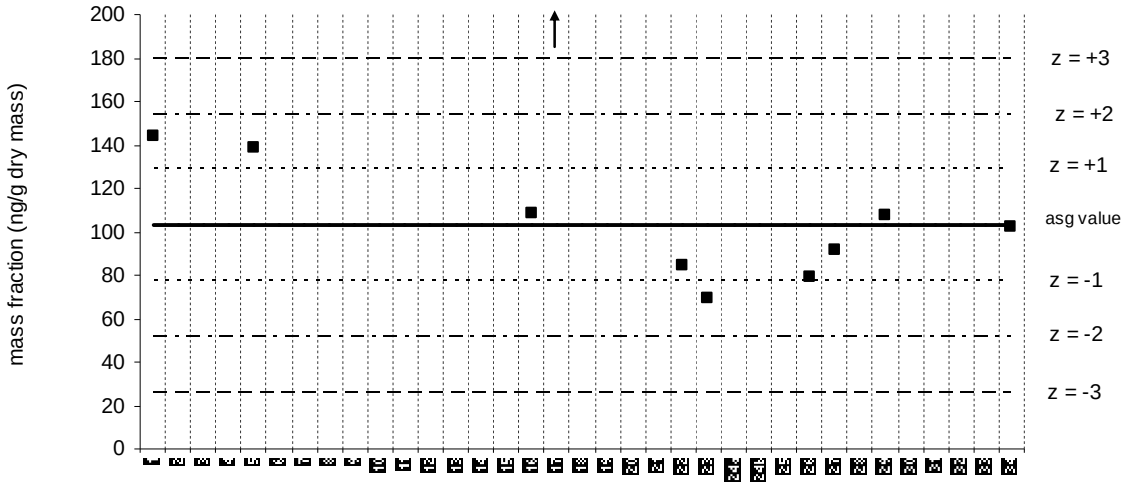
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

chrysene/triphenylene **QA10TIS01**

Assigned value = 103 ng/g dry mass s = 25 ng/g dry mass 95% CI = 17 ng/g dry mass Median value = 105 ng/g dry mass

Reported Results: 10 Quantitative Results: 10



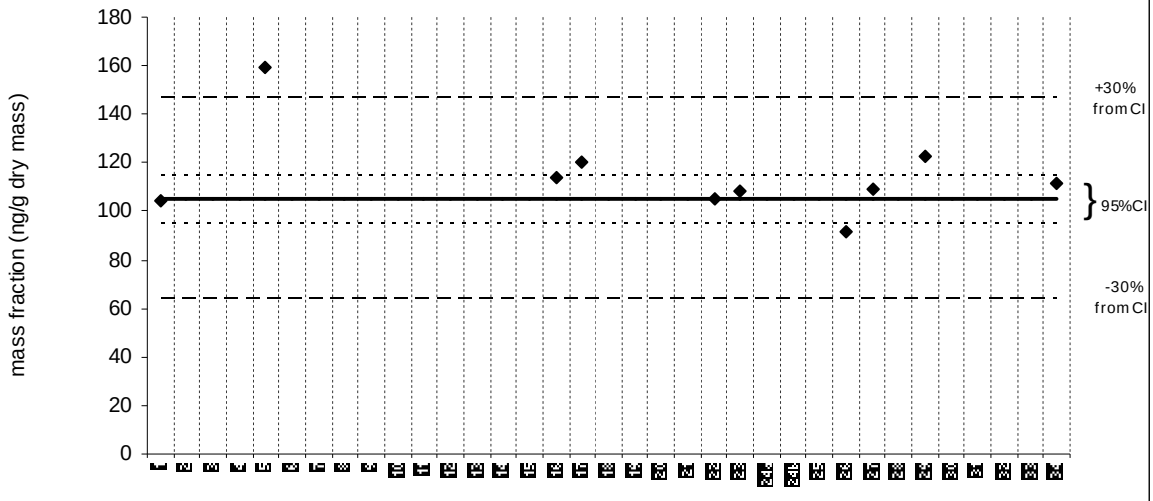
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

chrysene/triphenylene **SRM 1974b**

Target Value = 105 ng/g dry mass ; 95% CI 10 ng/g dry mass: Median value = 110 ng/g dry mass

Reported Results: 10 Quantitative Results: 10

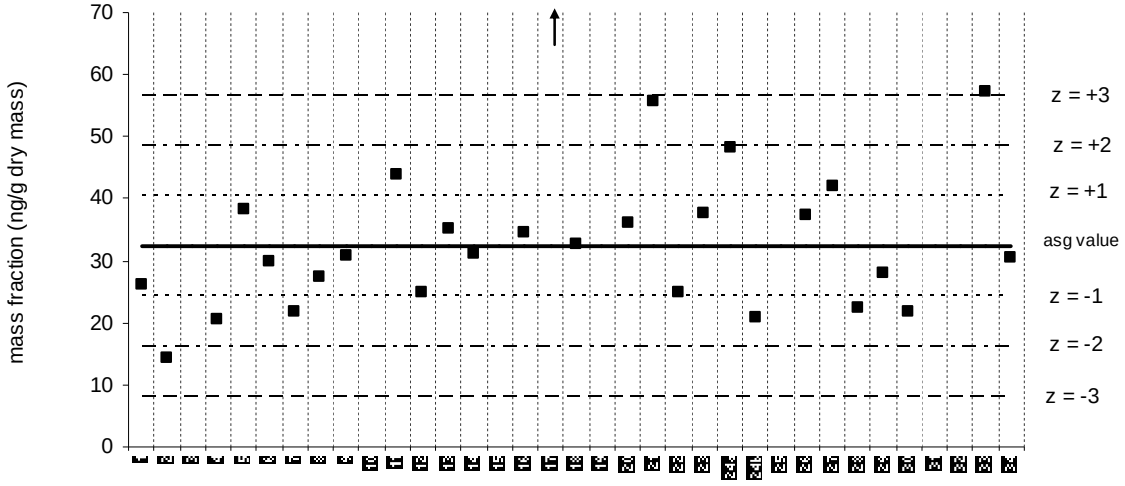


laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

benzo[b]fluoranthene **QA10TIS01**

Assigned value = 32.4 ng/g dry mass s = 10.5 ng/g dry mass 95% CI = 4.0 ng/g dry mass
Median value = 30.9 ng/g dry mass
Reported Results: 33 Quantitative Results: 28

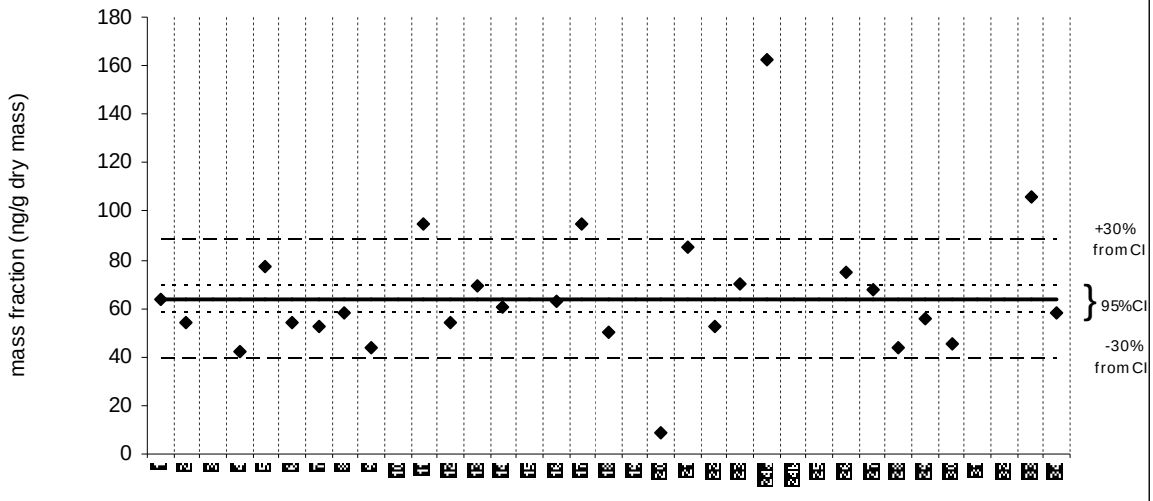


laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

benzo[b]fluoranthene **SRM 1974b**

Certified Value = 63.8 ng/g dry mass ; 95% CI 5.8 ng/g dry mass: Median value = 58.5 ng/g dry mass
Reported Results: 31 Quantitative Results: 27



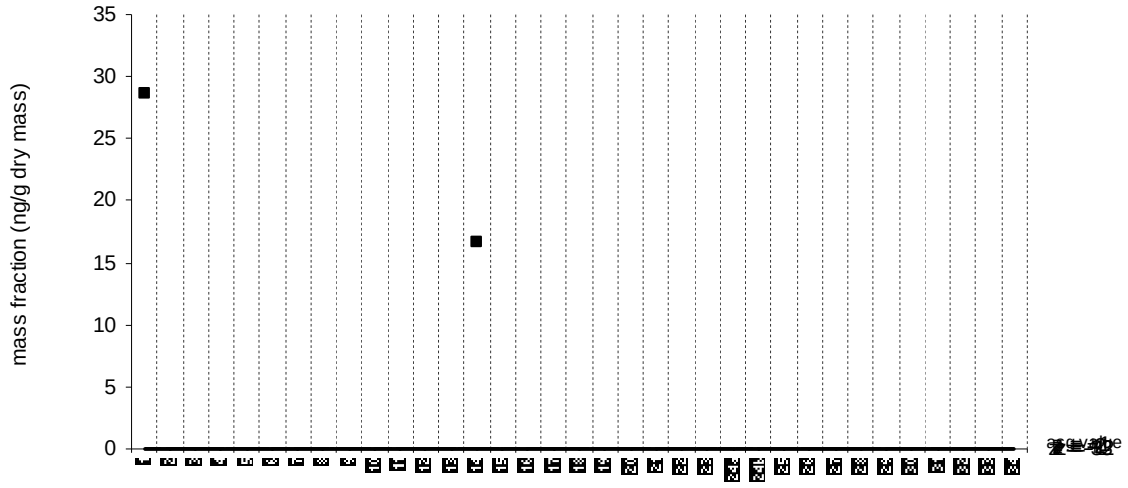
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

benzo[j]fluoranthene **QA10TIS01**

Assigned value = No Target ng/g (dry mass) Median value = 22.6 ng/g dry mass

Reported Results: 2 Quantitative Results: 2



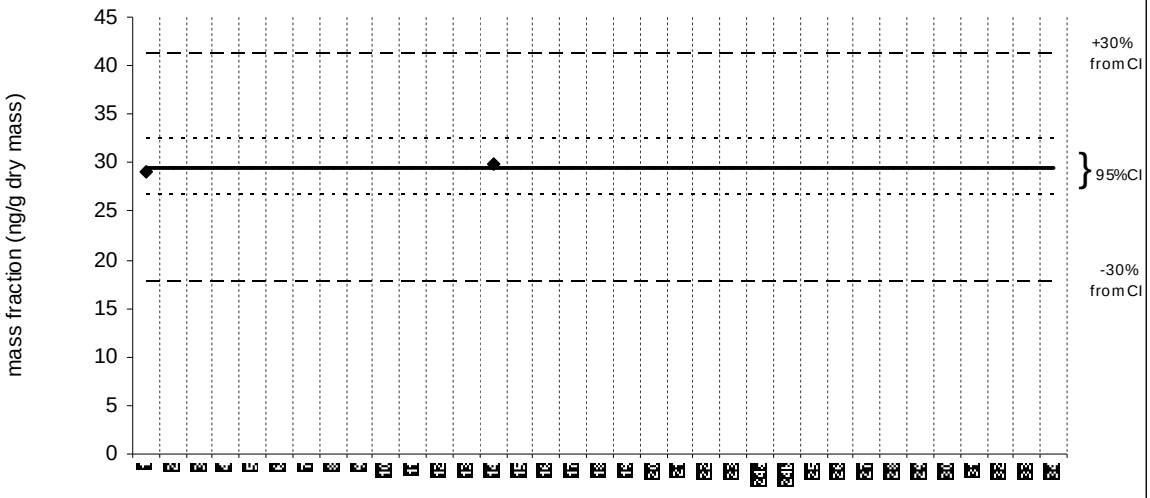
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

benzo[j]fluoranthene **SRM 1974b**

Certified Value = 29.5 ng/g dry mass ; 95% CI 2.9 ng/g dry mass: Median value = 29.5 ng/g dry mass

Reported Results: 3 Quantitative Results: 2



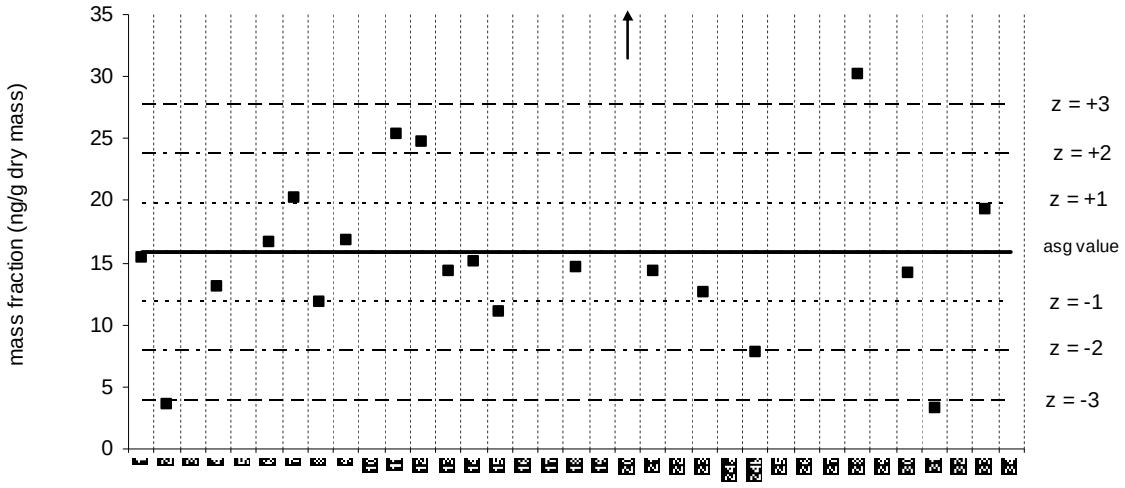
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

benzo[k]fluoranthene **QA10TIS01**

Assigned value = 15.8 ng/g dry mass s = 6.2 ng/g dry mass 95% CI = 2.8 ng/g dry mass Median value = 14.7 ng/g dry mass

Reported Results: 25 Quantitative Results: 21



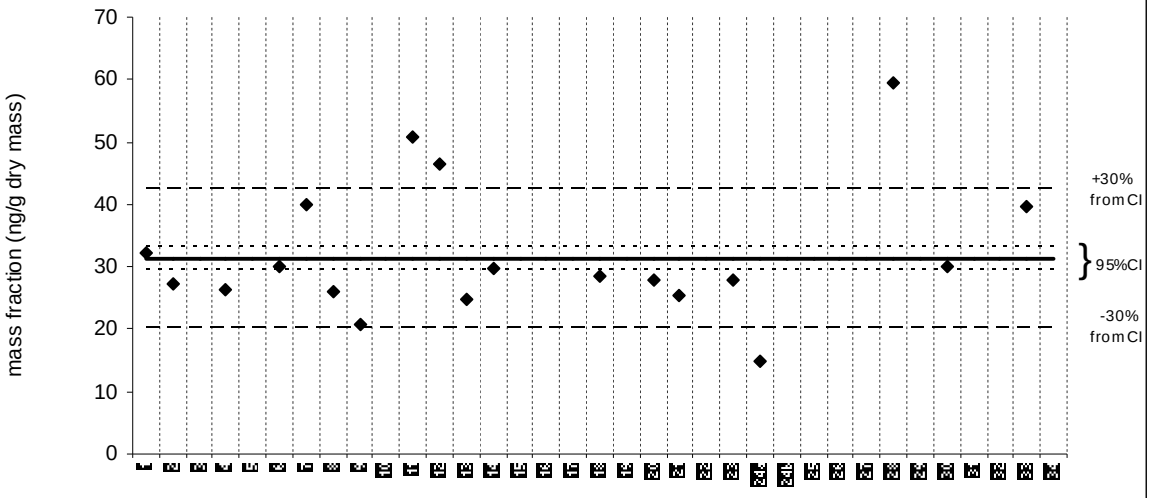
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

benzo[k]fluoranthene **SRM 1974b**

Certified Value = 31.2 ng/g dry mass ; 95% CI 1.8 ng/g dry mass: Median value = 28.4 ng/g dry mass

Reported Results: 23 Quantitative Results: 19



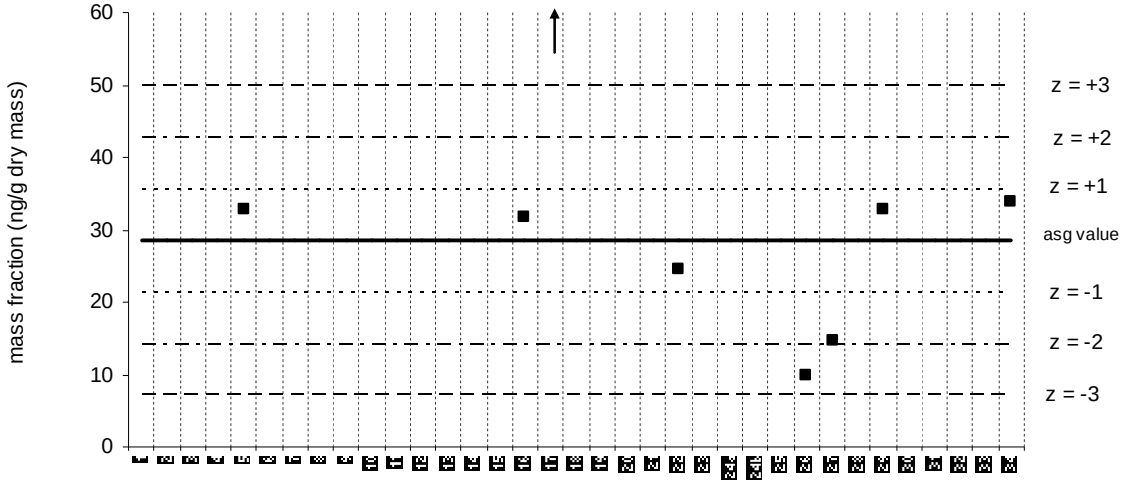
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

benzo[j+k]fluoranthene **QA10TIS01**

Assigned value = 28.4 ng/g dry mass s = 7.5 ng/g dry mass 95% CI = 6.0 ng/g dry mass Median value = 32.2 ng/g dry mass

Reported Results: 8 Quantitative Results: 8



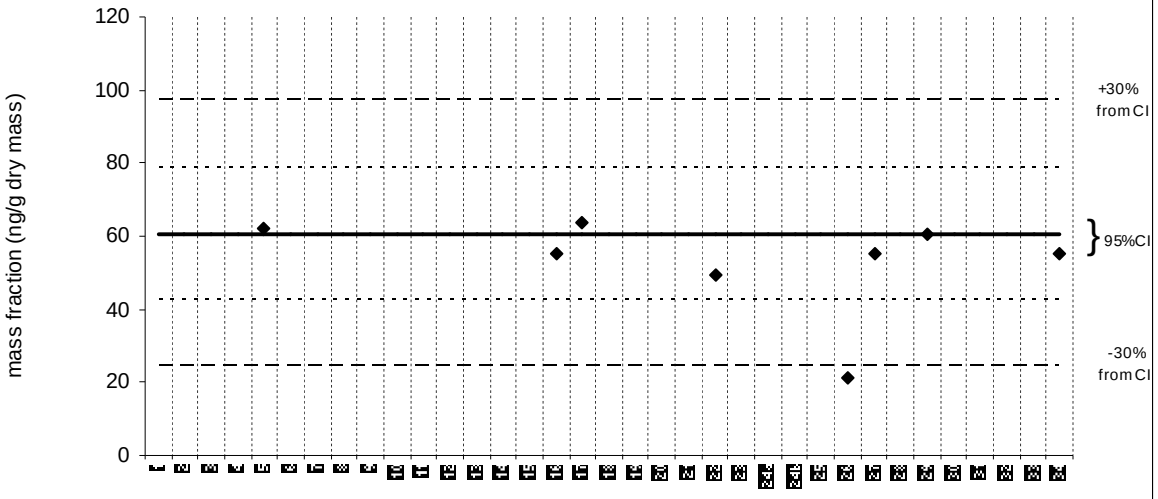
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

benzo[j+k]fluoranthene **SRM 1974b**

Target Value = 60.7 ng/g dry mass ; 95% CI 18.0 ng/g dry mass: Median value = 55.4 ng/g dry mass

Reported Results: 8 Quantitative Results: 8

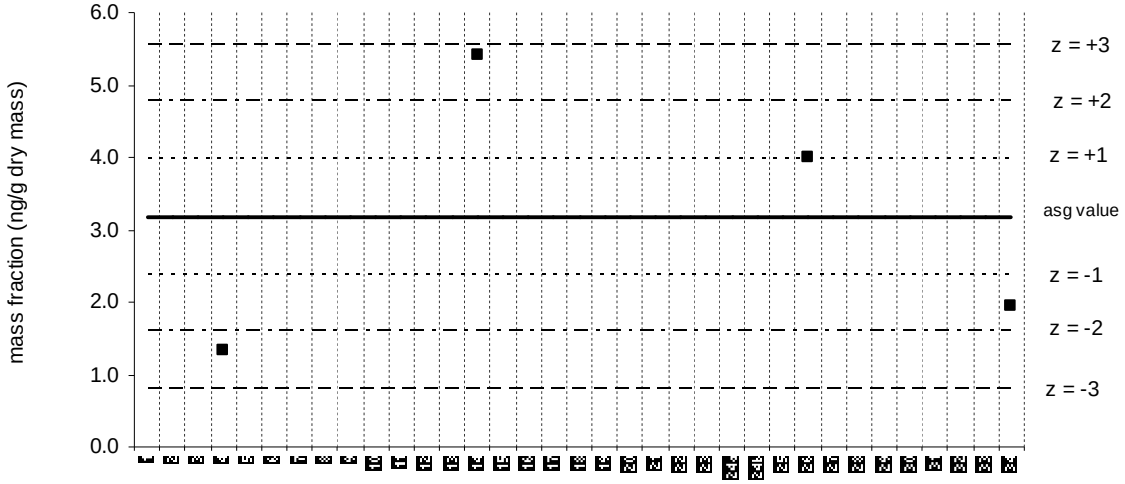


laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

benzo[a]fluoranthene **QA10TIS01**

Assigned value = 3.17 ng/g dry mass s = 1.88 ng/g dry mass 95% CI = 1.84 ng/g dry mass
Median value = 2.97 ng/g dry mass
Reported Results: 7 Quantitative Results: 4

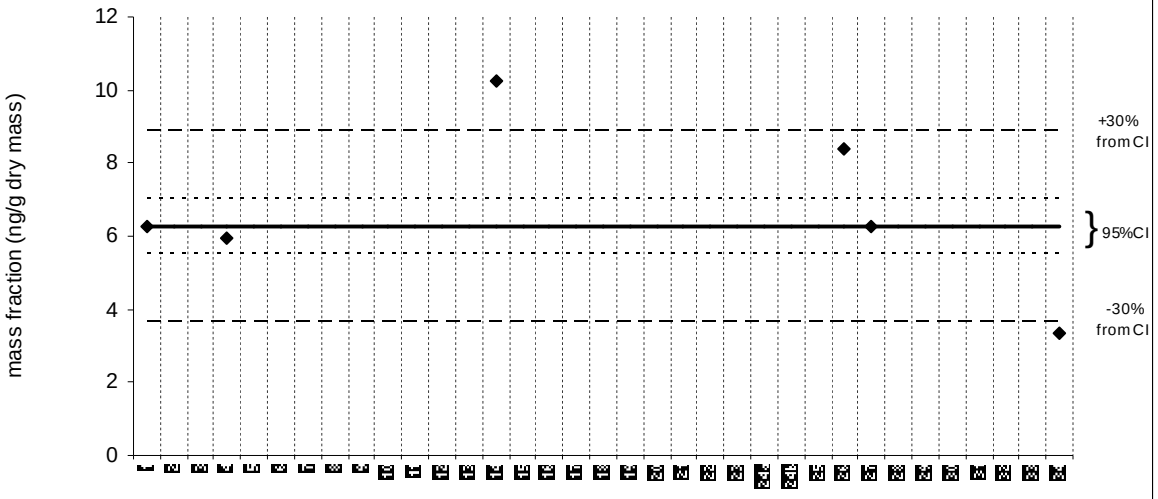


laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

benzo[a]fluoranthene **SRM 1974b**

Certified Value = 6.26 ng/g dry mass ; 95% CI 0.73 ng/g dry mass: Median value = 6.28 ng/g dry mass
Reported Results: 7 Quantitative Results: 6



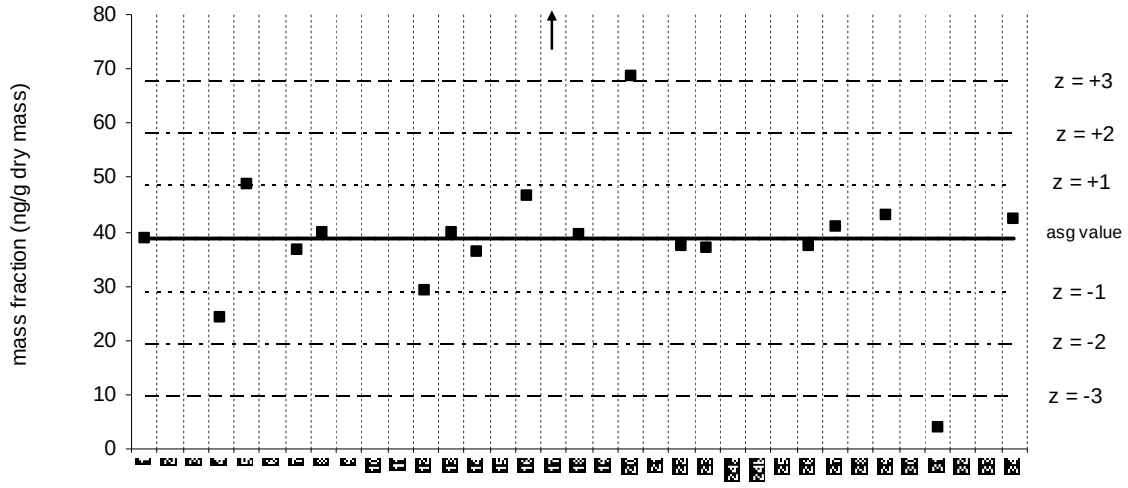
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

benzo[e]pyrene **QA10TIS01**

Assigned value = 38.6 ng/g dry mass s = 5.9 ng/g dry mass 95% CI = 2.9 ng/g dry mass Median value = 39.4 ng/g dry mass

Reported Results: 25 Quantitative Results: 19



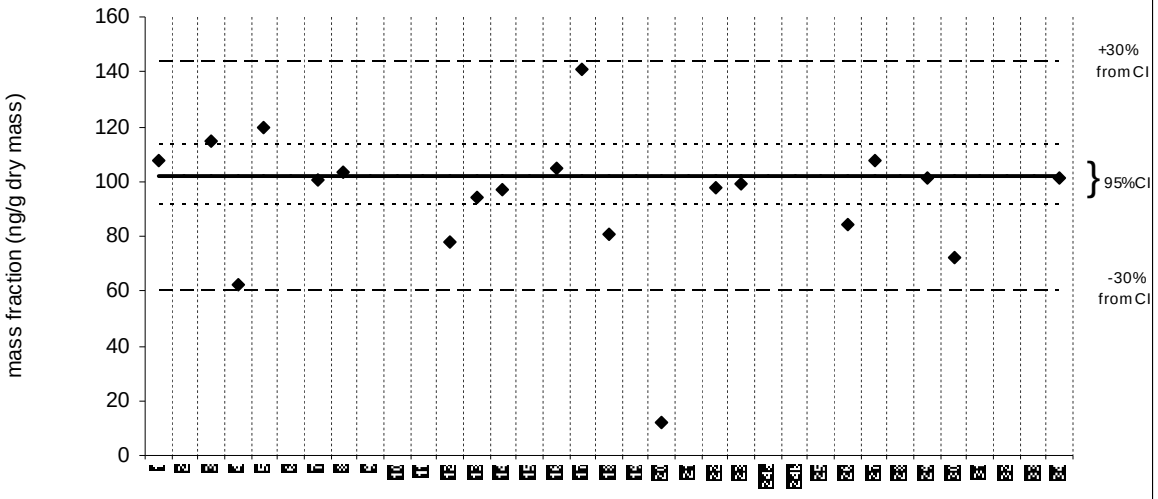
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

benzo[e]pyrene **SRM 1974b**

Certified Value = 102 ng/g dry mass ; 95% CI 11 ng/g dry mass: Median value = 100 ng/g dry mass

Reported Results: 23 Quantitative Results: 20



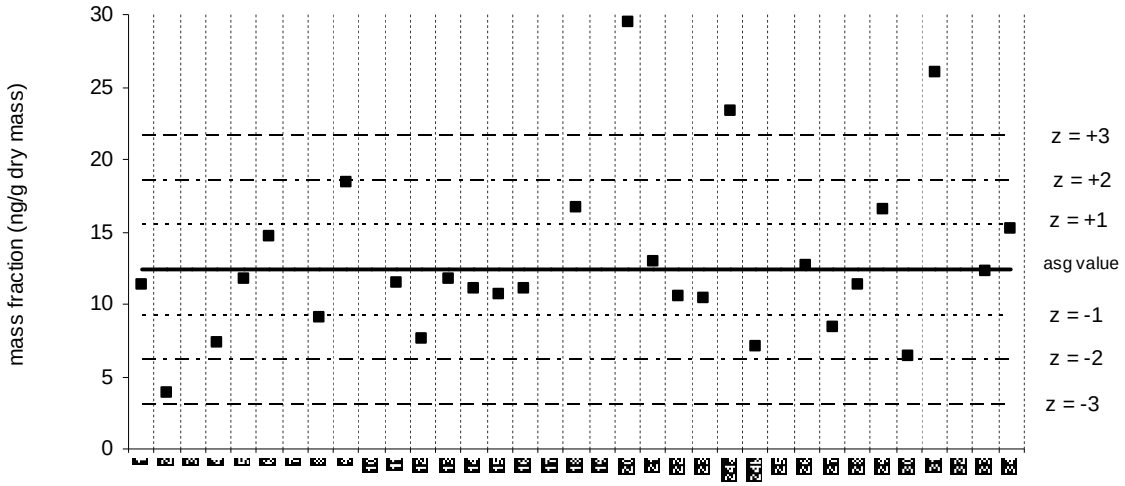
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

benzo[a]pyrene **QA10TIS01**

Assigned value = 12.3 ng/g dry mass s = 5.3 ng/g dry mass 95% CI = 2.0 ng/g dry mass Median value = 11.4 ng/g dry mass

Reported Results: 35 Quantitative Results: 28



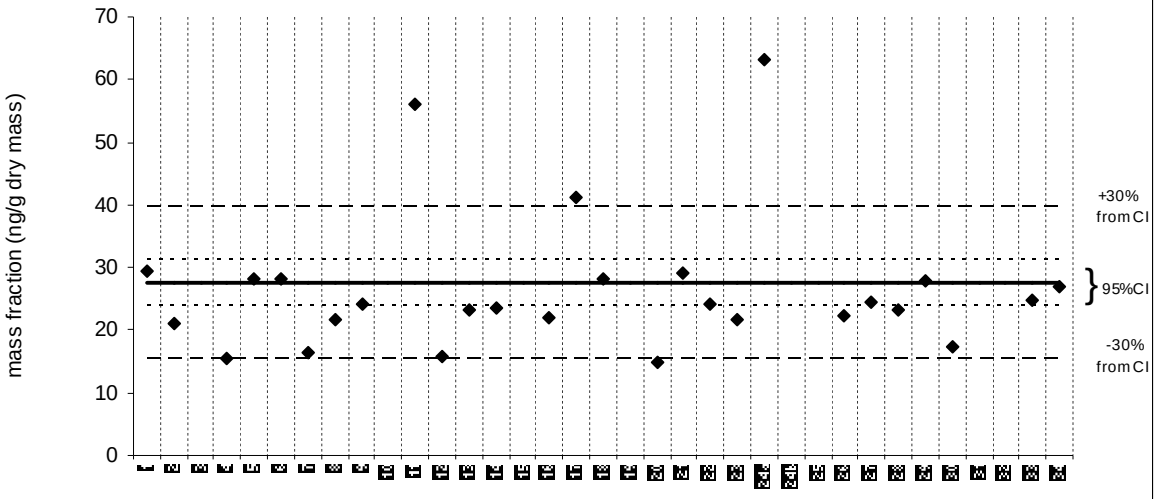
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

benzo[a]pyrene **SRM 1974b**

Certified Value = 27.6 ng/g dry mass ; 95% CI 3.8 ng/g dry mass: Median value = 24.2 ng/g dry mass

Reported Results: 31 Quantitative Results: 27

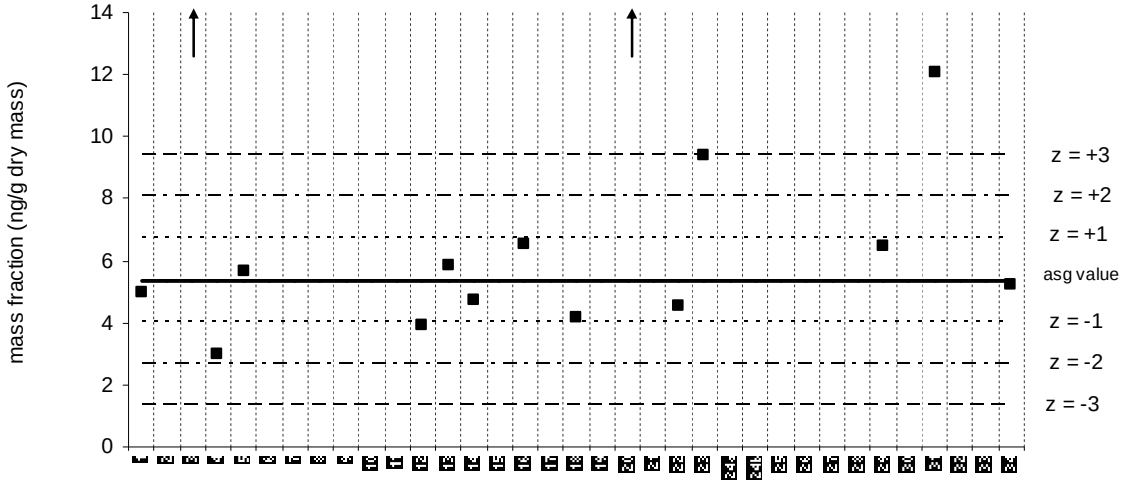


laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

perylene **QA10TIS01**

Assigned value = 5.38 ng/g dry mass s = 1.64 ng/g dry mass 95% CI = 0.93 ng/g dry mass
Median value = 5.68 ng/g dry mass
Reported Results: 25 Quantitative Results: 15

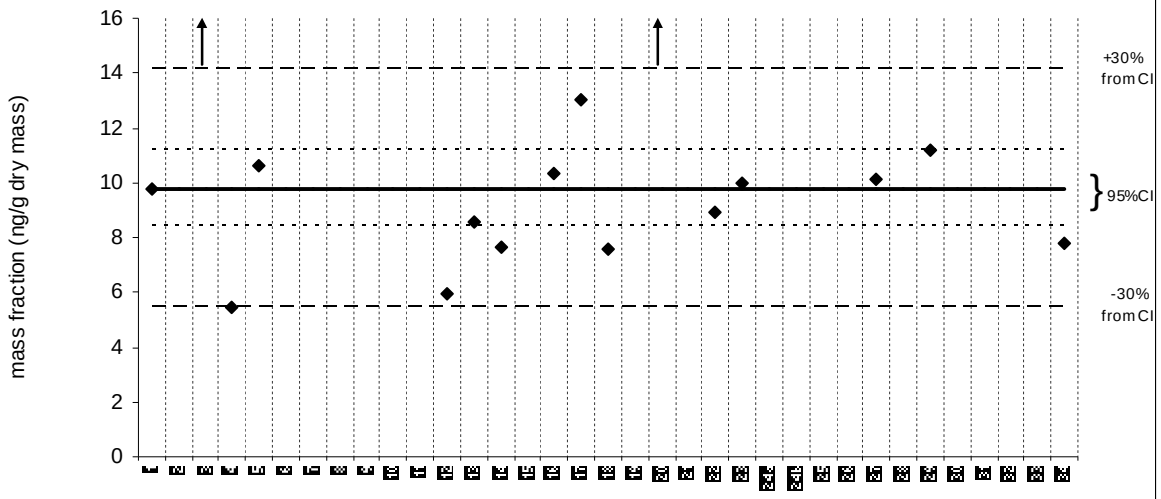


laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

perylene **SRM 1974b**

Certified Value = 9.8 ng/g dry mass ; 95% CI 1.4 ng/g dry mass: Median value = 9.85 ng/g dry mass
Reported Results: 22 Quantitative Results: 16

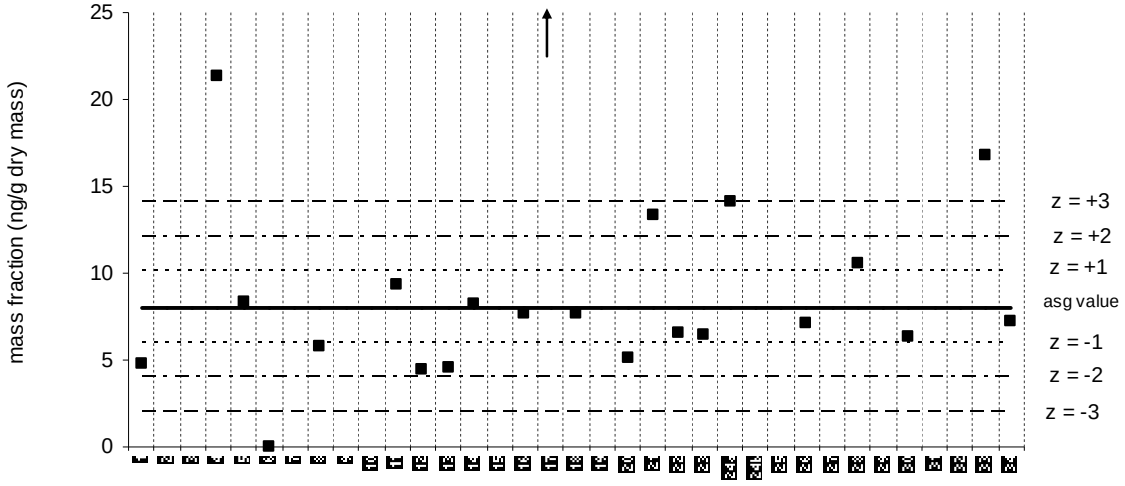


laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

indeno[1,2,3-cd]pyrene **QA10TIS01**

Assigned value = 8.05 ng/g dry mass s = 4.00 ng/g dry mass 95% CI = 1.85 ng/g dry mass
Median value = 7.45 ng/g dry mass
Reported Results: 32 Quantitative Results: 22

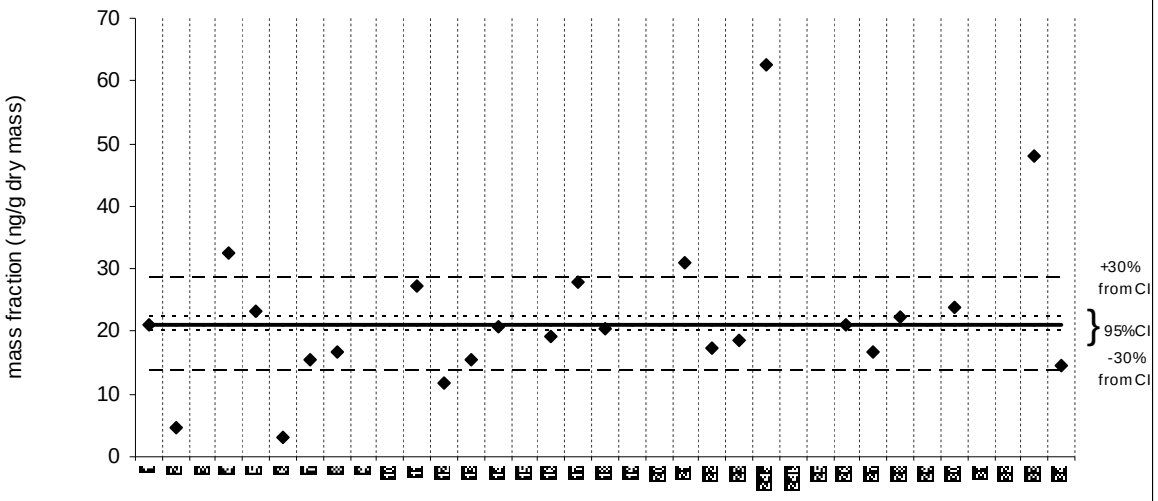


laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

indeno[1,2,3-cd]pyrene **SRM 1974b**

Certified Value = 21.1 ng/g dry mass ; 95% CI 1.1 ng/g dry mass: Median value = 20.6 ng/g dry mass
Reported Results: 30 Quantitative Results: 24

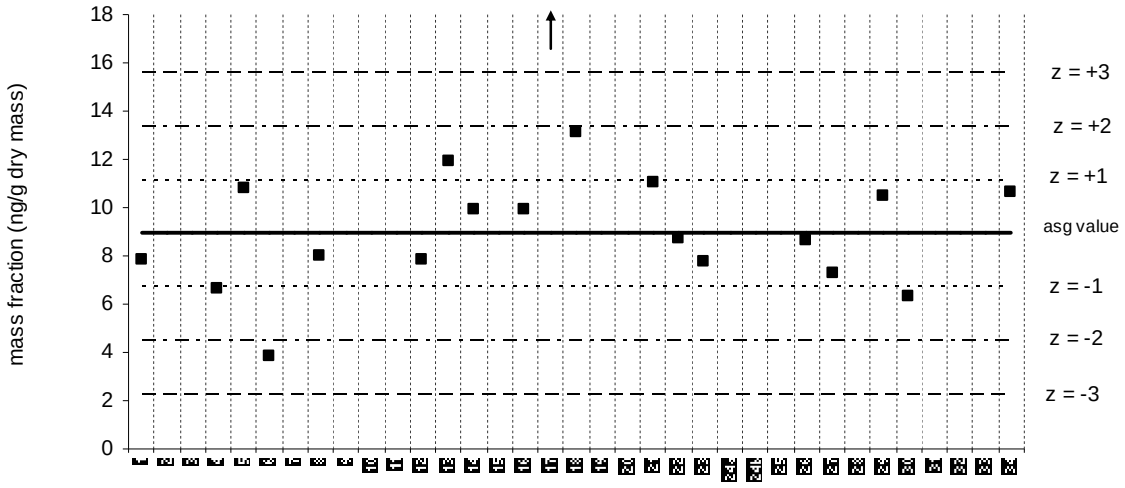


laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

benzo[ghi]perylene **QA10TIS01**

Assigned value = 8.92 ng/g dry mass s = 2.25 ng/g dry mass 95% CI = 1.04 ng/g dry mass
Median value = 8.75 ng/g dry mass
Reported Results: 29 Quantitative Results: 19

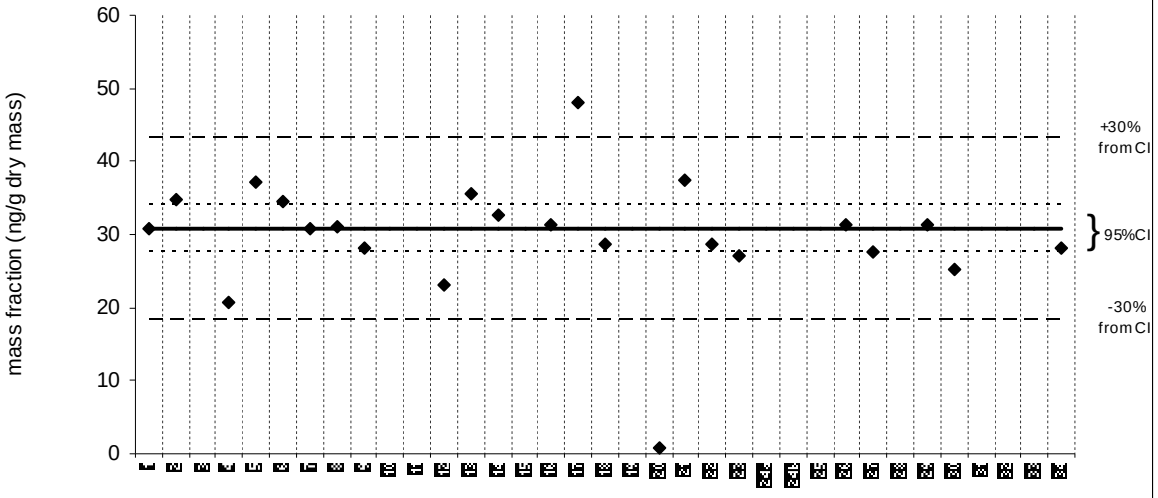


laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

benzo[ghi]perylene **SRM 1974b**

Certified Value = 30.8 ng/g dry mass ; 95% CI 3.3 ng/g dry mass: Median value = 30.9 ng/g dry mass
Reported Results: 27 Quantitative Results: 23

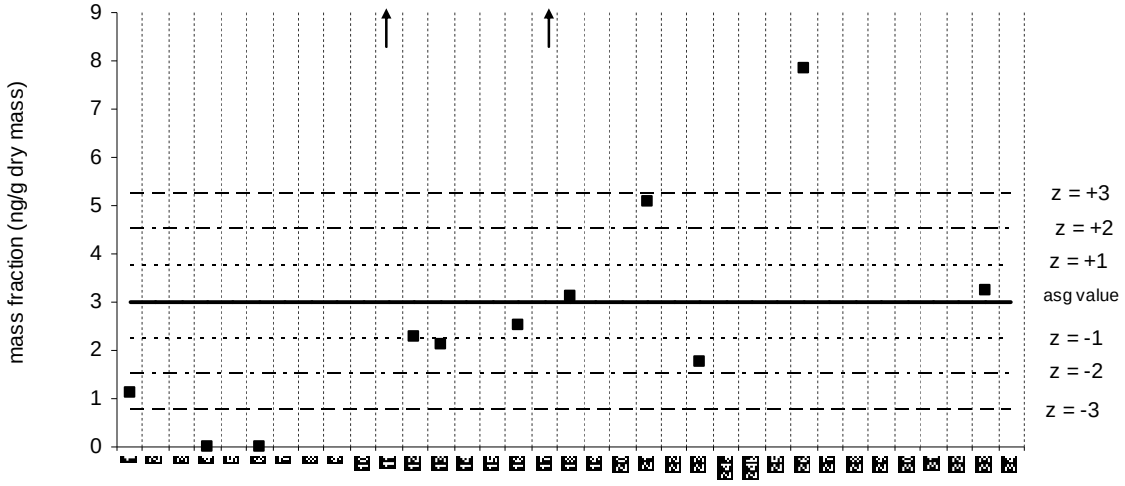


laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

dibenz[a,h]anthracene **QA10TIS01**

Assigned value = 3.00 ng/g dry mass s = 2.07 ng/g dry mass 95% CI = 1.43 ng/g dry mass
Median value = 2.54 ng/g dry mass
Reported Results: 28 Quantitative Results: 13

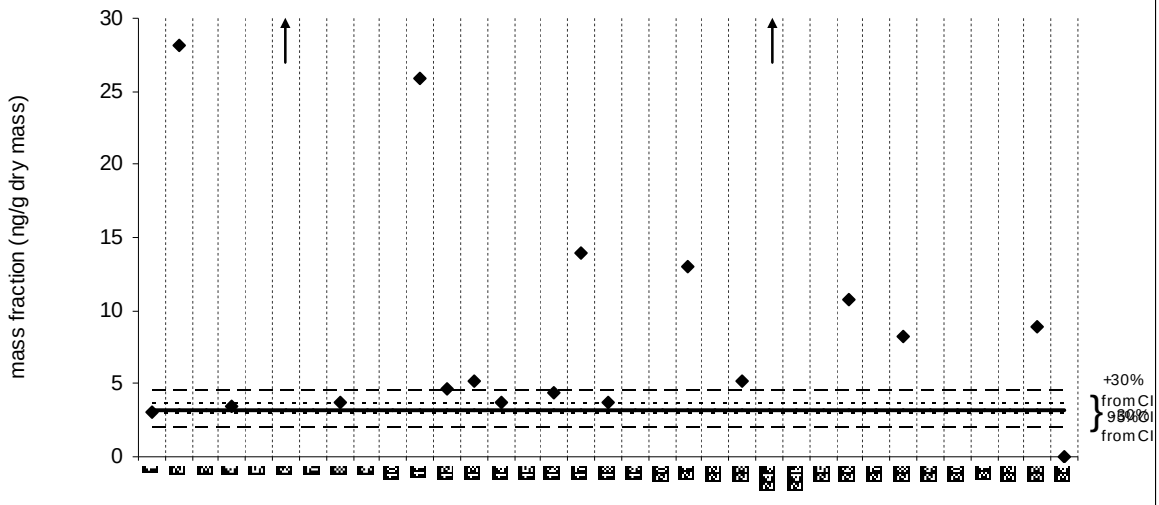


laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

dibenz[a,h]anthracene **SRM 1974b**

Certified Value = 3.23 ng/g dry mass ; 95% CI 0.31 ng/g dry mass: Median value = 6.75 ng/g dry mass
Reported Results: 27 Quantitative Results: 18

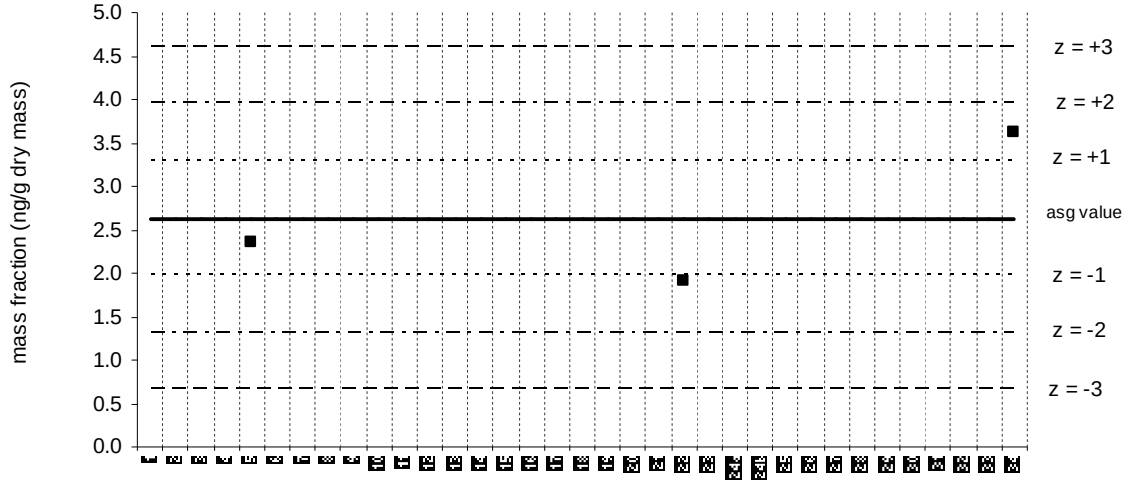


laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

dibenz[a,h+a,c]anthracene **QA10TIS01**

Assigned value = 2.63 ng/g dry mass s = 0.89 ng/g dry mass 95% CI = 1.01 ng/g dry mass
Median value = 2.35 ng/g dry mass
Reported Results: 3 Quantitative Results: 3

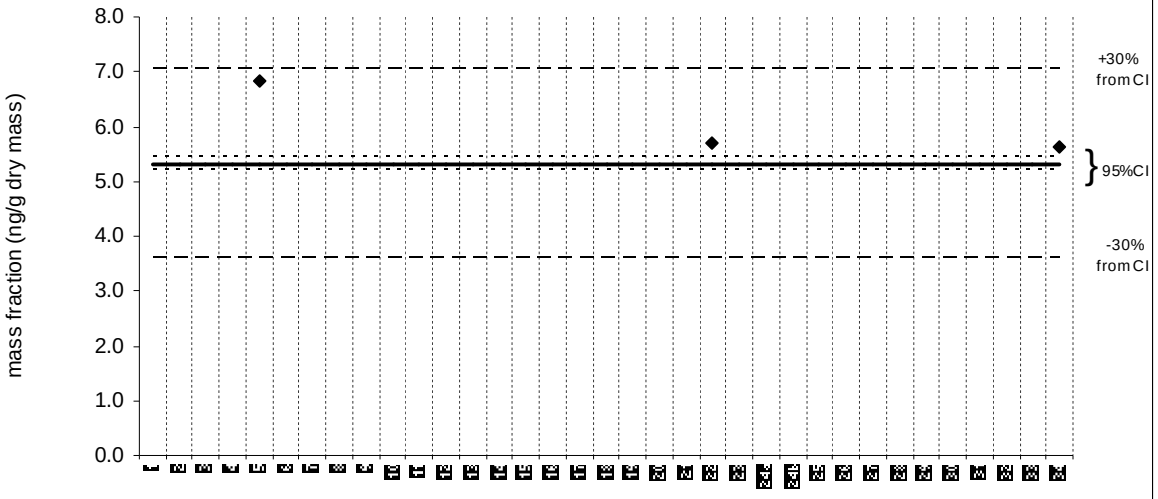


laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

dibenz[a,h+a,c]anthracene **SRM 1974b**

Target Value = 5.32 ng/g dry mass ; 95% CI 0.13 ng/g dry mass: Median value = 5.70 ng/g dry mass
Reported Results: 3 Quantitative Results: 3



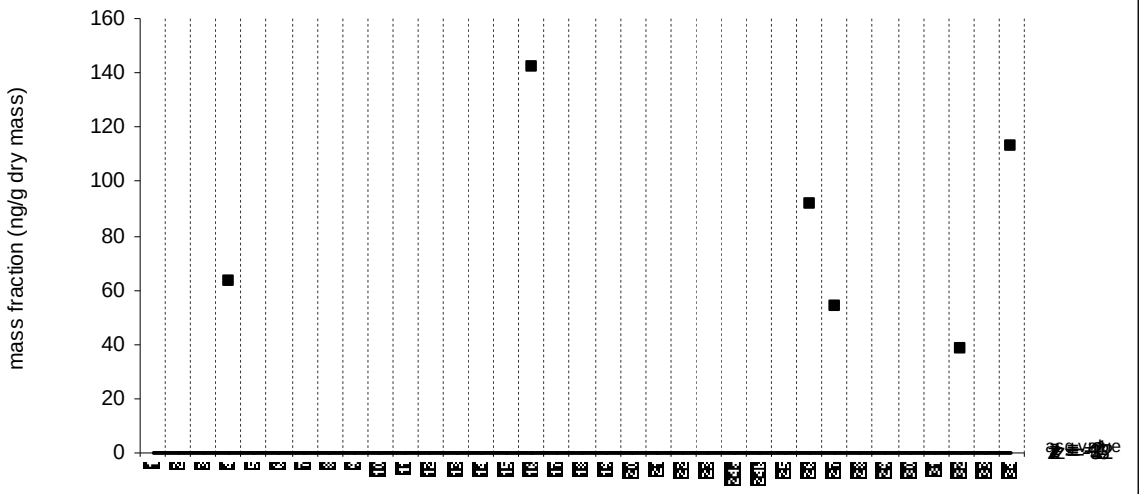
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

cis/trans-decalin **QA10TIS01**

Assigned value = No Target ng/g (dry mass) Median value = 77.6 ng/g dry mass

Reported Results: 8 Quantitative Results: 6



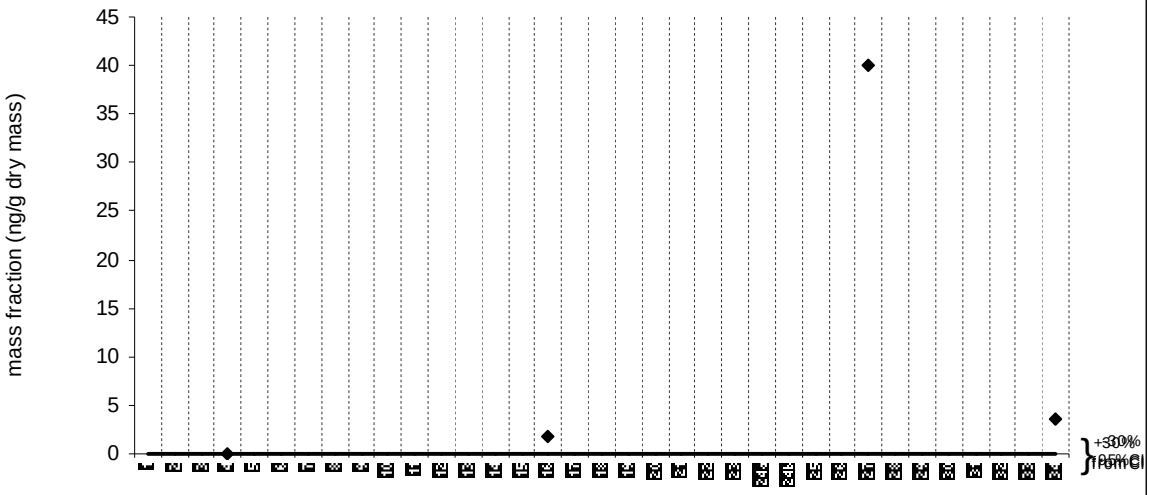
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

cis/trans-decalin **SRM 1974b**

Target Value = no target ng/g (dry mass): Median value = 2.72 ng/g dry mass

Reported Results: 7 Quantitative Results: 4



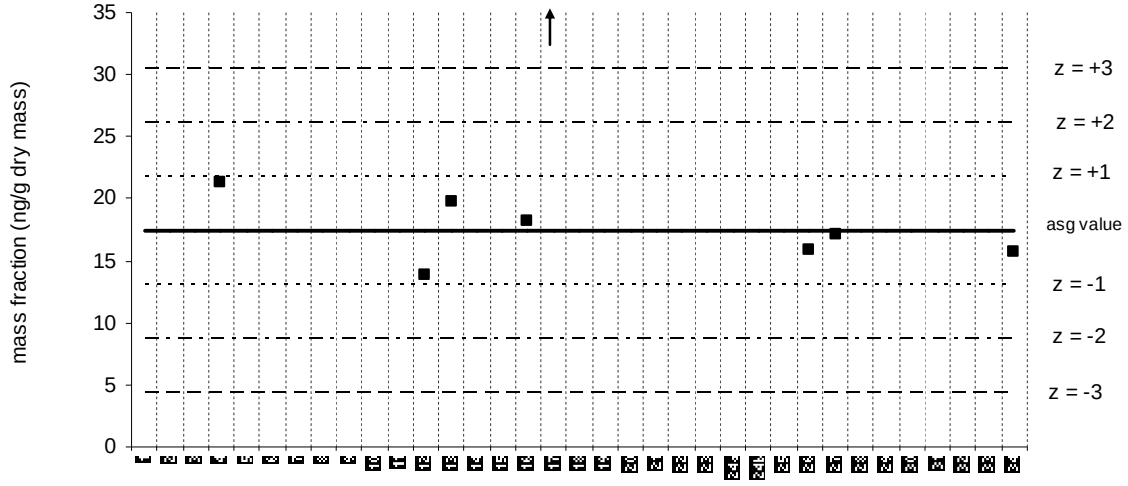
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

dibenzofuran **QA10TIS01**

Assigned value = 17.4 ng/g dry mass s = 2.6 ng/g dry mass 95% CI = 1.9 ng/g dry mass Median value = 17.7 ng/g dry mass

Reported Results: 15 Quantitative Results: 8



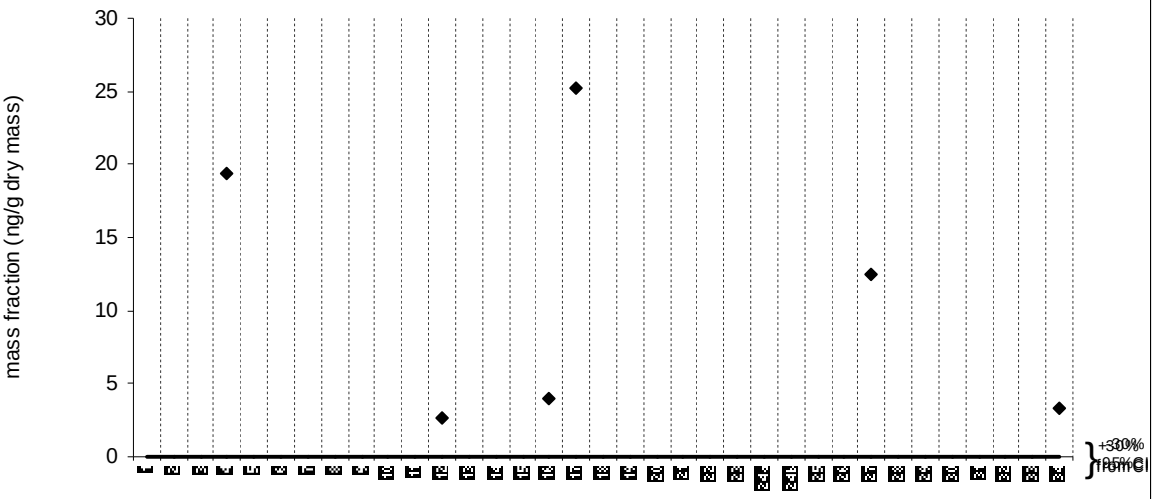
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

dibenzofuran **SRM 1974b**

Target Value = no target ng/g (dry mass): Median value = 8.20 ng/g dry mass

Reported Results: 14 Quantitative Results: 6

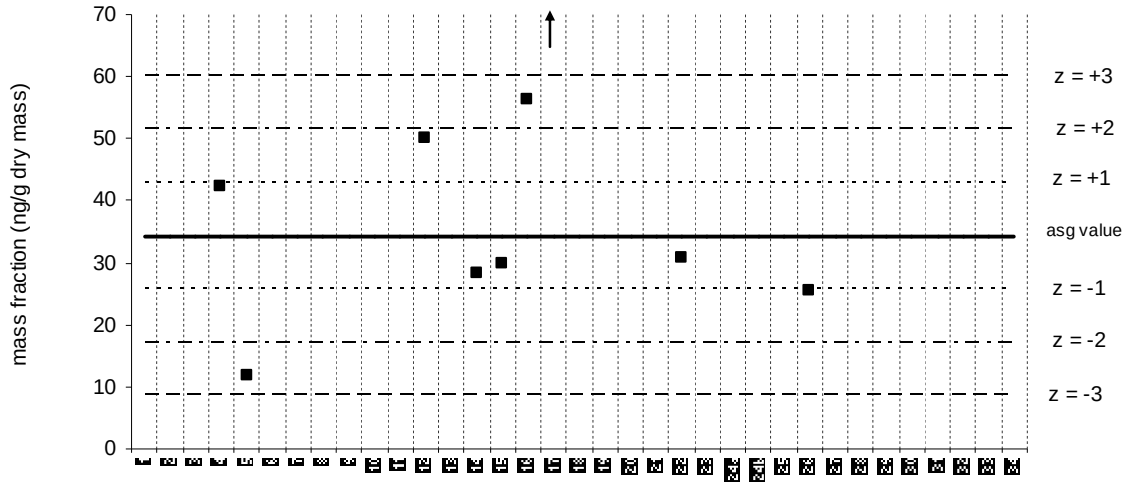


laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

retene **QA10TIS01**

Assigned value = 34.4 ng/g dry mass s = 14.4 ng/g dry mass 95% CI = 10.0 ng/g dry mass
Median value = 30.7 ng/g dry mass
Reported Results: 12 Quantitative Results: 9

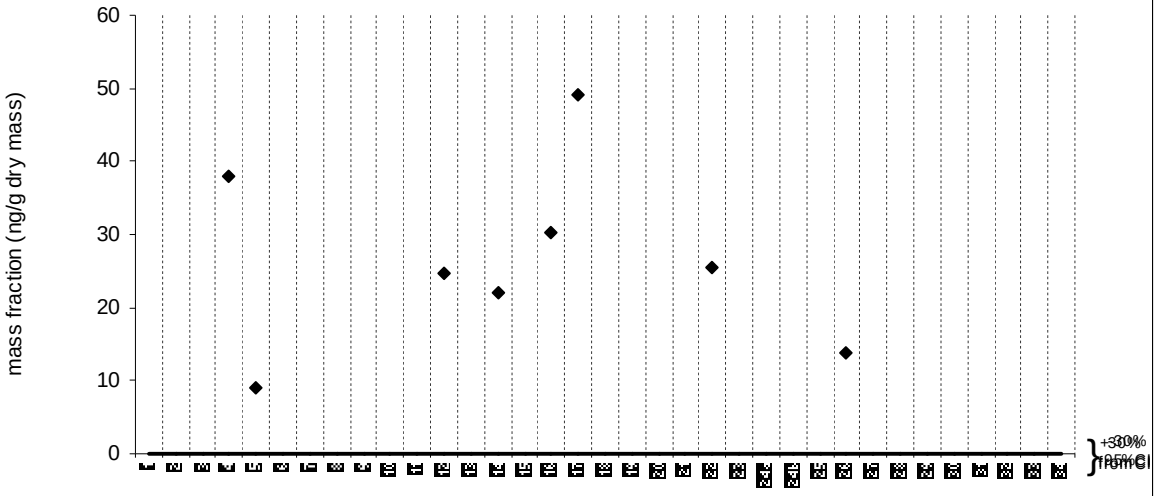


laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

retene **SRM 1974b**

Target Value = no target ng/g (dry mass): Median value = 25.2 ng/g dry mass
Reported Results: 10 Quantitative Results: 8



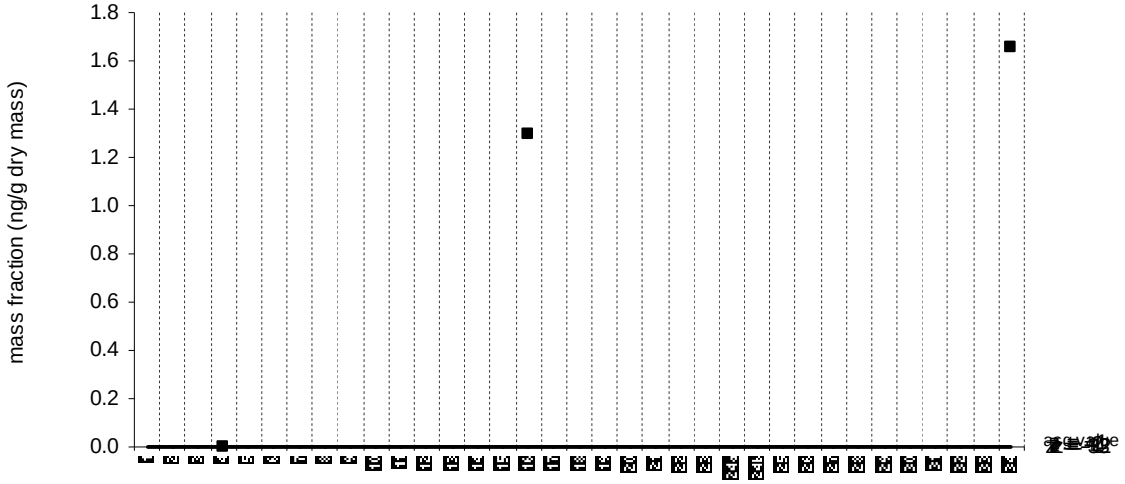
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

benzothiophene **QA10TIS01**

Assigned value = No Target ng/g (dry mass) Median value = 1.30 ng/g dry mass

Reported Results: 10 Quantitative Results: 3



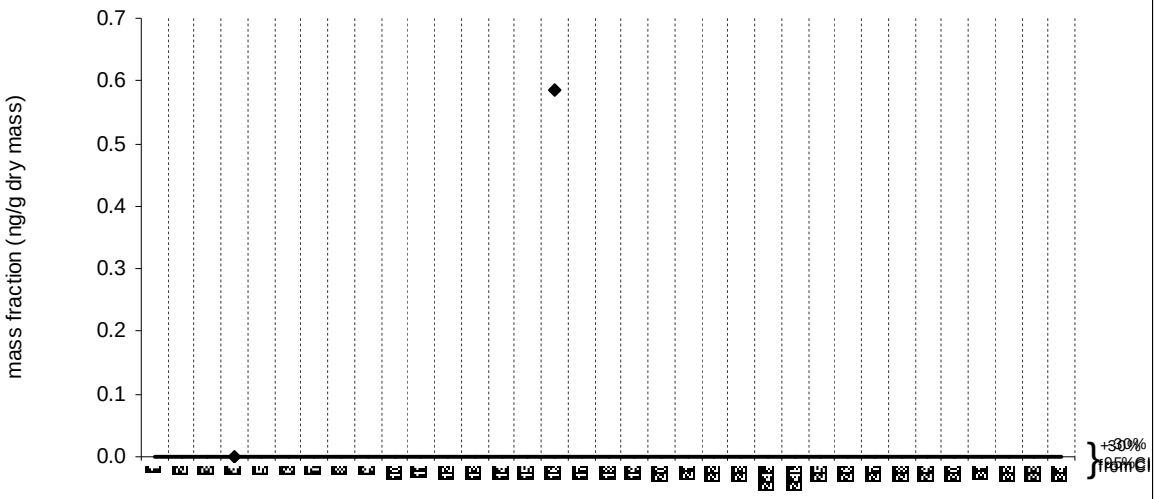
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

benzothiophene **SRM 1974b**

Target Value = no target ng/g (dry mass): Median value = 0.29 ng/g dry mass

Reported Results: 8 Quantitative Results: 2



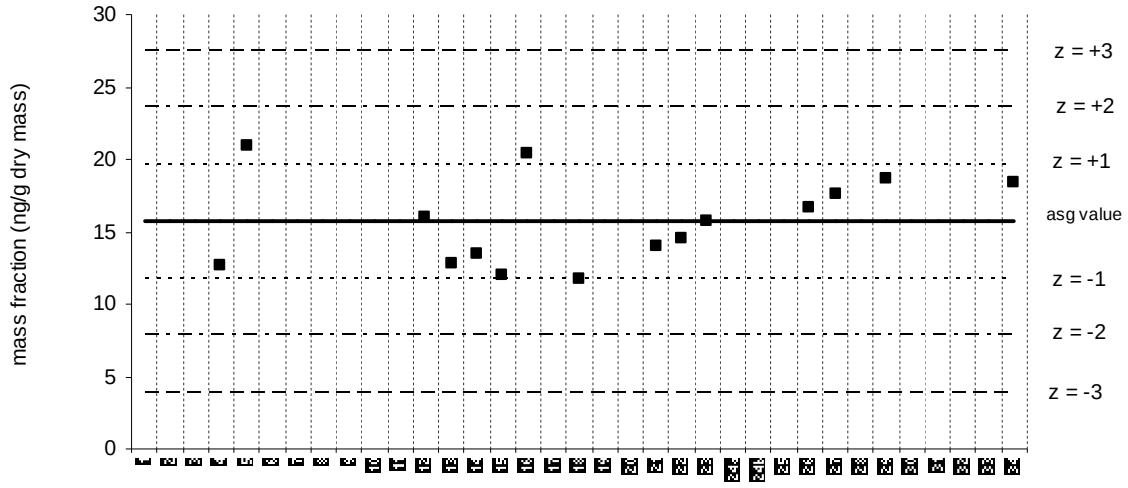
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

dibenzothiophene **QA10TIS01**

Assigned value = 15.7 ng/g dry mass s = 3.0 ng/g dry mass 95% CI = 1.5 ng/g dry mass Median value = 15.8 ng/g dry mass

Reported Results: 26 Quantitative Results: 15



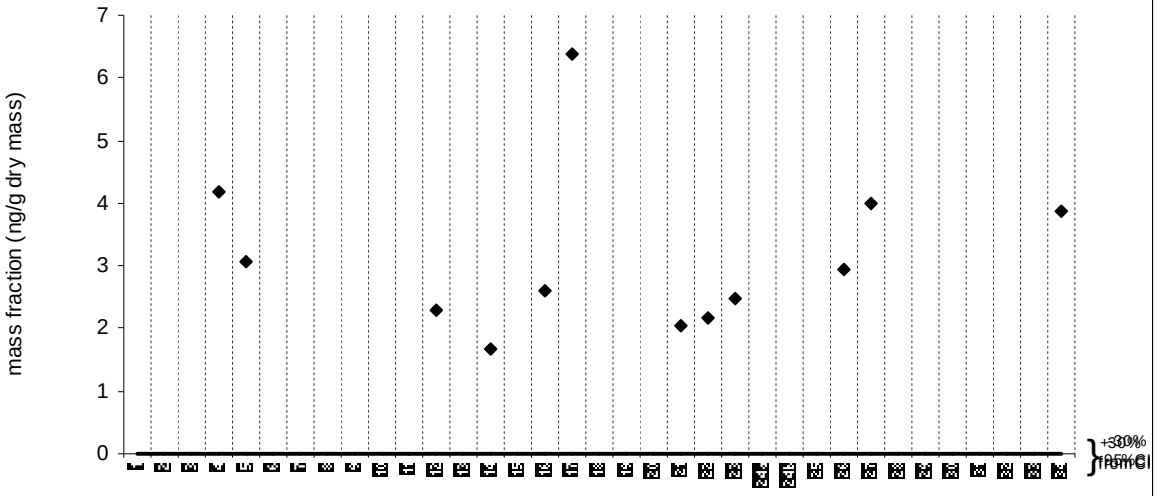
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

dibenzothiophene **SRM 1974b**

Target Value = no target ng/g (dry mass): Median value = 2.76 ng/g dry mass

Reported Results: 21 Quantitative Results: 12



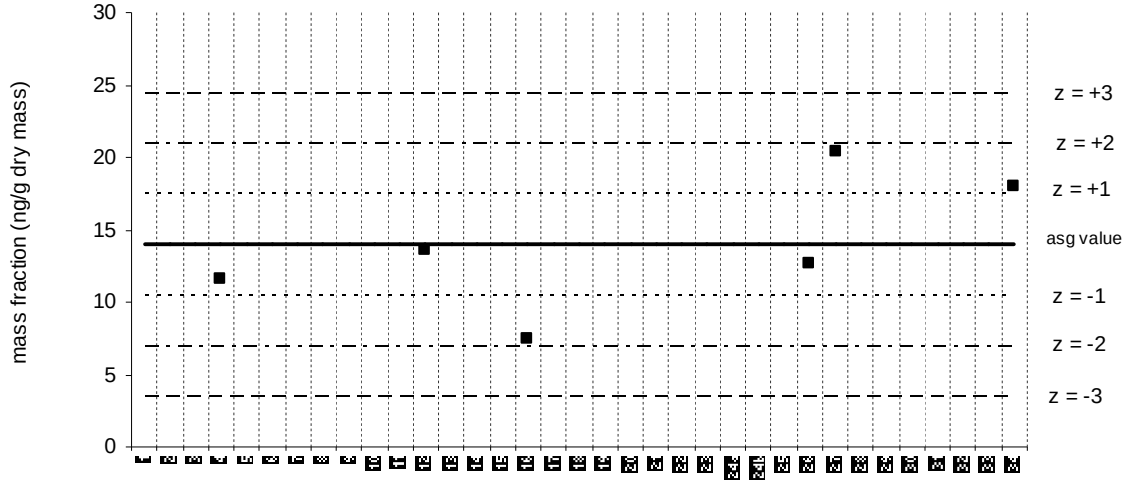
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

naphthobenzothiophene **QA10TIS01**

Assigned value = 14.0 ng/g dry mass s = 4.6 ng/g dry mass 95% CI = 3.7 ng/g dry mass Median value = 13.1 ng/g dry mass

Reported Results: 8 Quantitative Results: 6



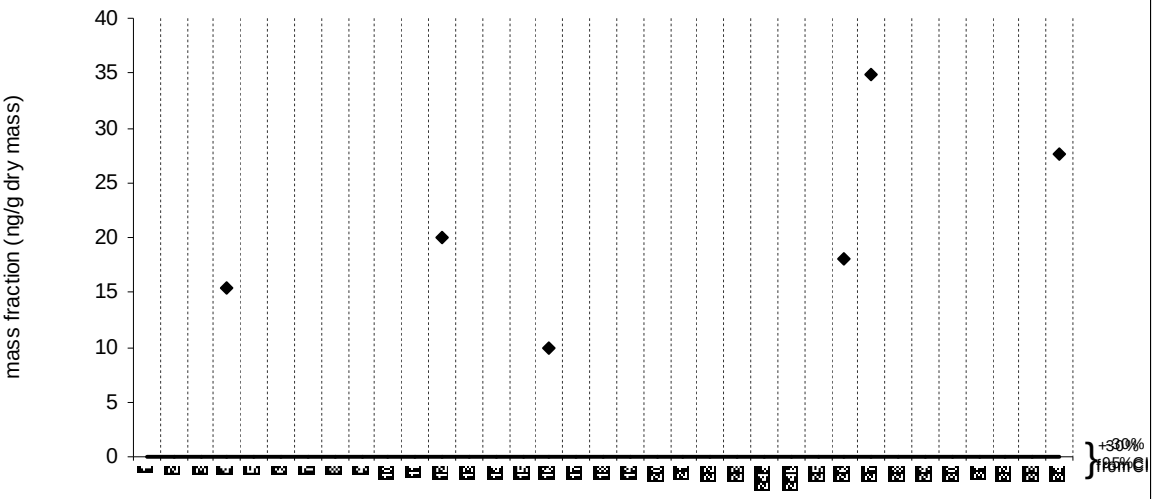
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

naphthobenzothiophene **SRM 1974b**

Target Value = no target ng/g (dry mass): Median value = 19.0 ng/g dry mass

Reported Results: 7 Quantitative Results: 6

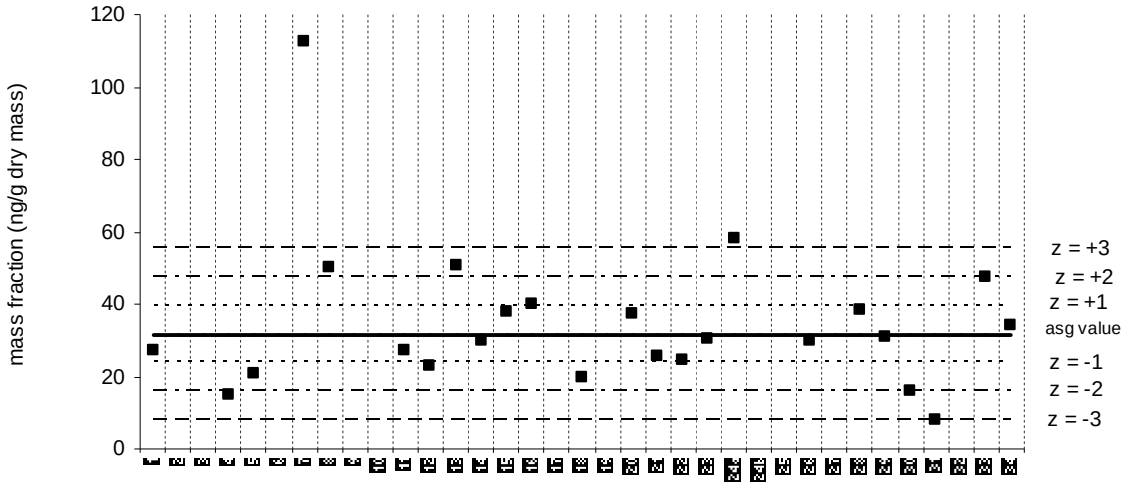


laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

1-methylnaphthalene **QA10TIS01**

Assigned value = 31.7 ng/g dry mass s = 11.1 ng/g dry mass 95% CI = 4.8 ng/g dry mass
Median value = 30.1 ng/g dry mass
Reported Results: 31 Quantitative Results: 24

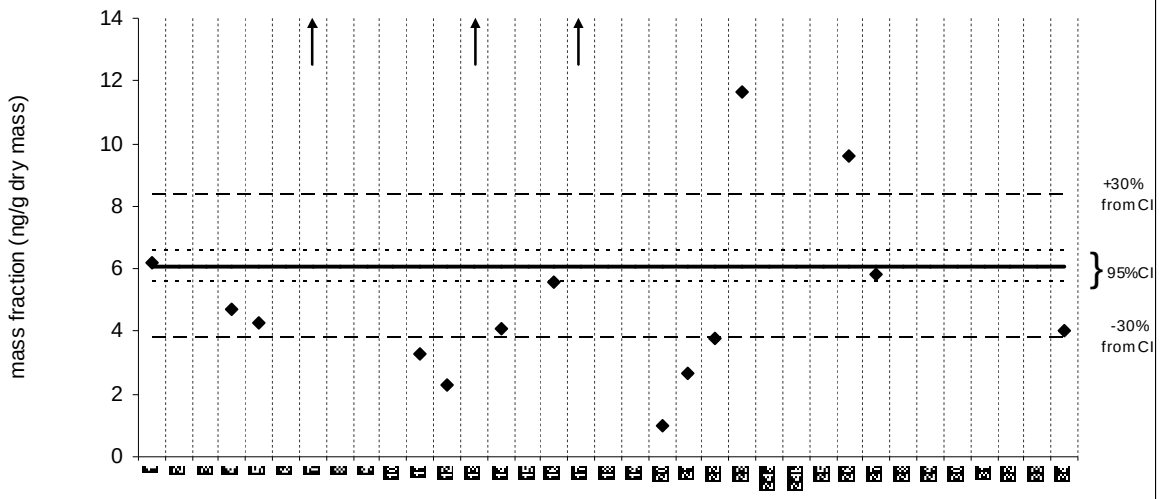


laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

1-methylnaphthalene **SRM 1974b**

Reference Value = 6.06 ng/g dry mass ; 95% CI 0.49 ng/g dry mass: Median value = 4.73 ng/g dry mass
Reported Results: 22 Quantitative Results: 17

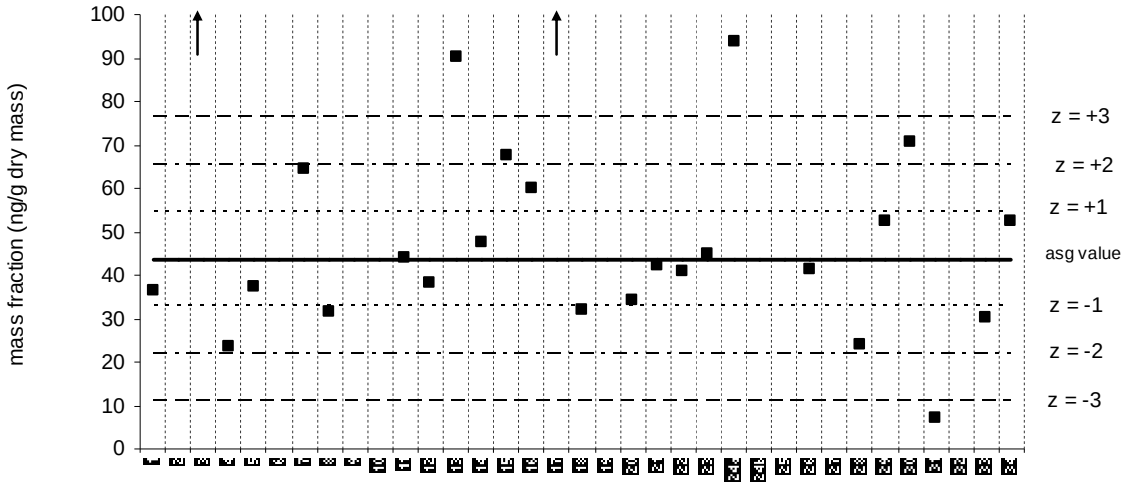


laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

2-methylnaphthalene — QA10TIS01

Assigned value = 43.6 ng/g dry mass s = 15.3 ng/g dry mass 95% CI = 6.6 ng/g dry mass
Median value = 43.1 ng/g dry mass
Reported Results: 31 Quantitative Results: 26

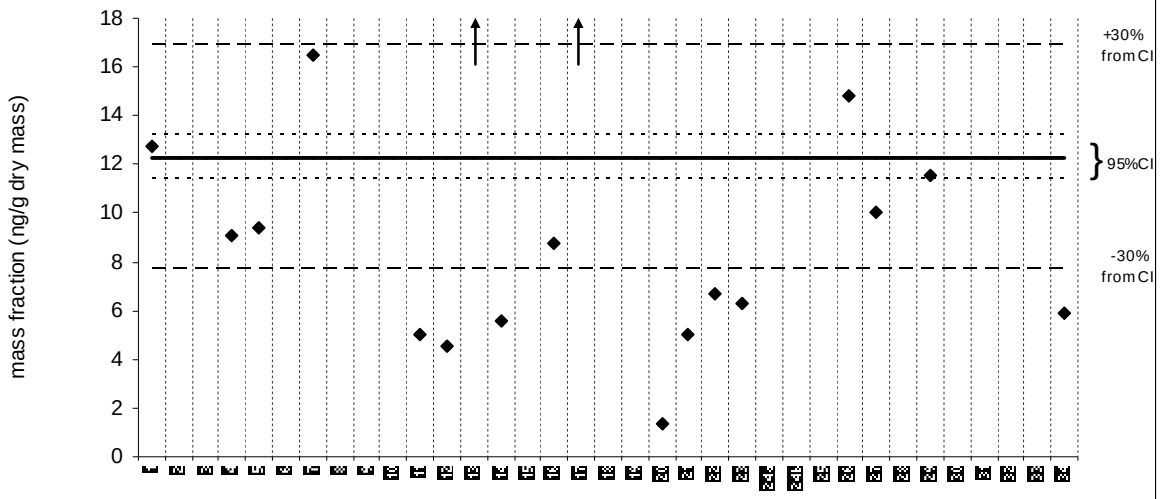


laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

2-methylnaphthalene — SRM 1974b

Reference Value = 12.3 ng/g dry mass ; 95% CI 0.9 ng/g dry mass: Median value = 8.93 ng/g dry mass
Reported Results: 22 Quantitative Results: 18

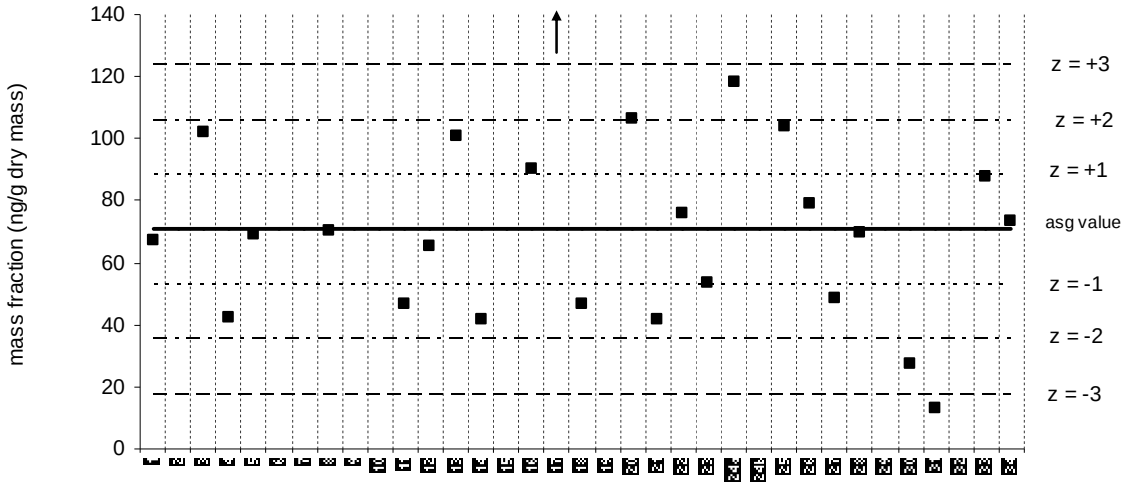


laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

2,6-dimethylnaphthalene — QA10TIS01

Assigned value = 70.7 ng/g dry mass s = 24.9 ng/g dry mass 95% CI = 10.2 ng/g dry mass
Median value = 69.7 ng/g dry mass
Reported Results: 27 Quantitative Results: 25

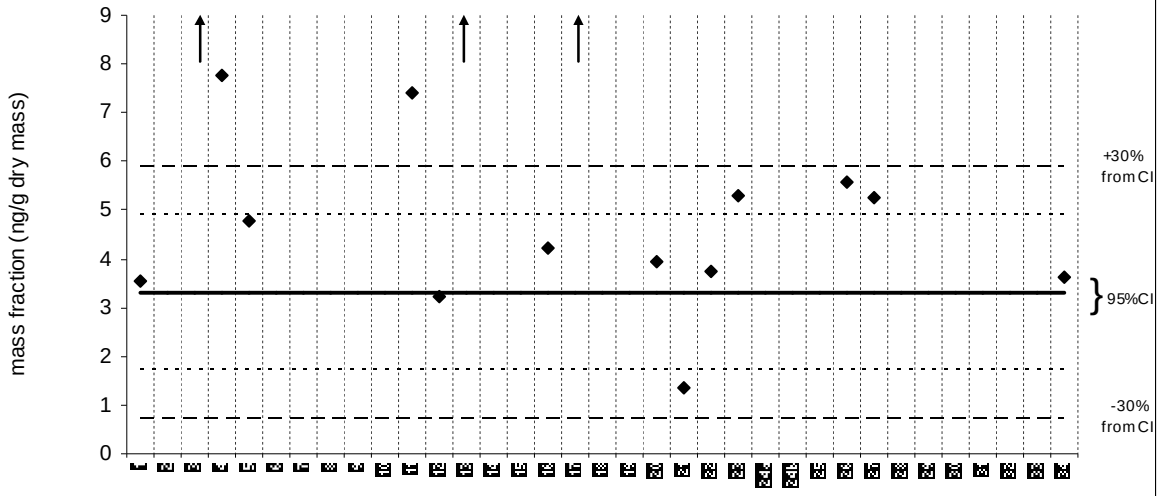


laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

2,6-dimethylnaphthalene — SRM 1974b

Reference Value = 3.3 ng/g dry mass ; 95% CI 1.6 ng/g dry mass: Median value = 5.02 ng/g dry mass
Reported Results: 20 Quantitative Results: 16

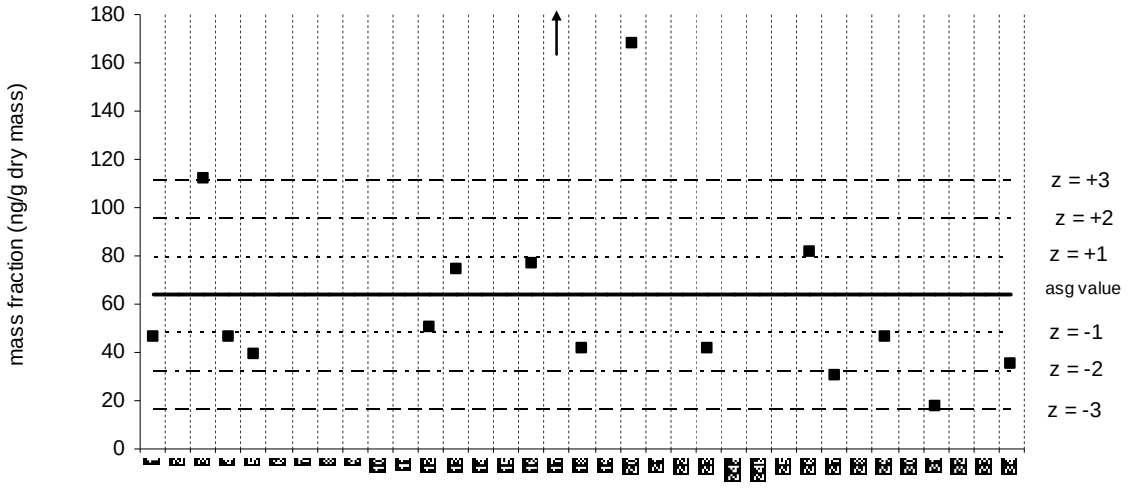


laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

1,6,7-trimethylnaphthalene **QA10TIS01**

Assigned value = 63.6 ng/g dry mass s = 37.6 ng/g dry mass 95% CI = 19.7 ng/g dry mass
Median value = 46.4 ng/g dry mass
Reported Results: 19 Quantitative Results: 16

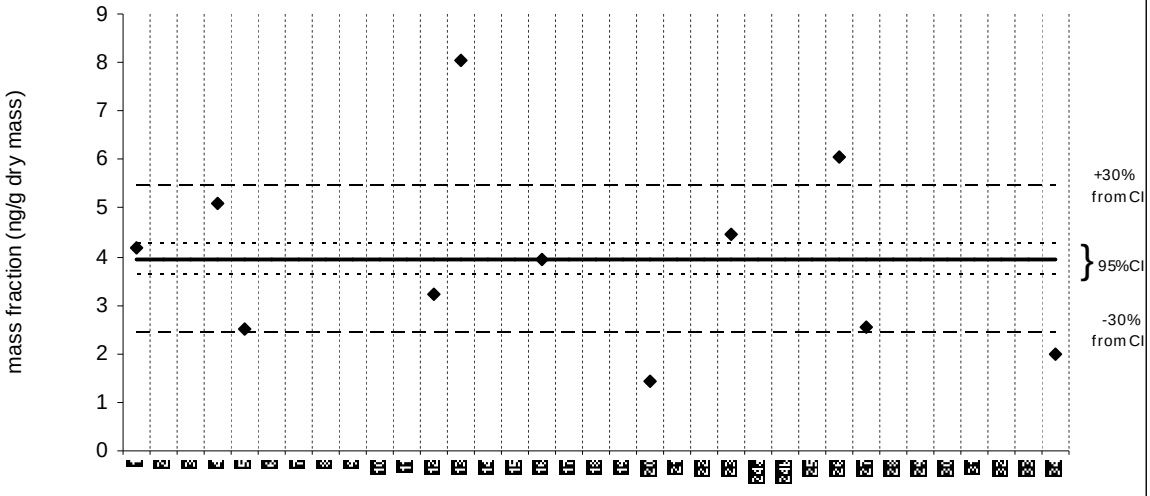


laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

1,6,7-trimethylnaphthalene **SRM 1974b**

Reference Value = 3.95 ng/g dry mass ; 95% CI 0.32 ng/g dry mass: Median value = 3.95 ng/g dry mass
Reported Results: 16 Quantitative Results: 11

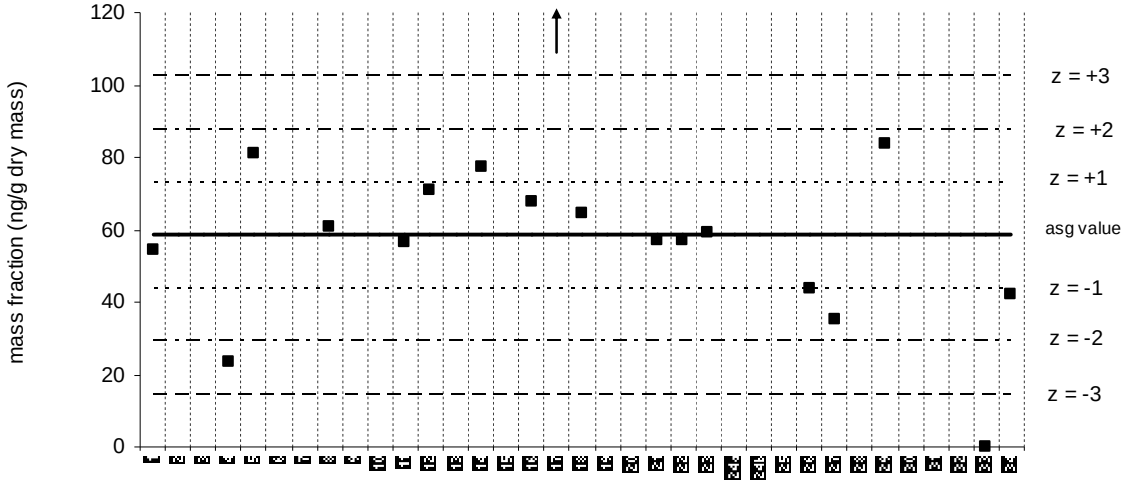


laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

1-methylphenanthrene **QA10TIS01**

Assigned value = 58.5 ng/g dry mass s = 16.4 ng/g dry mass 95% CI = 8.0 ng/g dry mass
Median value = 58.3 ng/g dry mass
Reported Results: 25 Quantitative Results: 18

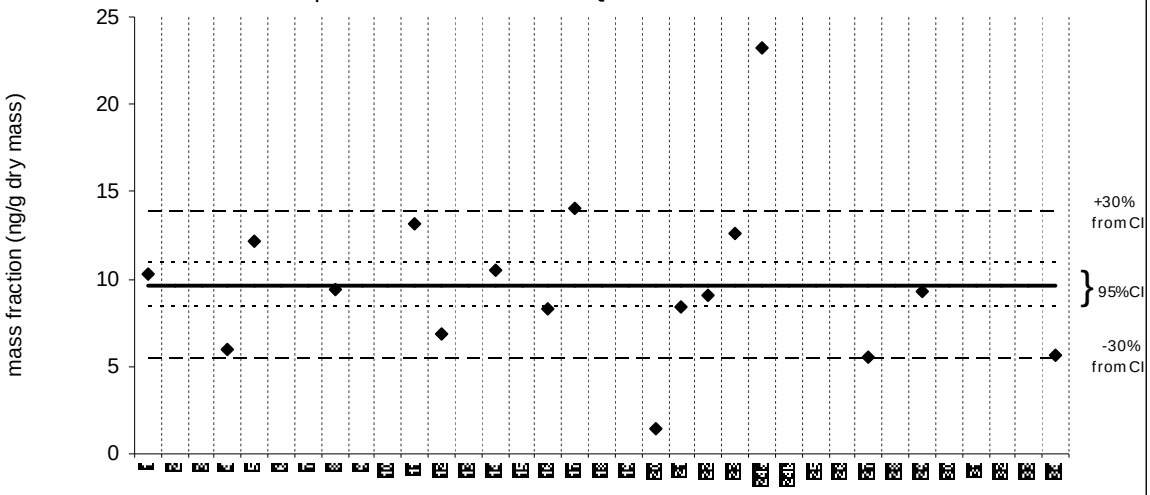


laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

1-methylphenanthrene **SRM 1974b**

Certified Value = 9.66 ng/g dry mass ; 95% CI 1.30 ng/g dry mass: Median value = 9.32 ng/g dry mass
Reported Results: 22 Quantitative Results: 17

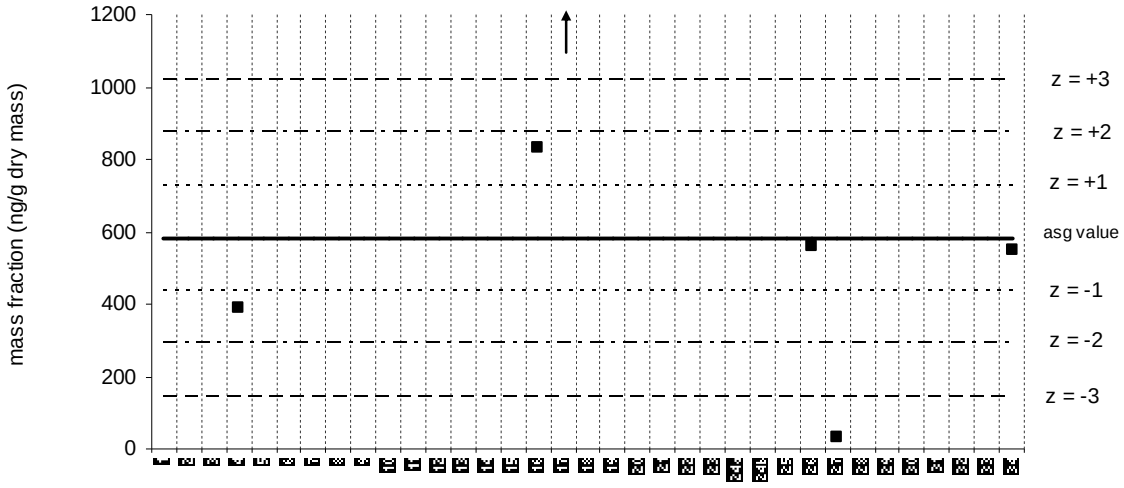


laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C1-decalins **QA10TIS01**

Assigned value = 582 ng/g dry mass s = 183 ng/g dry mass 95% CI = 179 ng/g dry mass
Median value = 554 ng/g dry mass
Reported Results: 7 Quantitative Results: 6



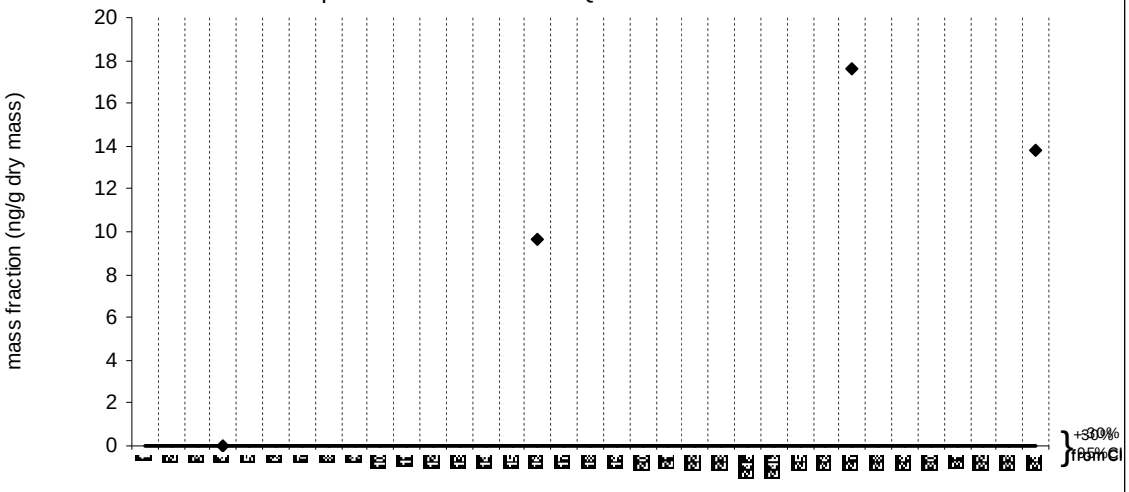
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C1-decalins **SRM 1974b**

Target Value = no target ng/g (dry mass): Median value = 11.7 ng/g dry mass

Reported Results: 7 Quantitative Results: 4

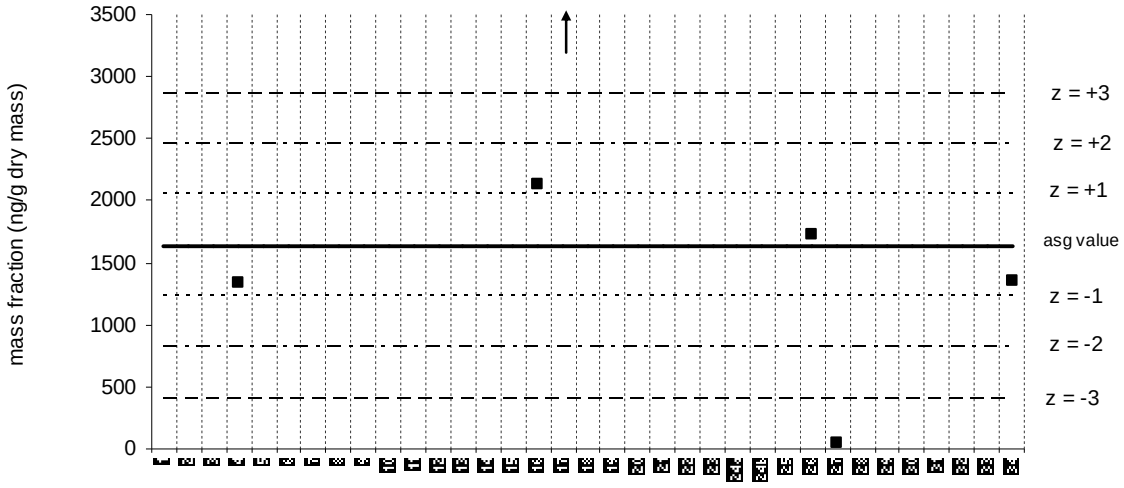


laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C2-decalins **QA10TIS01**

Assigned value = 1639 ng/g dry mass s = 379 ng/g dry mass 95% CI = 372 ng/g dry mass
Median value = 1543 ng/g dry mass
Reported Results: 8 Quantitative Results: 6



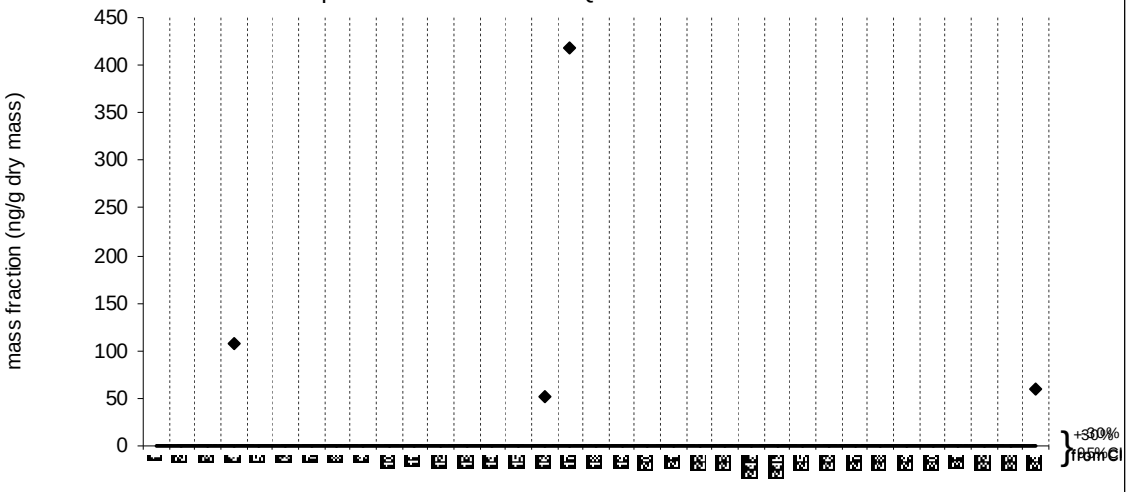
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C2-decalins **SRM 1974b**

Target Value = no target ng/g (dry mass): Median value = 82.9 ng/g dry mass

Reported Results: 8 Quantitative Results: 4

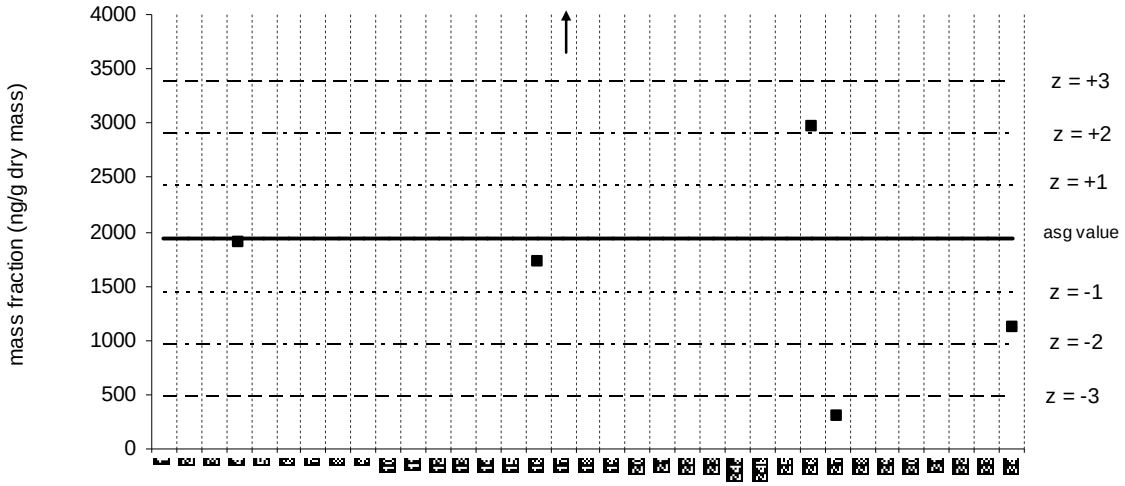


laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C3-decalins **QA10TIS01**

Assigned value = 1930 ng/g dry mass s = 766 ng/g dry mass 95% CI = 751 ng/g dry mass
Median value = 1813 ng/g dry mass
Reported Results: 8 Quantitative Results: 6



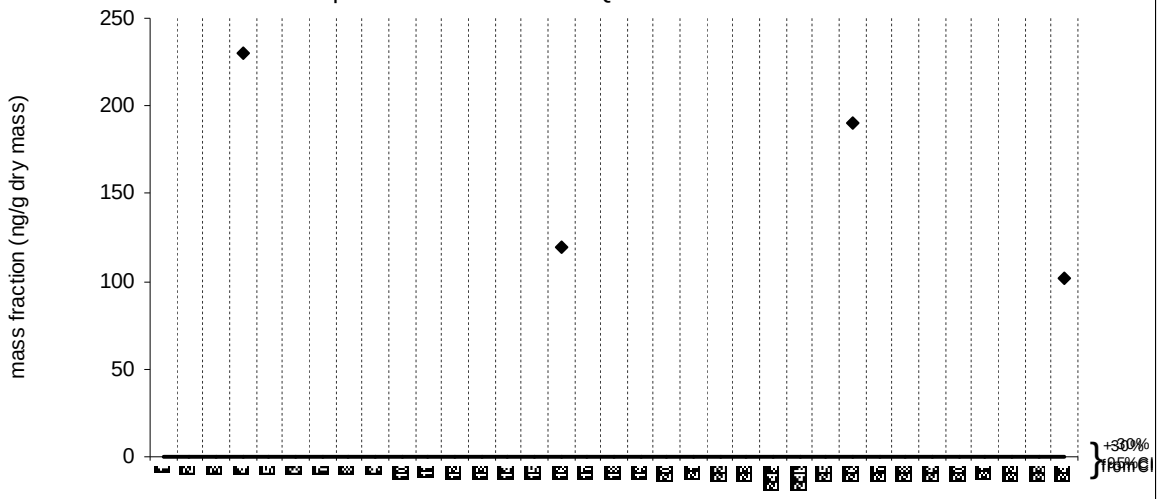
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C3-decalins **SRM 1974b**

Target Value = no target ng/g (dry mass): Median value = 155 ng/g dry mass

Reported Results: 8 Quantitative Results: 4

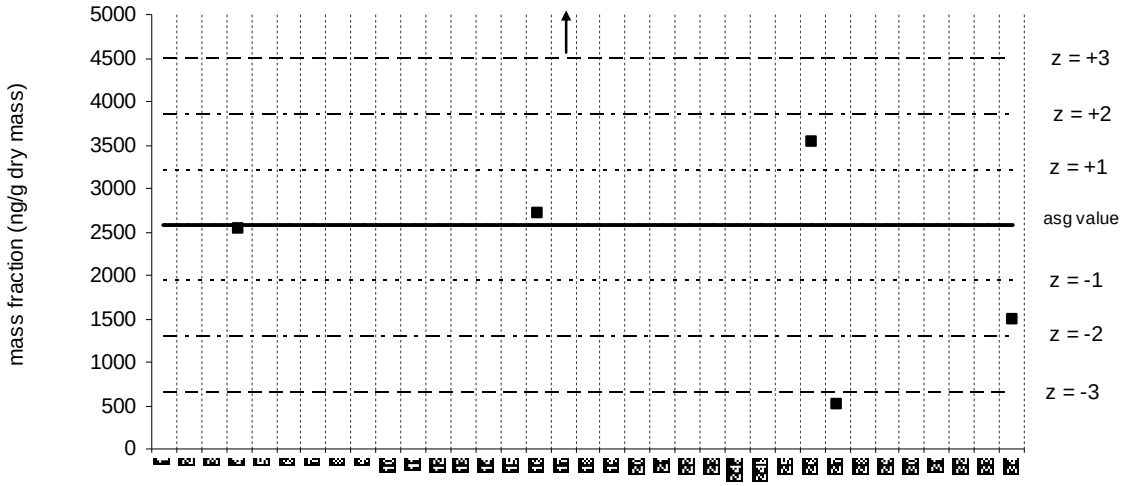


laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C4-decalins **QA10TIS01**

Assigned value = 2567 ng/g dry mass s = 838 ng/g dry mass 95% CI = 821 ng/g dry mass
Median value = 2620 ng/g dry mass
Reported Results: 8 Quantitative Results: 6



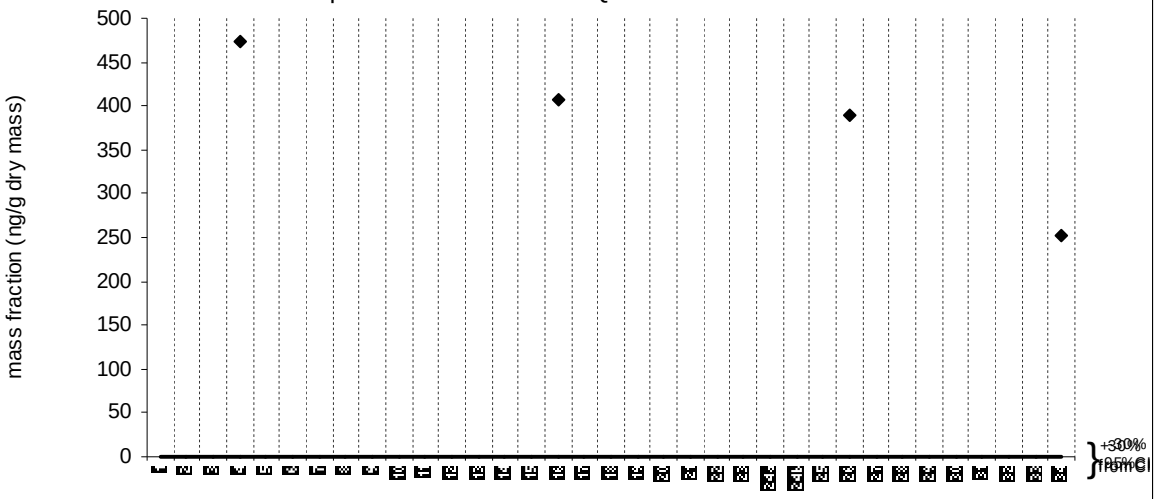
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C4-decalins **SRM 1974b**

Target Value = no target ng/g (dry mass): Median value = 398.8 ng/g dry mass

Reported Results: 8 Quantitative Results: 4

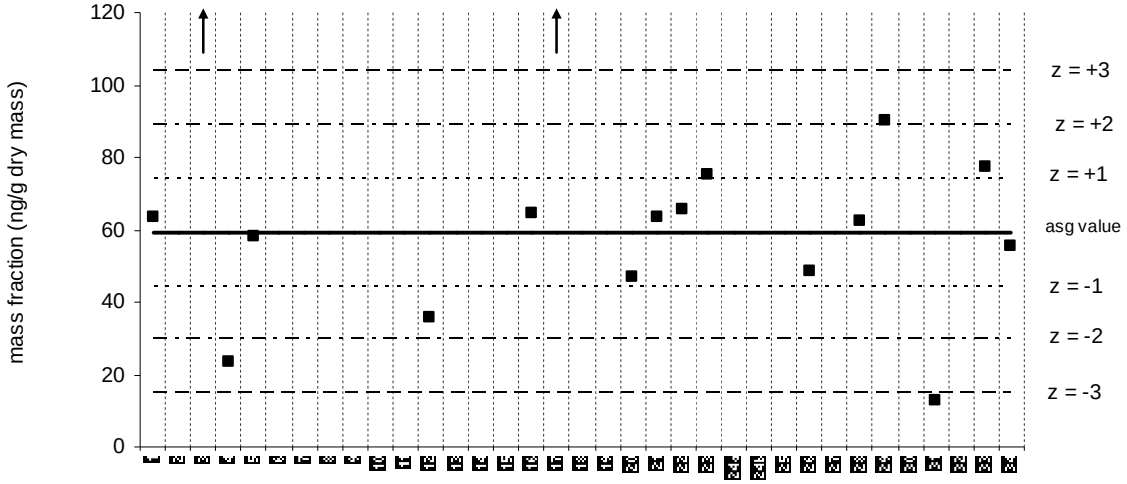


laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C1-naphthalenes — QA10TIS01

Assigned value = 59.3 ng/g dry mass s = 17.0 ng/g dry mass 95% CI = 8.9 ng/g dry mass
Median value = 63.4 ng/g dry mass
Reported Results: 22 Quantitative Results: 17



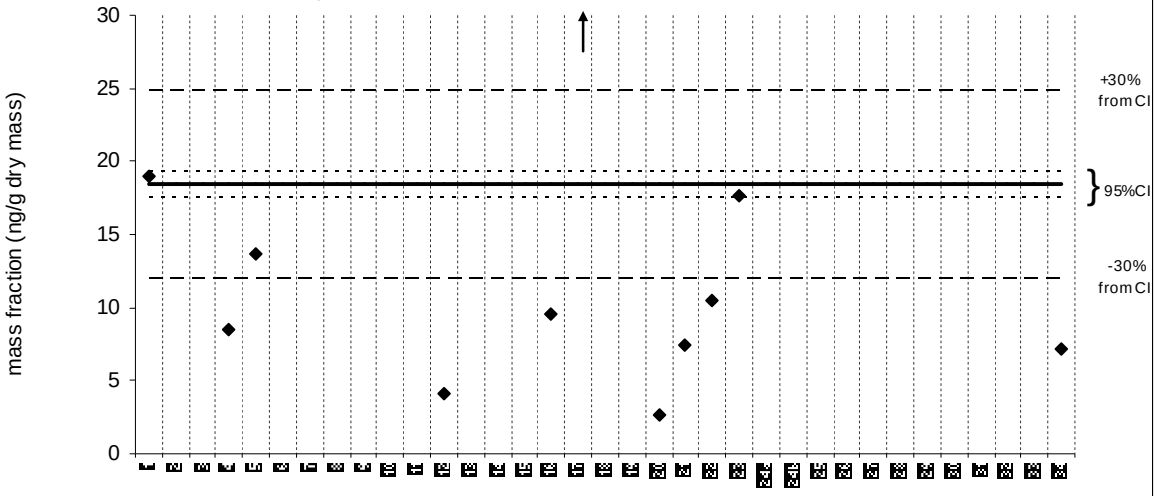
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C1-naphthalenes — SRM 1974b

Target Value = 18.4 ng/g dry mass ; 95% CI 0.9 ng/g dry mass: Median value = 9.50 ng/g dry mass

Reported Results: 16 Quantitative Results: 11



laboratory number

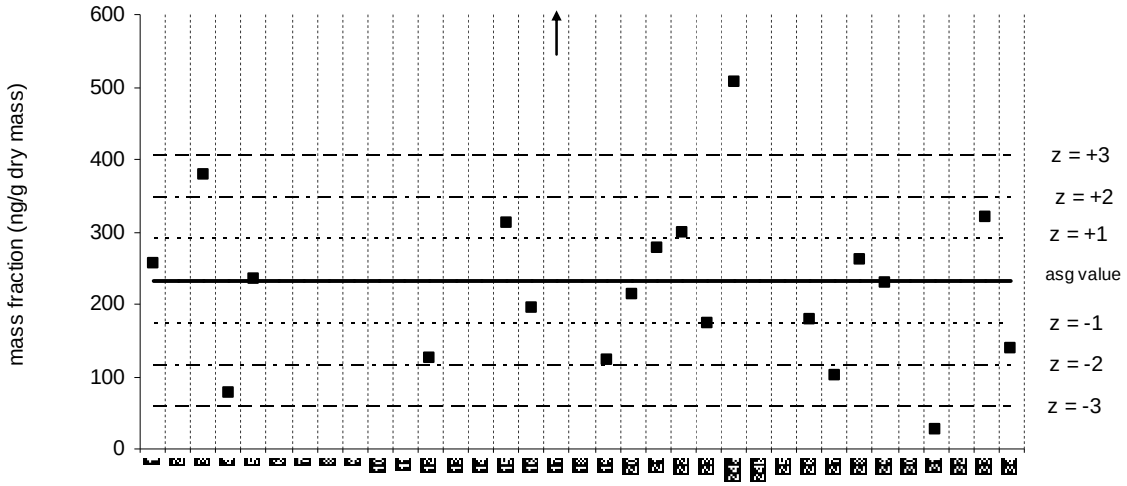
Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C2-naphthalenes

QA10TIS01

Assigned value = 232 ng/g dry mass s = 106 ng/g dry mass 95% CI = 47 ng/g dry mass Median value = 229 ng/g dry mass

Reported Results: 24 Quantitative Results: 21



laboratory number

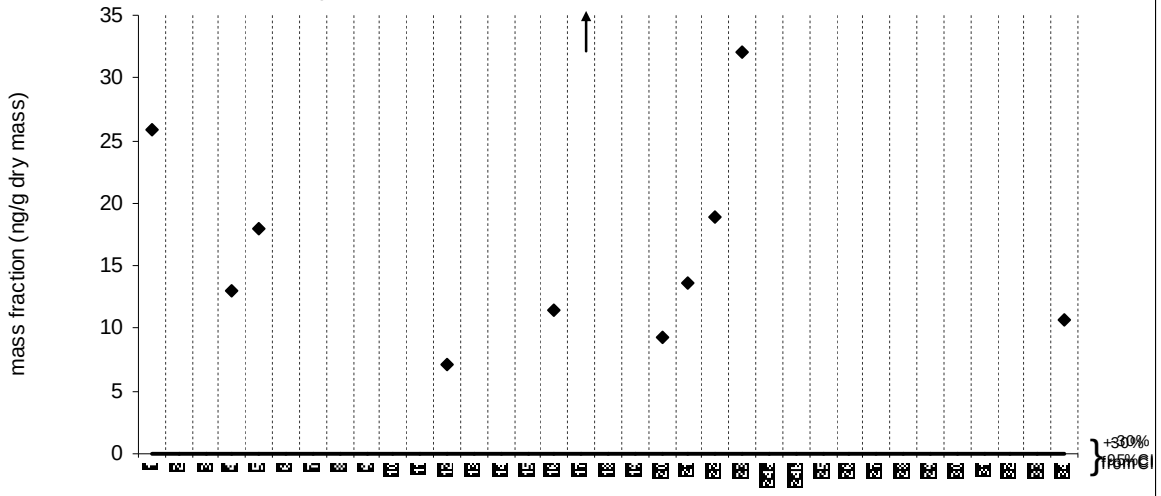
Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C2-naphthalenes

SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 13.6 ng/g dry mass

Reported Results: 16 Quantitative Results: 11



laboratory number

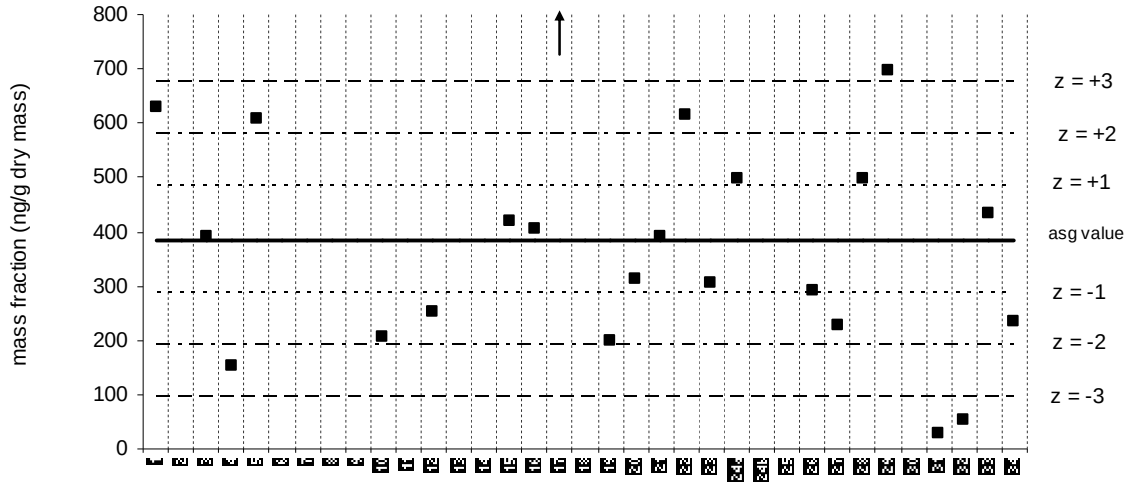
Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C3-naphthalenes

QA10TIS01

Assigned value = 386 ng/g dry mass s = 165 ng/g dry mass 95% CI = 72 ng/g dry mass Median value = 390 ng/g dry mass

Reported Results: 24 Quantitative Results: 23



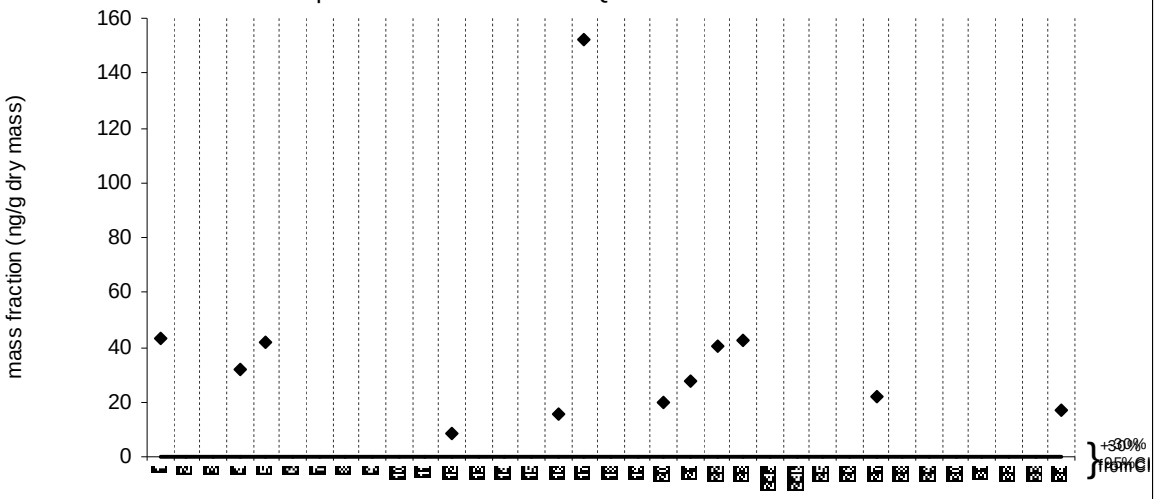
Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C3-naphthalenes

SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 29.7 ng/g dry mass

Reported Results: 17 Quantitative Results: 12



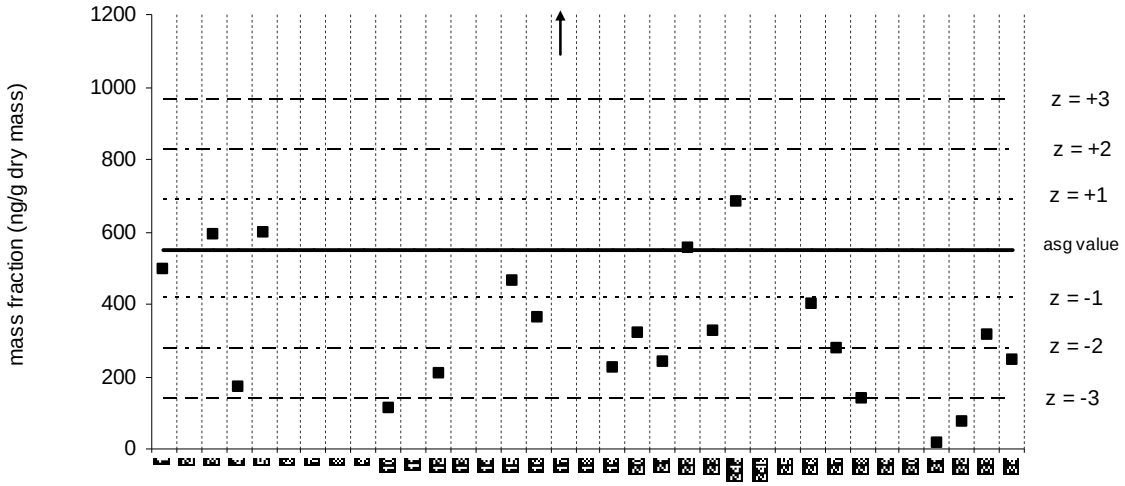
Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C4-naphthalenes

QA10TIS01

Assigned value = 552 ng/g dry mass s = 173 ng/g dry mass 95% CI = 76 ng/g dry mass Median value = 316 ng/g dry mass

Reported Results: 23 Quantitative Results: 22



laboratory number

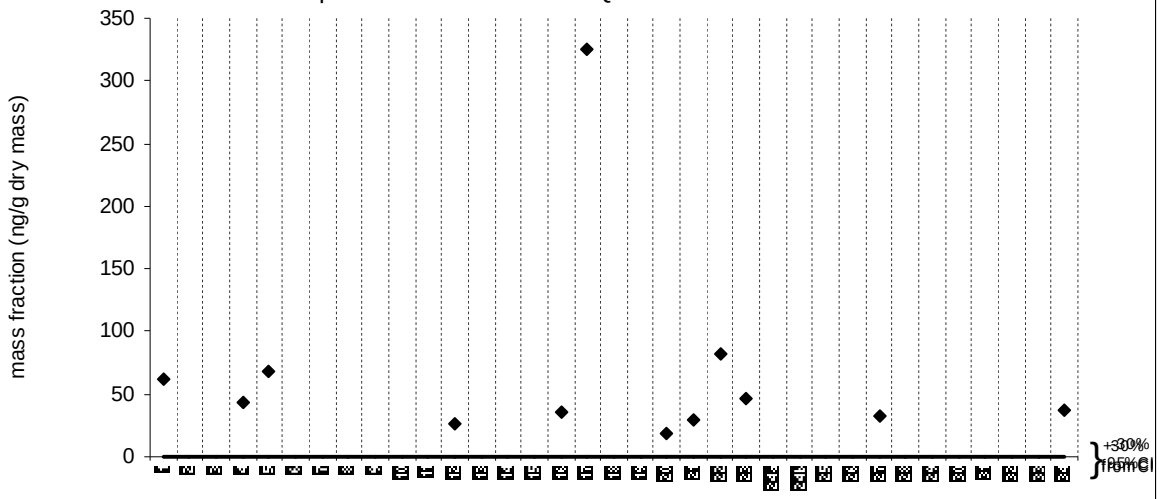
Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C4-naphthalenes

SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 39.9 ng/g dry mass

Reported Results: 17 Quantitative Results: 12



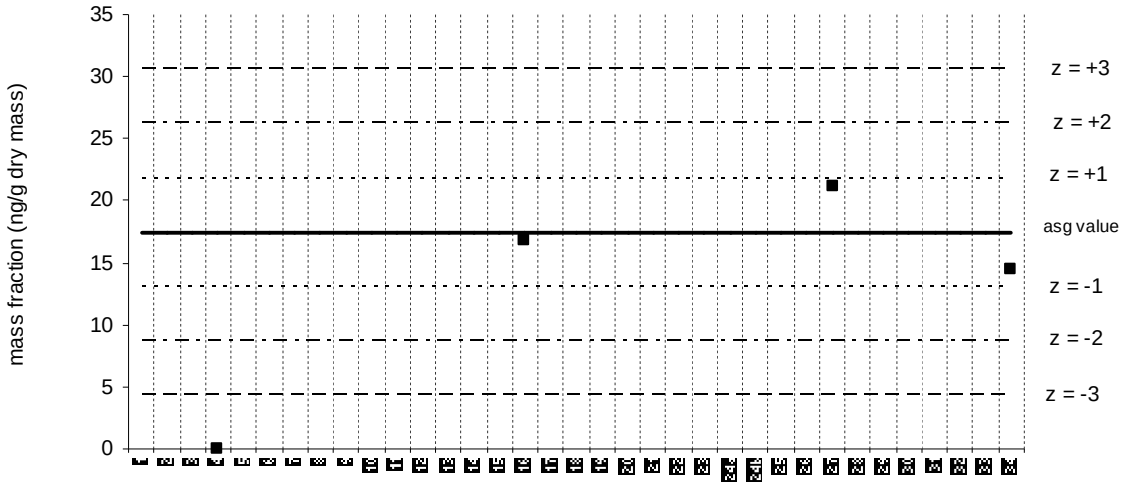
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C1-benzothiophenes — QA10TIS01

Assigned value = 17.5 ng/g dry mass s = 3.4 ng/g dry mass 95% CI = 3.8 ng/g dry mass Median value = 15.7 ng/g dry mass

Reported Results: 8 Quantitative Results: 4

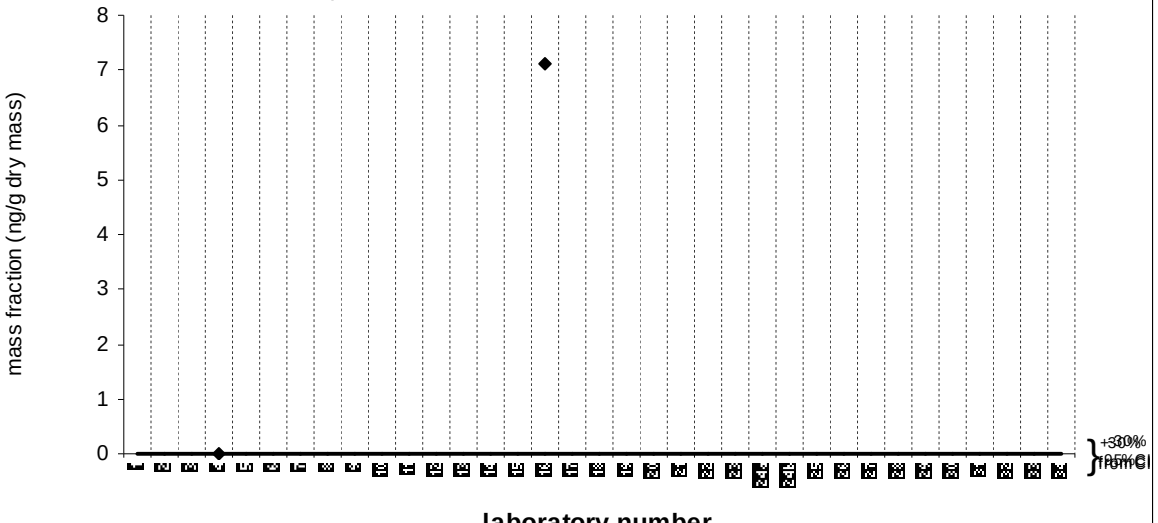


Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C1-benzothiophenes — SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 3.56 ng/g dry mass

Reported Results: 8 Quantitative Results: 2

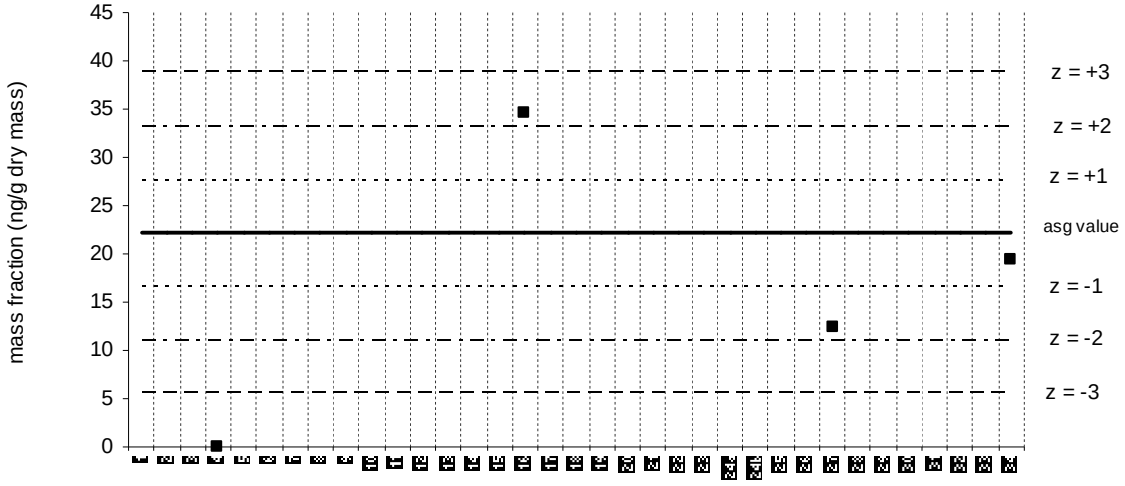


Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C2-benzothiophenes

QA10TIS01

Assigned value = 22.2 ng/g dry mass s = 11.3 ng/g dry mass 95% CI = 12.8 ng/g dry mass
Median value = 15.9 ng/g dry mass
Reported Results: 8 Quantitative Results: 4



laboratory number

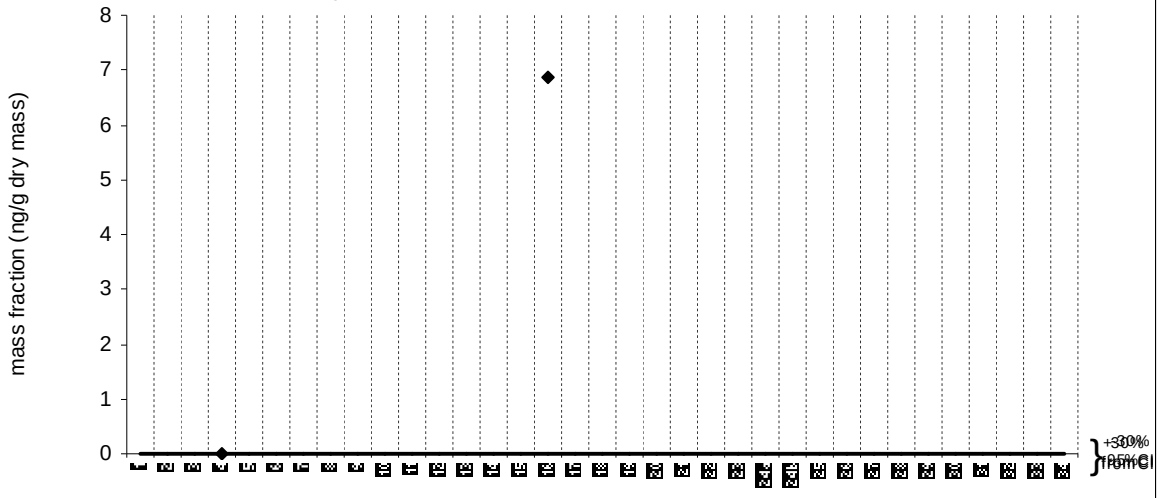
Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C2-benzothiophenes

SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 3.43 ng/g dry mass

Reported Results: 8 Quantitative Results: 2



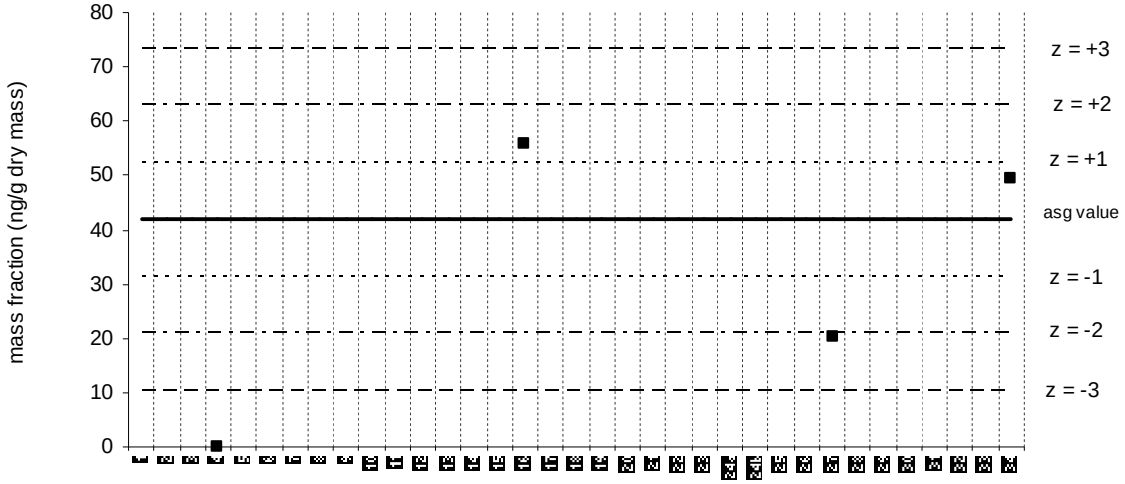
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C3-benzothiophenes

QA10TIS01

Assigned value = 41.8 ng/g dry mass s = 18.9 ng/g dry mass 95% CI = 21.4 ng/g dry mass
Median value = 34.9 ng/g dry mass
Reported Results: 8 Quantitative Results: 4



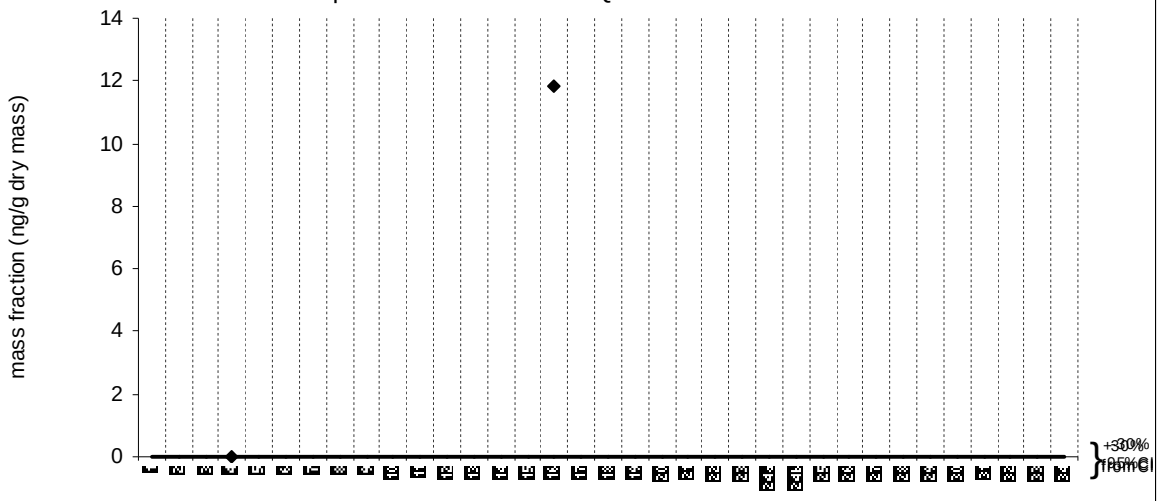
Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C3-benzothiophenes

SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 5.92 ng/g dry mass

Reported Results: 8 Quantitative Results: 2



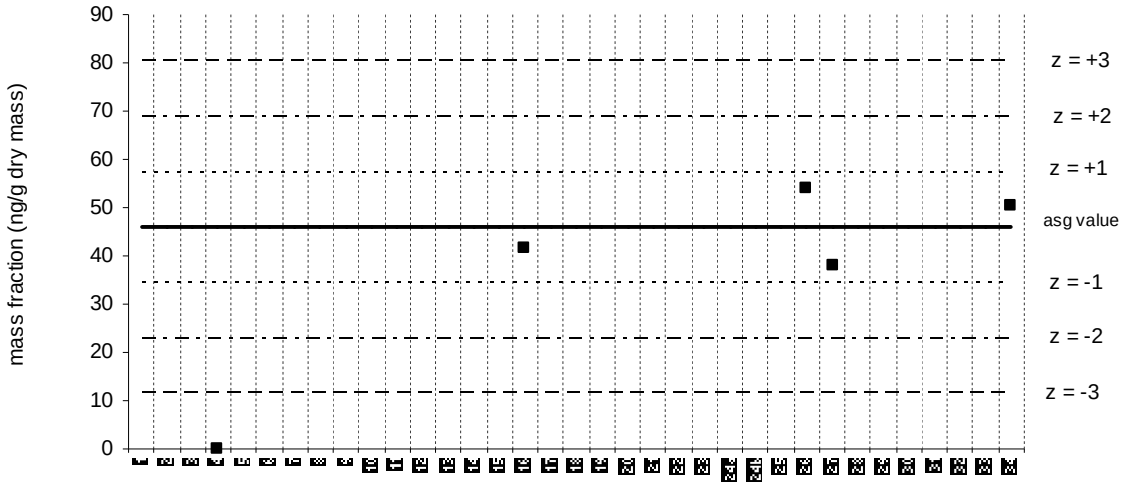
Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C4-benzothiophenes

QA10TIS01

Assigned value = 45.9 ng/g dry mass s = 7.5 ng/g dry mass 95% CI = 7.3 ng/g dry mass Median value = 41.6 ng/g dry mass

Reported Results: 7 Quantitative Results: 5



laboratory number

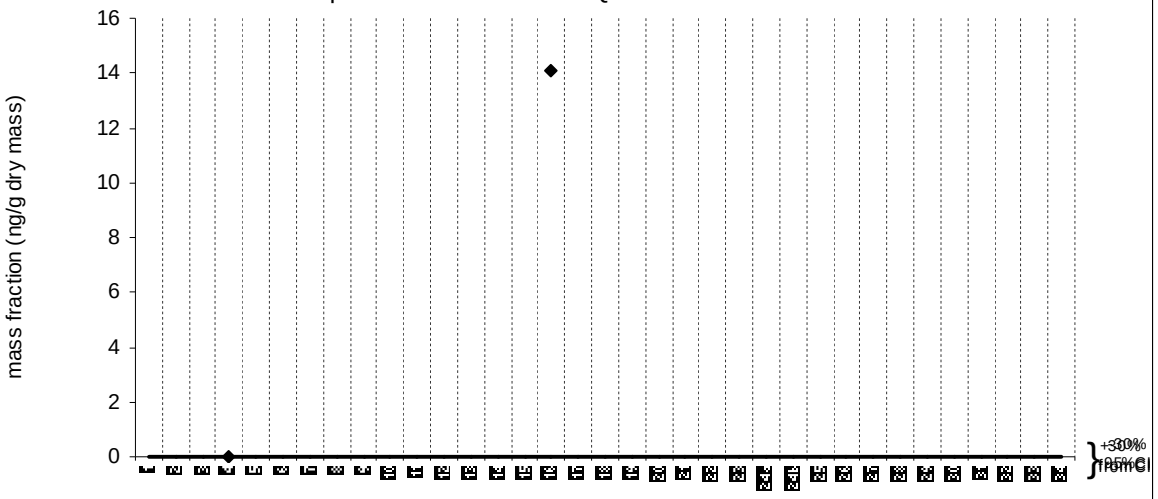
Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C4-benzothiophenes

SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 7.05 ng/g dry mass

Reported Results: 7 Quantitative Results: 2

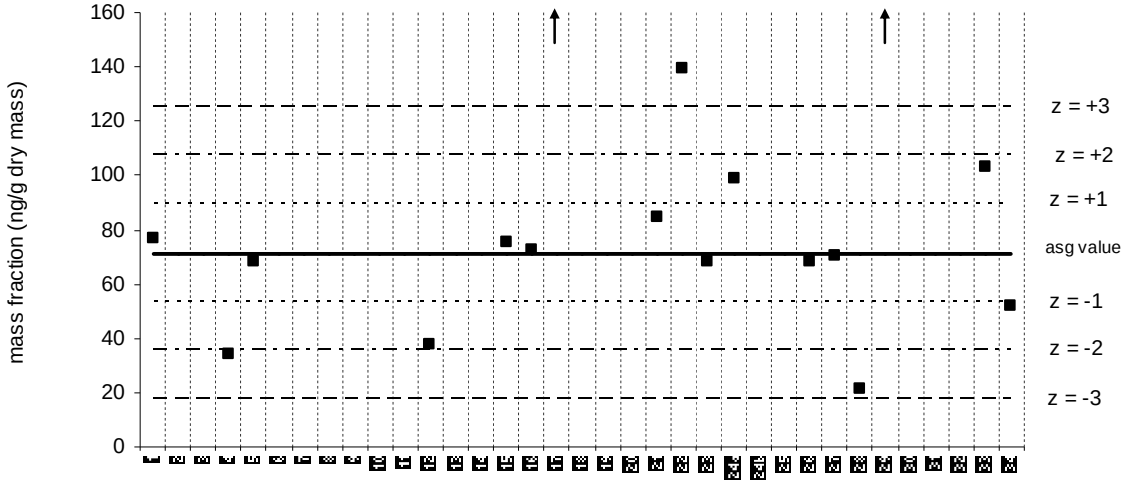


laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C1-fluorenes **QA10TIS01**

Assigned value = 71.4 ng/g dry mass s = 29.3 ng/g dry mass 95% CI = 14.9 ng/g dry mass
Median value = 72.4 ng/g dry mass
Reported Results: 24 Quantitative Results: 17



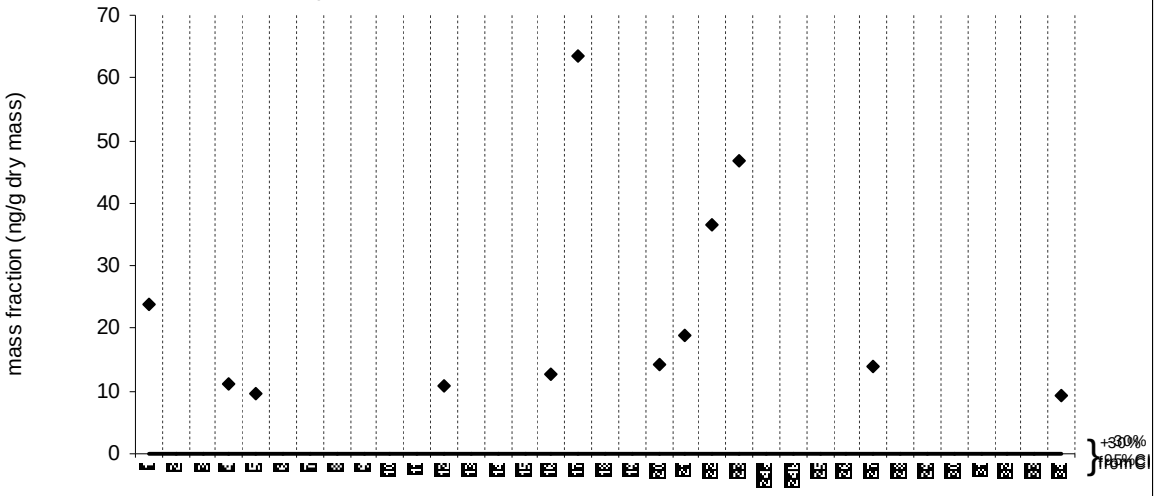
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C1-fluorenes **SRM 1974b**

Target Value = no target ng/g (dry mass): Median value = 14.0 ng/g dry mass

Reported Results: 17 Quantitative Results: 12



laboratory number

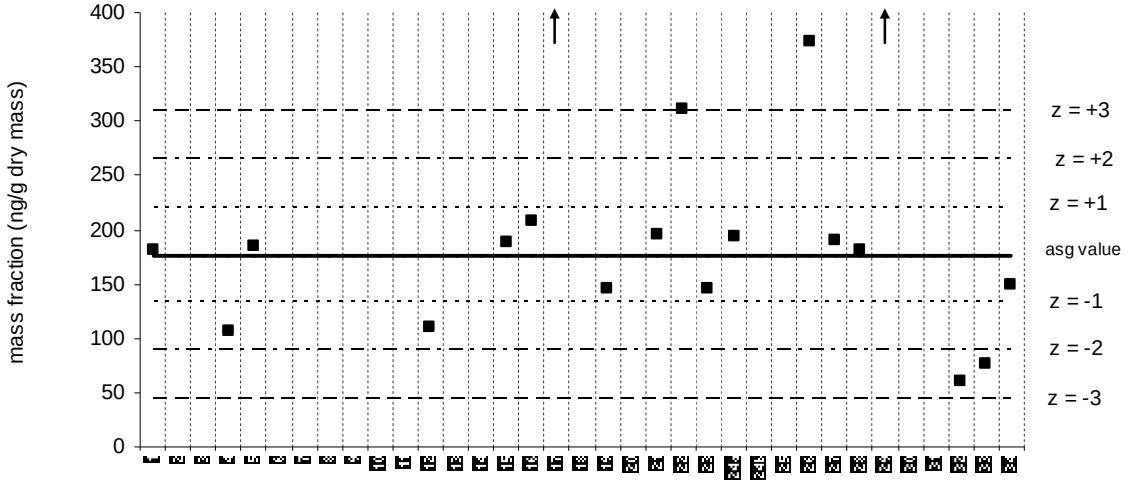
Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C2-fluorenes

QA10TIS01

Assigned value = 177 ng/g dry mass s = 77 ng/g dry mass 95% CI = 37 ng/g dry mass Median value = 186 ng/g dry mass

Reported Results: 24 Quantitative Results: 19



laboratory number

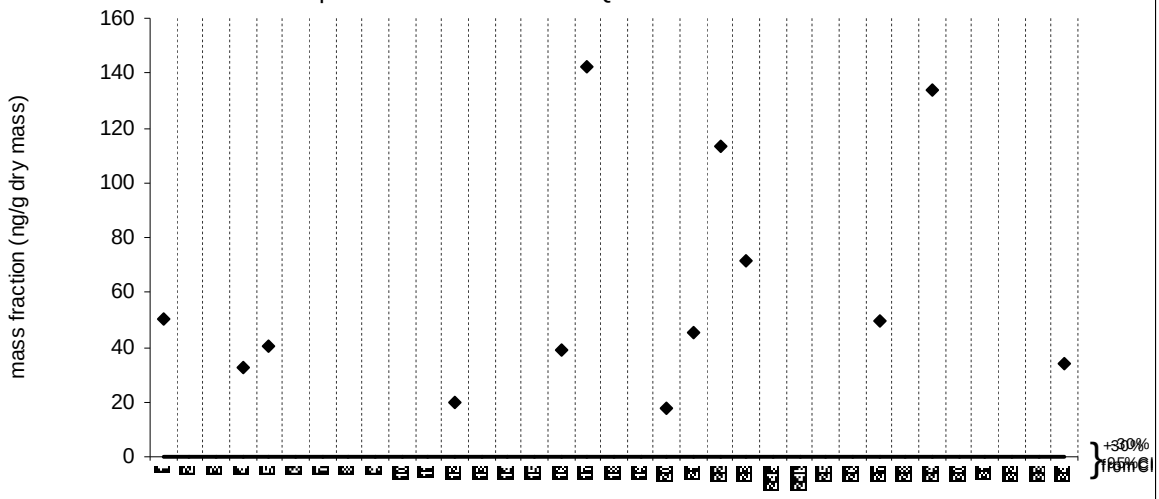
Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C2-fluorenes

SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 45.4 ng/g dry mass

Reported Results: 18 Quantitative Results: 13



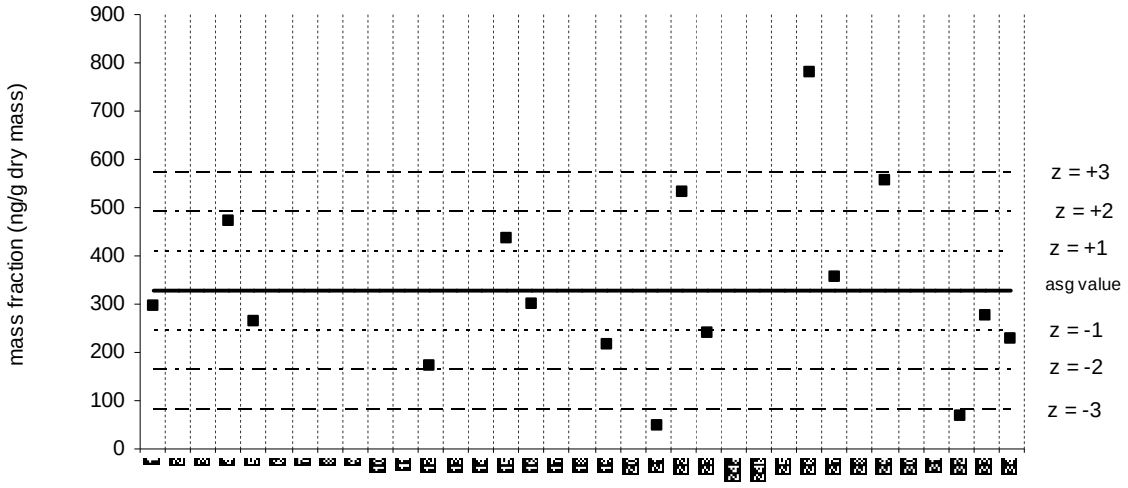
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C3-fluorenes **QA10TIS01**

Assigned value = 328 ng/g dry mass s = 190 ng/g dry mass 95% CI = 93 ng/g dry mass Median value = 287 ng/g dry mass

Reported Results: 39 Quantitative Results: 16



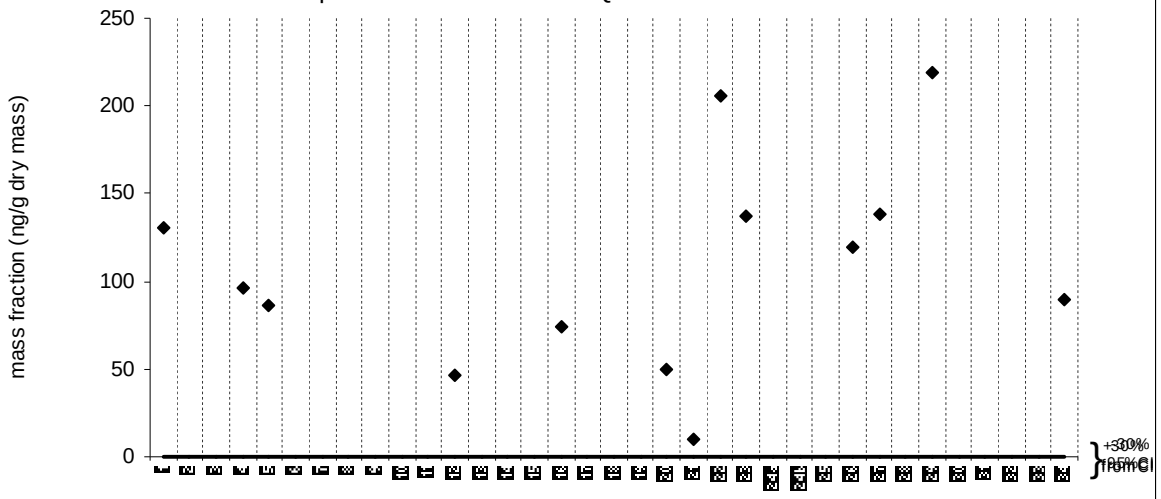
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C3-fluorenes **SRM 1974b**

Target Value = no target ng/g (dry mass): Median value = 96.3 ng/g dry mass

Reported Results: 18 Quantitative Results: 13



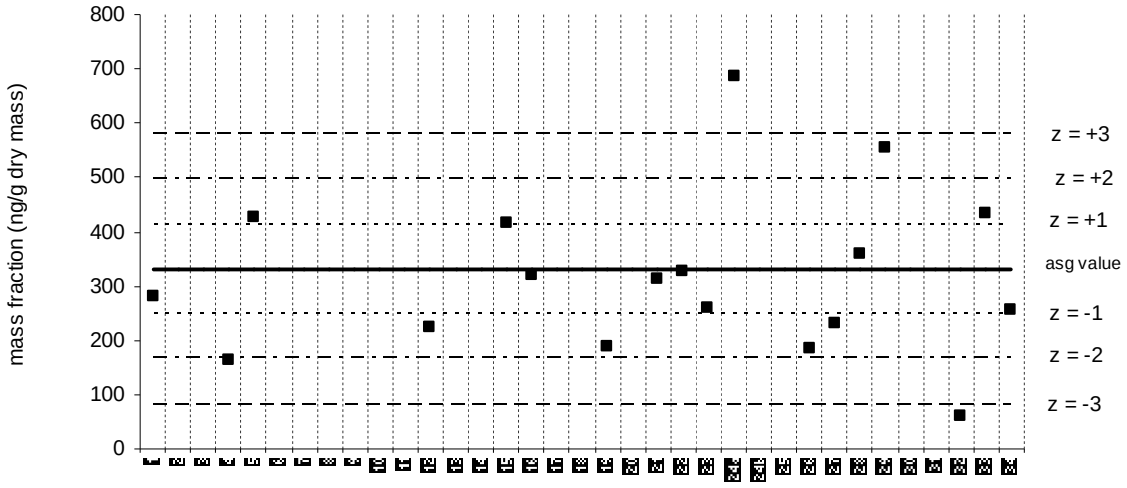
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C1-phenanthrenes/anthracenes — QA10TIS01

Assigned value = 331 ng/g dry mass s = 138 ng/g dry mass 95% CI = 66 ng/g dry mass Median value = 296 ng/g dry mass

Reported Results: 24 Quantitative Results: 18



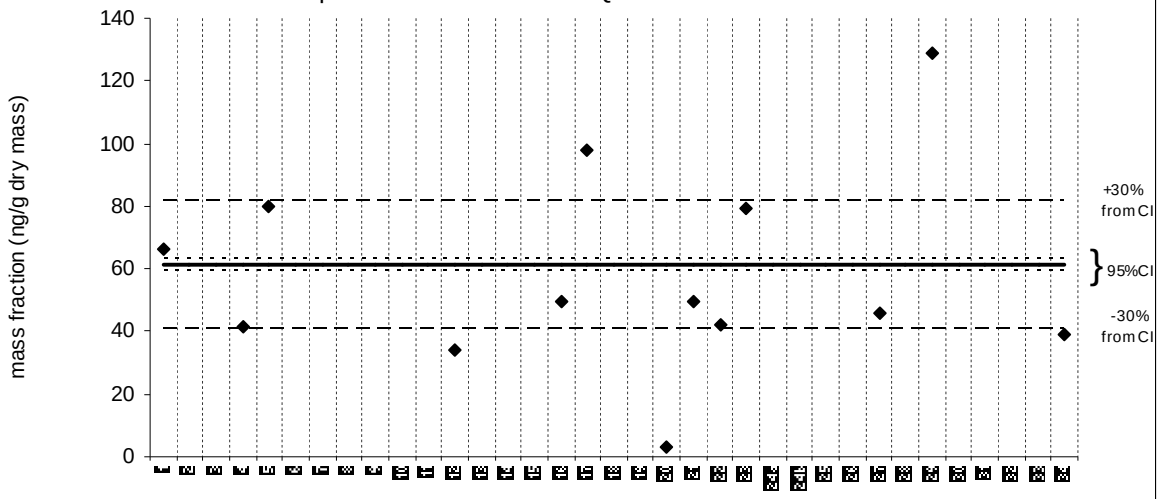
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C1-phenanthrenes/anthracenes — SRM 1974b

Target Value = 61.3 ng/g dry mass ; 95% CI 1.8 ng/g dry mass: Median value = 49.3 ng/g dry mass

Reported Results: 18 Quantitative Results: 13



laboratory number

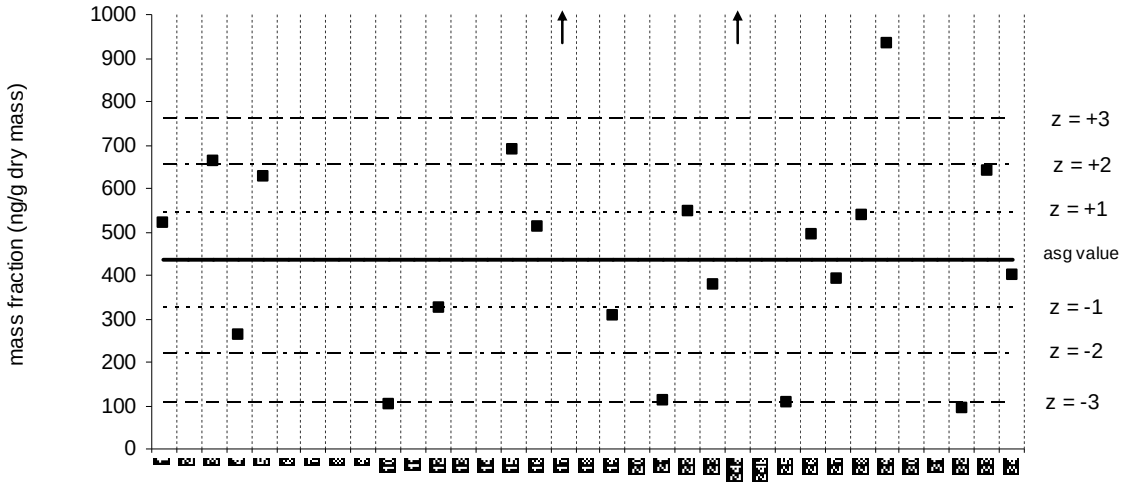
Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C2-phenanthrenes/anthracenes

QA10TIS01

Assigned value = 434 ng/g dry mass s = 219 ng/g dry mass 95% CI = 99 ng/g dry mass Median value = 502 ng/g dry mass

Reported Results: 24 Quantitative Results: 22



laboratory number

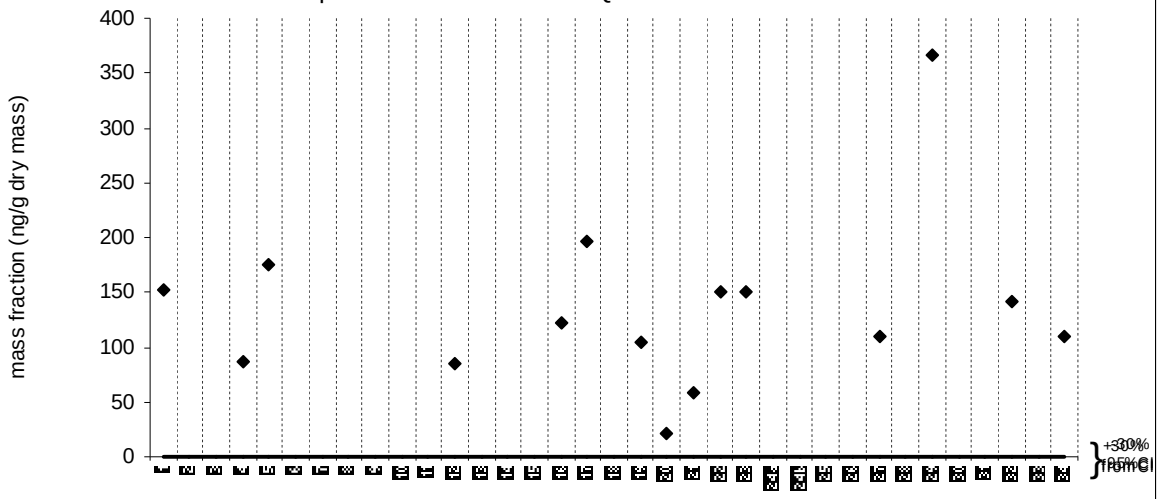
Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C2-phenanthrenes/anthracenes

SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 123 ng/g dry mass

Reported Results: 18 Quantitative Results: 15



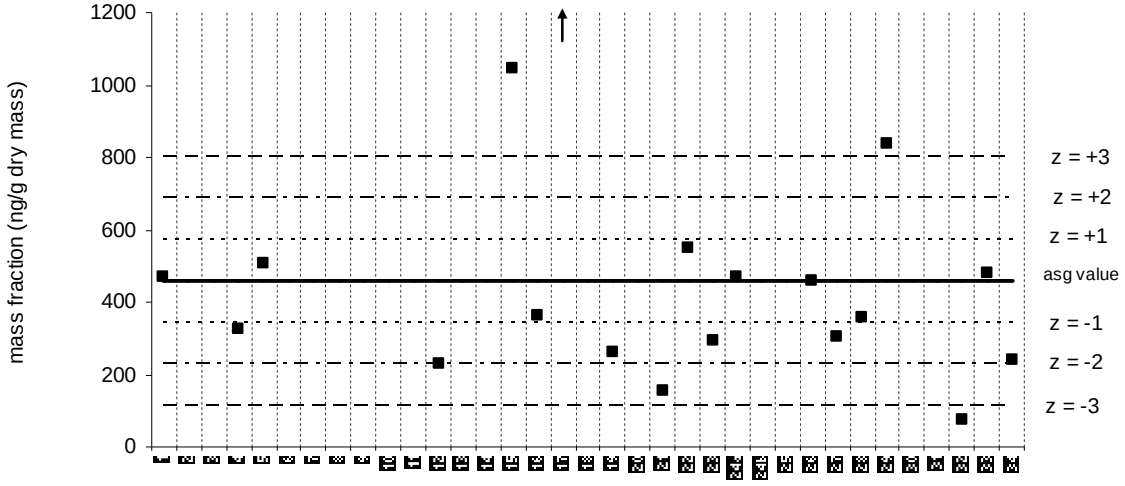
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C3-phenanthrenes/anthracenes

QA10TIS01

Assigned value = 457 ng/g dry mass s = 224 ng/g dry mass 95% CI = 107 ng/g dry mass
Median value = 361 ng/g dry mass
Reported Results: 24 Quantitative Results: 19



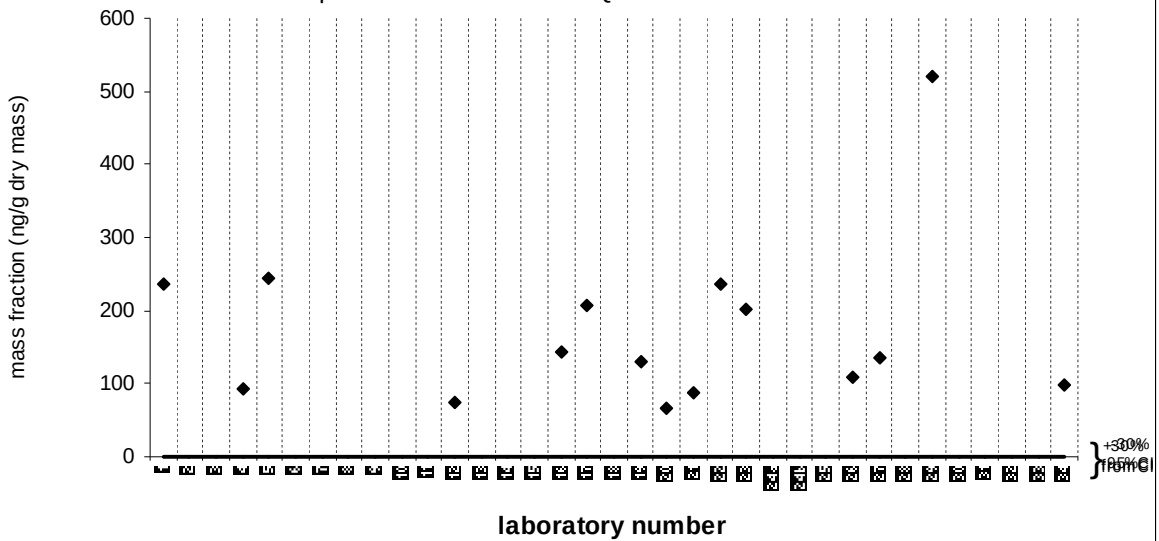
Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C3-phenanthrenes/anthracenes

SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 137 ng/g dry mass

Reported Results: 18 Quantitative Results: 15



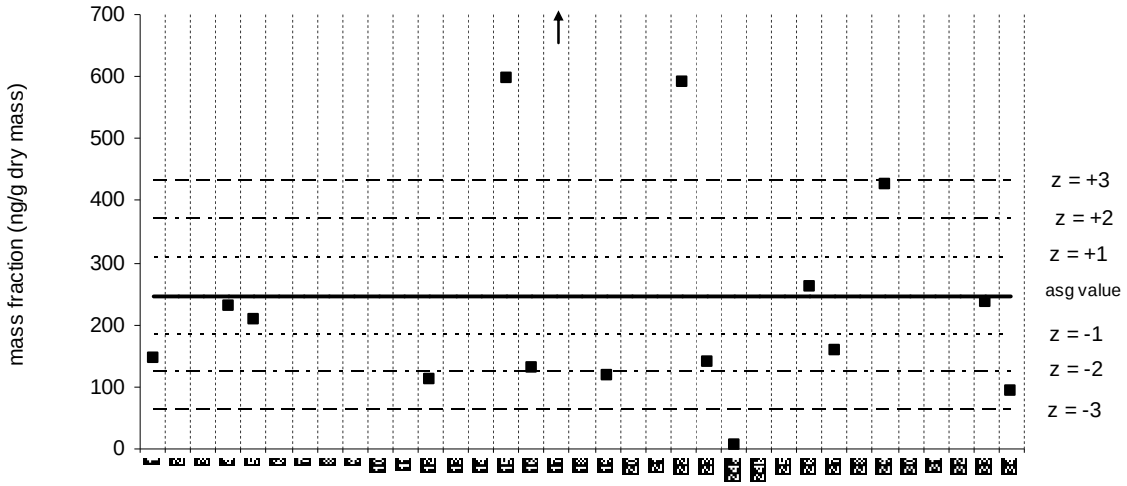
Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C4-phenanthrenes/anthracenes

QA10TIS01

Assigned value = 246 ng/g dry mass s = 170 ng/g dry mass 95% CI = 89 ng/g dry mass Median value = 184 ng/g dry mass

Reported Results: 23 Quantitative Results: 16



laboratory number

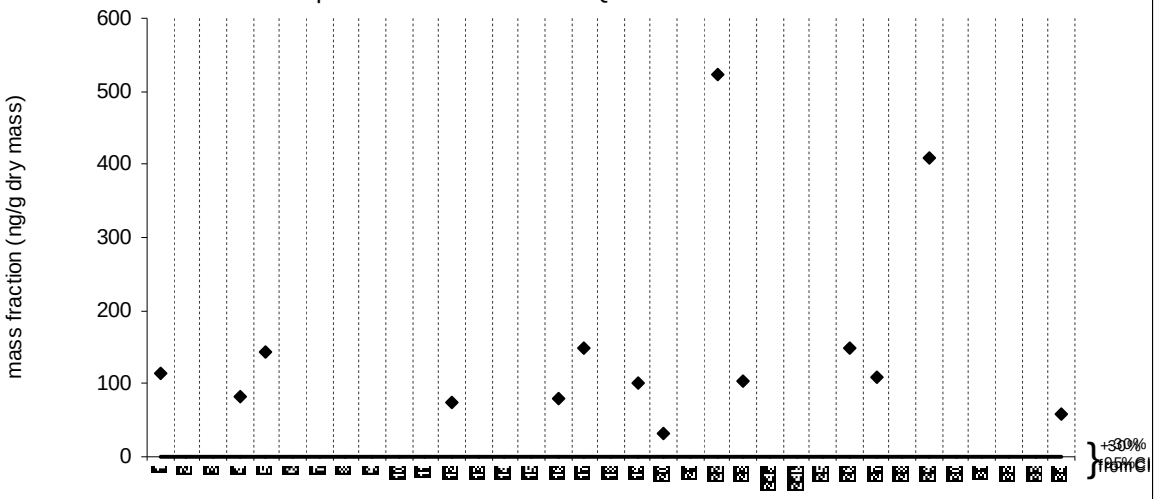
Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C4-phenanthrenes/anthracenes

SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 107 ng/g dry mass

Reported Results: 17 Quantitative Results: 14

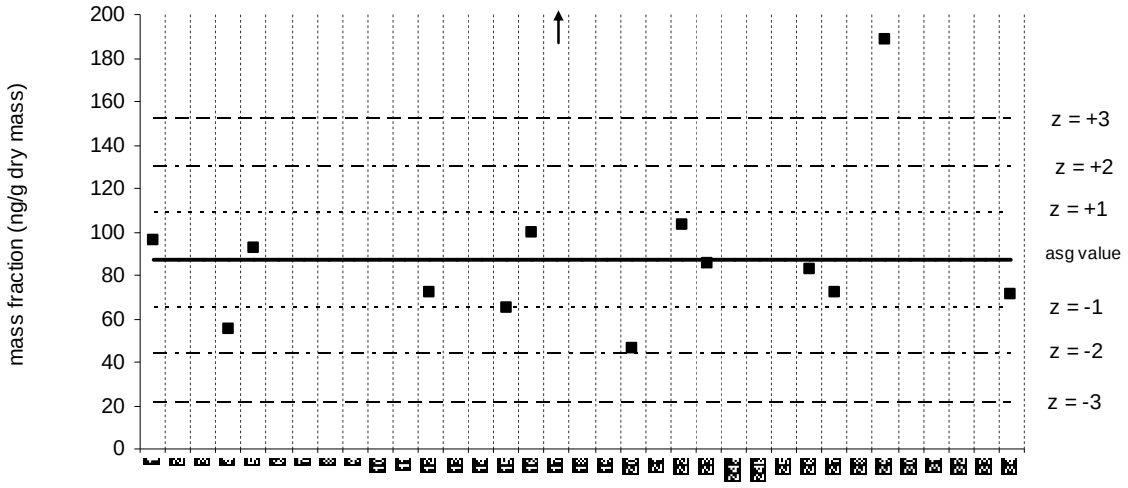


laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C1-dibenzothiophenes — QA10TIS01

Assigned value = 86.8 ng/g dry mass s = 35.0 ng/g dry mass 95% CI = 19.0 ng/g dry mass
Median value = 83.9 ng/g dry mass
Reported Results: 21 Quantitative Results: 14



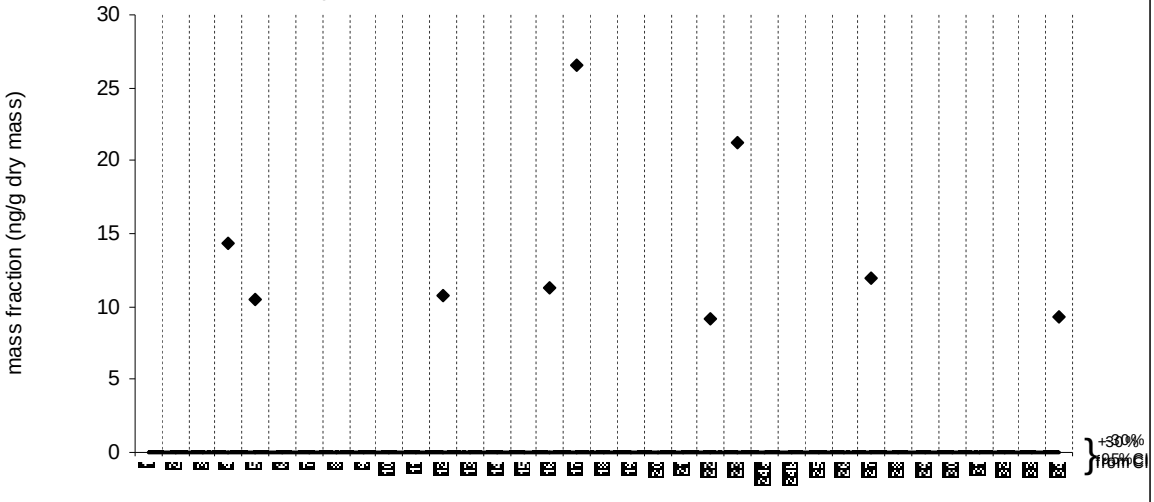
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C1-dibenzothiophenes — SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 11.3 ng/g dry mass

Reported Results: 16 Quantitative Results: 9



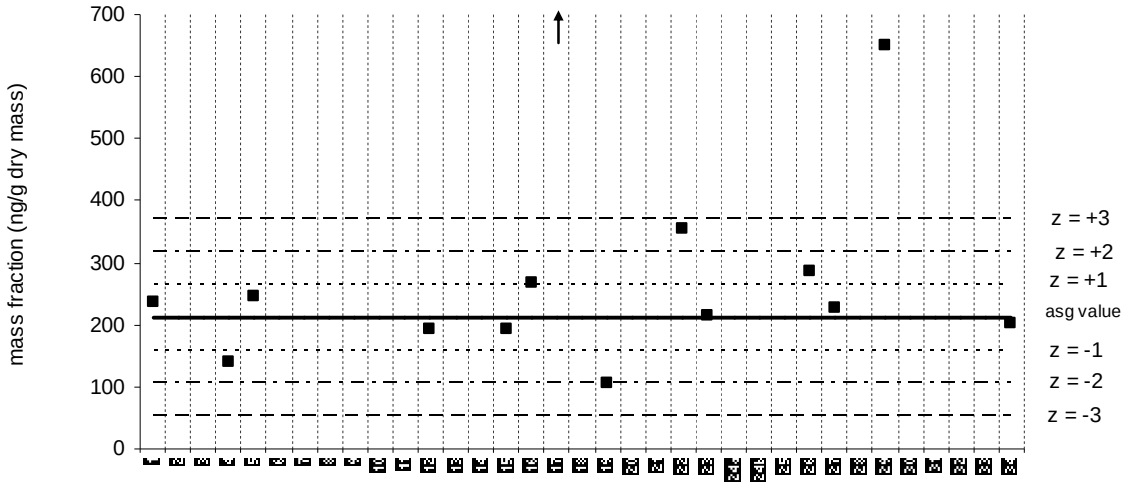
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C2-dibenzothiophenes — QA10TIS01

Assigned value = 211 ng/g dry mass s = 134 ng/g dry mass 95% CI = 73 ng/g dry mass Median value = 226 ng/g dry mass

Reported Results: 20 Quantitative Results: 15



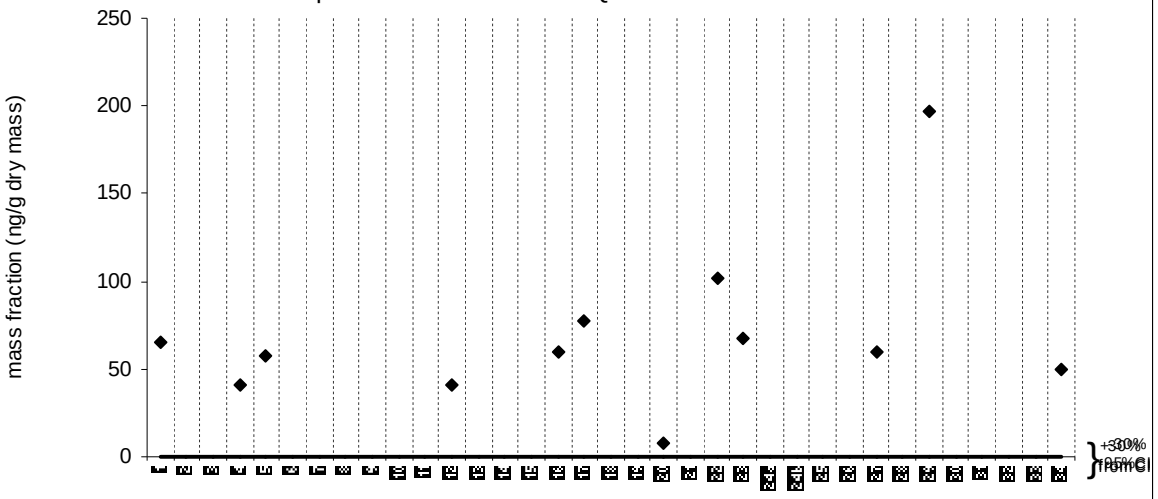
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C2-dibenzothiophenes — SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 59.6 ng/g dry mass

Reported Results: 17 Quantitative Results: 12



laboratory number

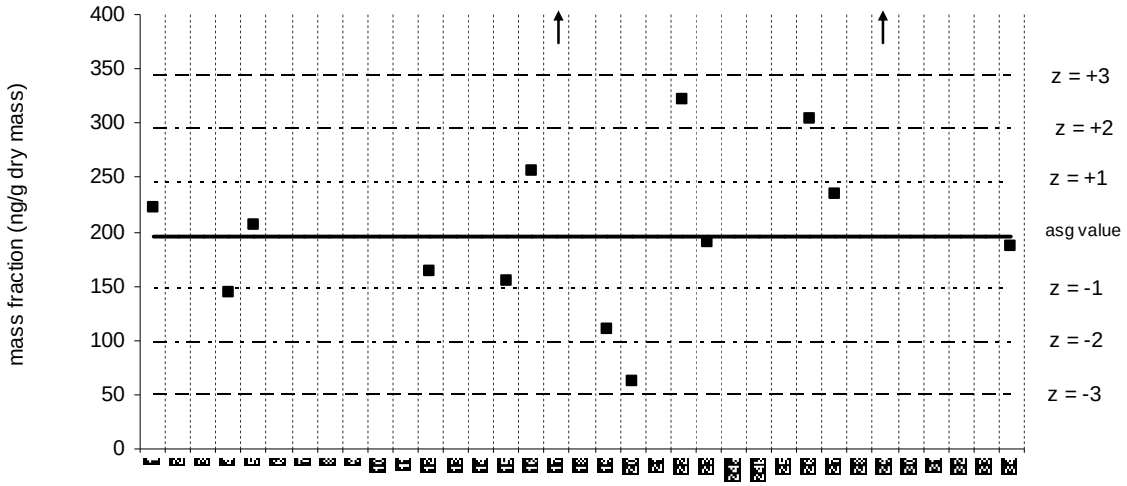
Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C3-dibenzothiophenes

QA10TIS01

Assigned value = 196 ng/g dry mass s = 73 ng/g dry mass 95% CI = 40 ng/g dry mass Median value = 206 ng/g dry mass

Reported Results: 20 Quantitative Results: 15



laboratory number

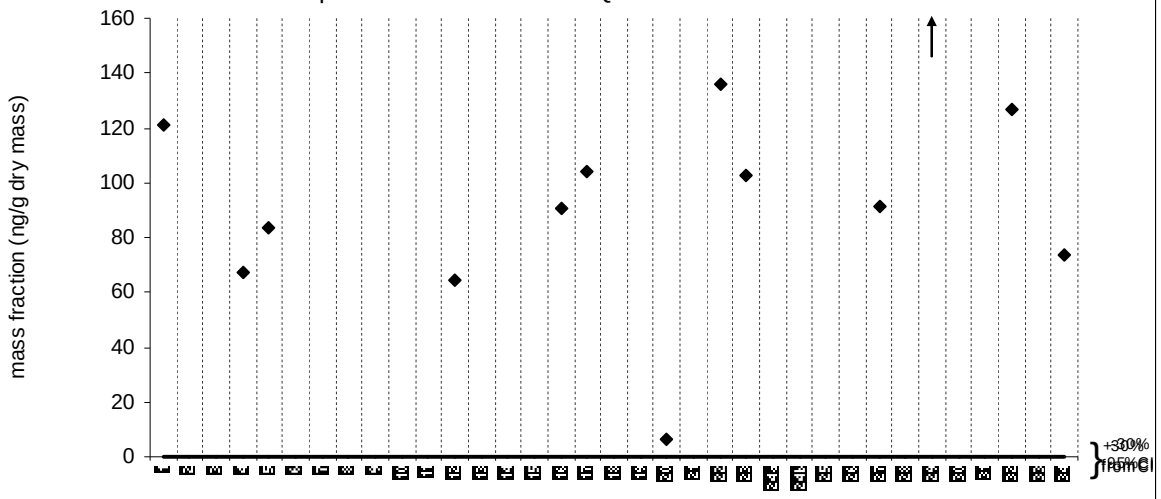
Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C3-dibenzothiophenes

SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 91.0 ng/g dry mass

Reported Results: 17 Quantitative Results: 13



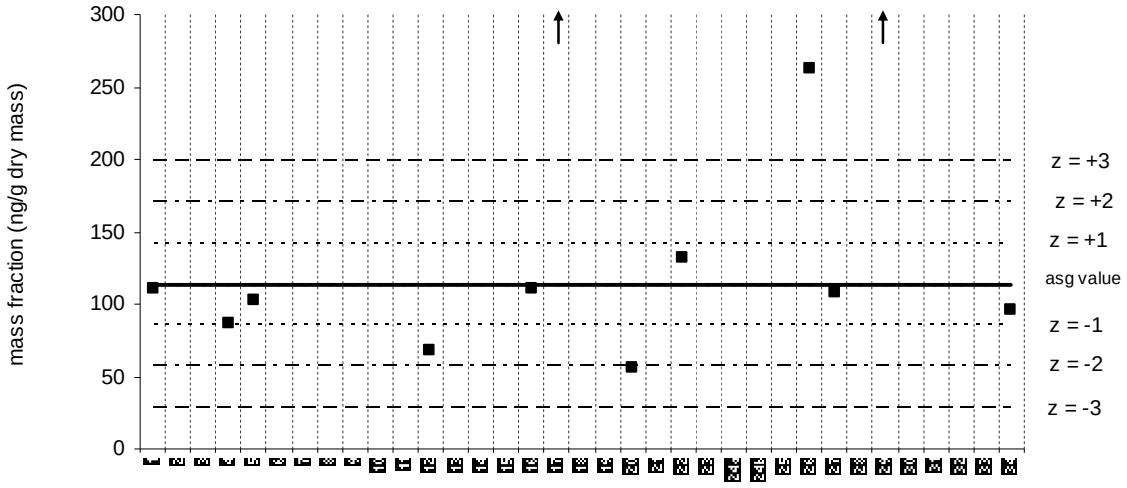
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C4-dibenzothiophenes — QA10TIS01

Assigned value = 113 ng/g dry mass s = 57 ng/g dry mass 95% CI = 35 ng/g dry mass Median value = 109 ng/g dry mass

Reported Results: 18 Quantitative Results: 12

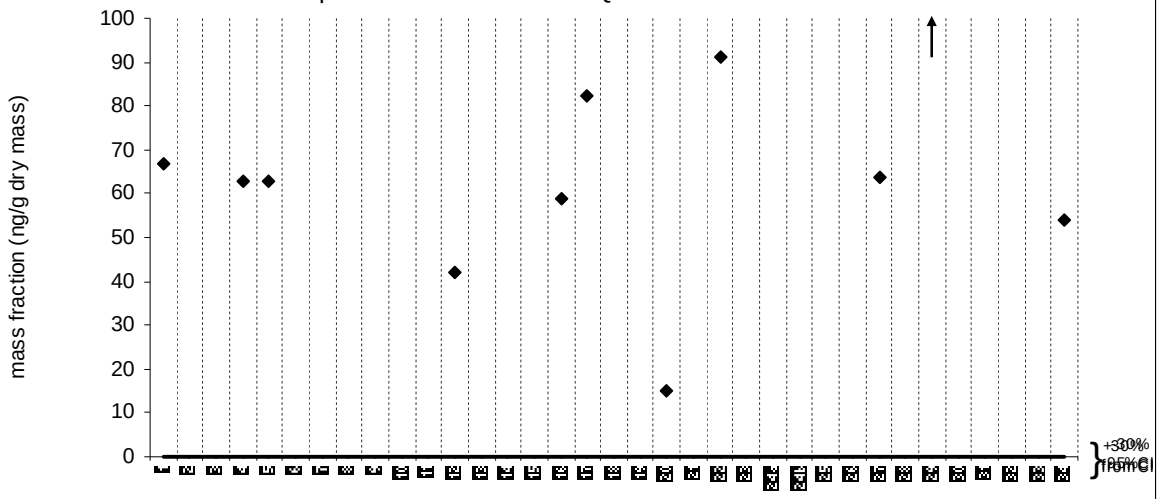


Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C4-dibenzothiophenes — SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 63.0 ng/g dry mass

Reported Results: 15 Quantitative Results: 11

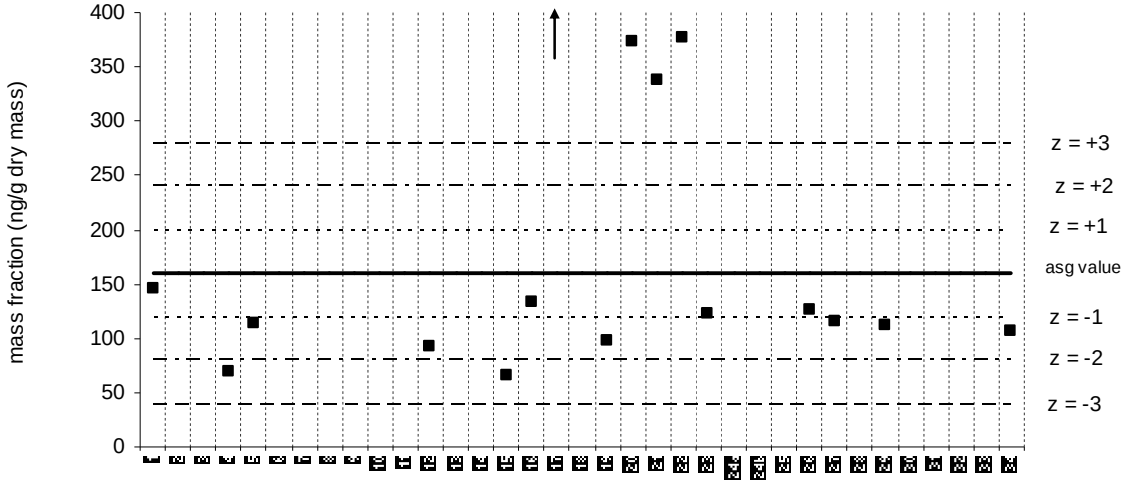


Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C1-fluoranthenes/pyrenes — QA10TIS01

Assigned value = 159 ng/g dry mass s = 107 ng/g dry mass 95% CI = 54 ng/g dry mass Median value = 119 ng/g dry mass

Reported Results: 21 Quantitative Results: 16



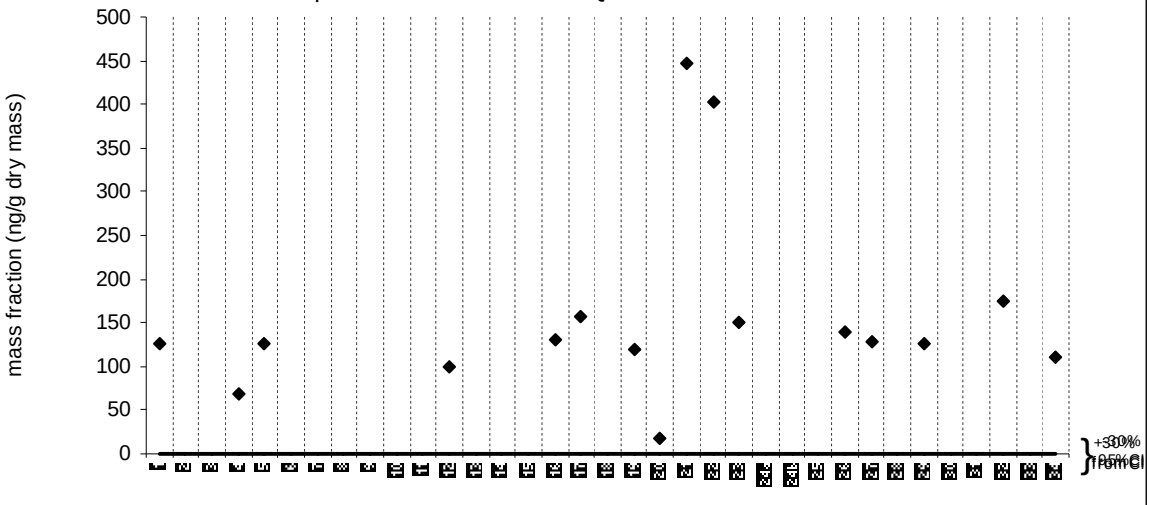
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C1-fluoranthenes/pyrenes — SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 128 ng/g dry mass

Reported Results: 18 Quantitative Results: 16



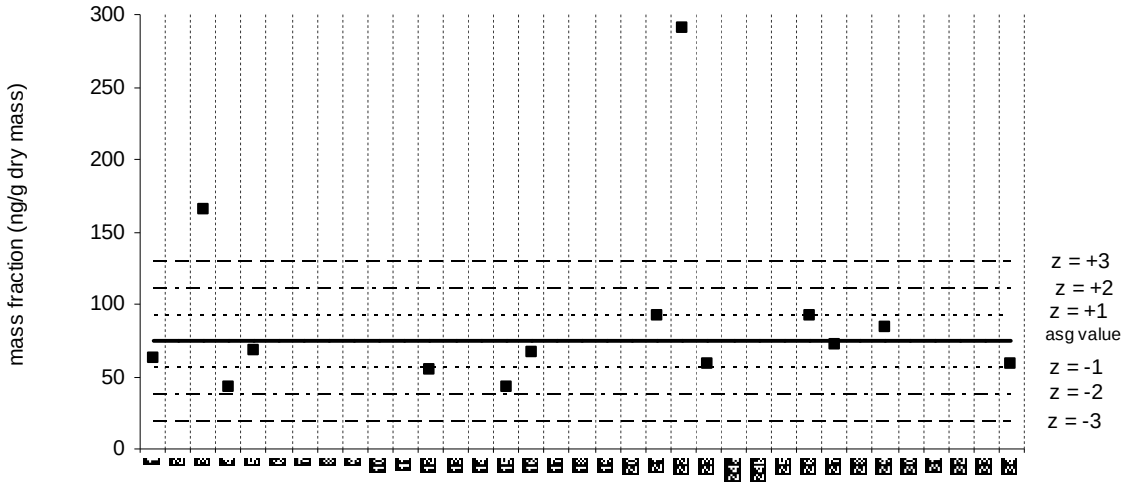
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C2-fluoranthenes/pyrenes

QA10TIS01

Assigned value = 74.1 ng/g dry mass s = 31.8 ng/g dry mass 95% CI = 17.3 ng/g dry mass
Median value = 67.7 ng/g dry mass
Reported Results: 21 Quantitative Results: 14



laboratory number

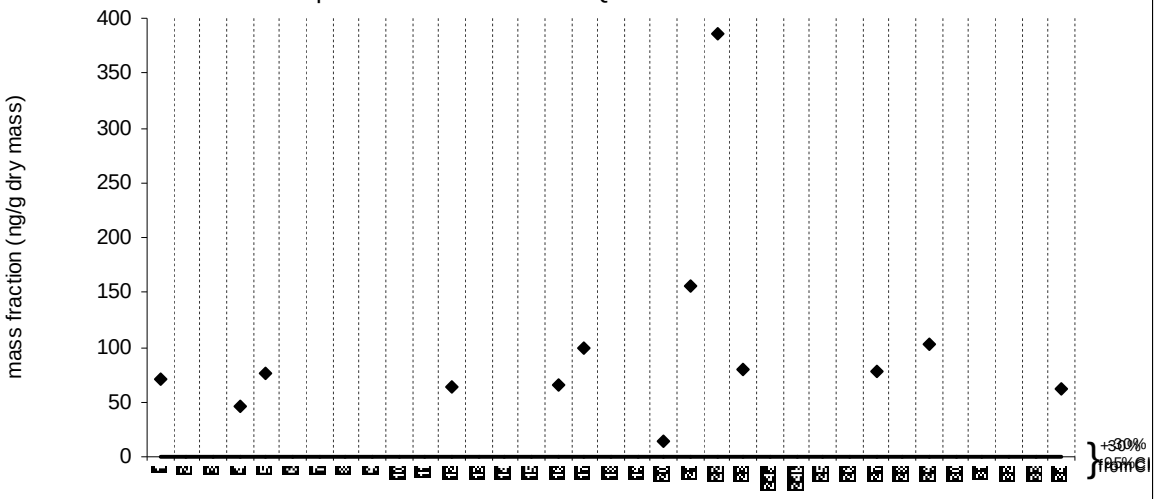
Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C2-fluoranthenes/pyrenes

SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 75.5 ng/g dry mass

Reported Results: 18 Quantitative Results: 13



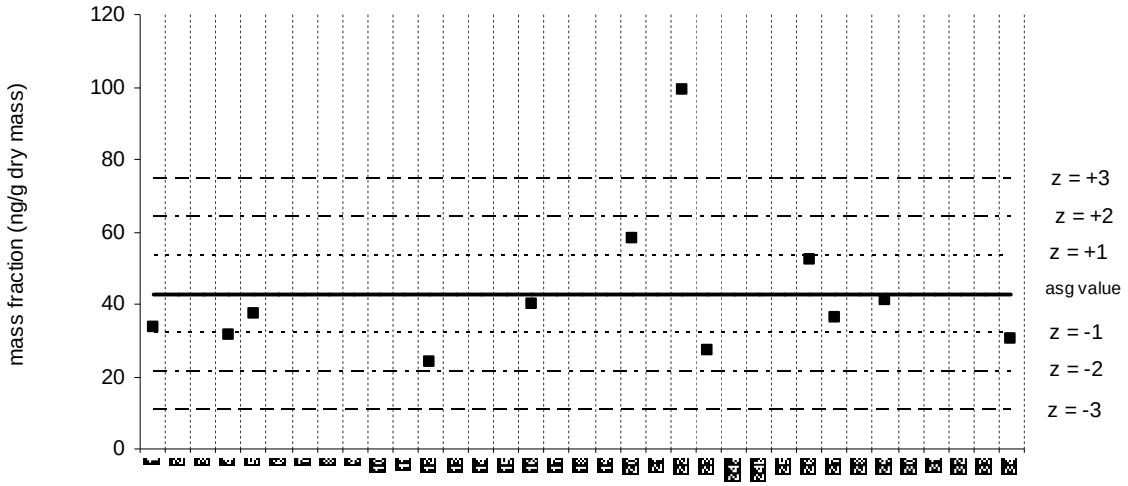
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C3-fluoranthenes/pyrenes

QA10TIS01

Assigned value = 42.5 ng/g dry mass s = 20.3 ng/g dry mass 95% CI = 11.5 ng/g dry mass
Median value = 36.7 ng/g dry mass
Reported Results: 20 Quantitative Results: 12



laboratory number

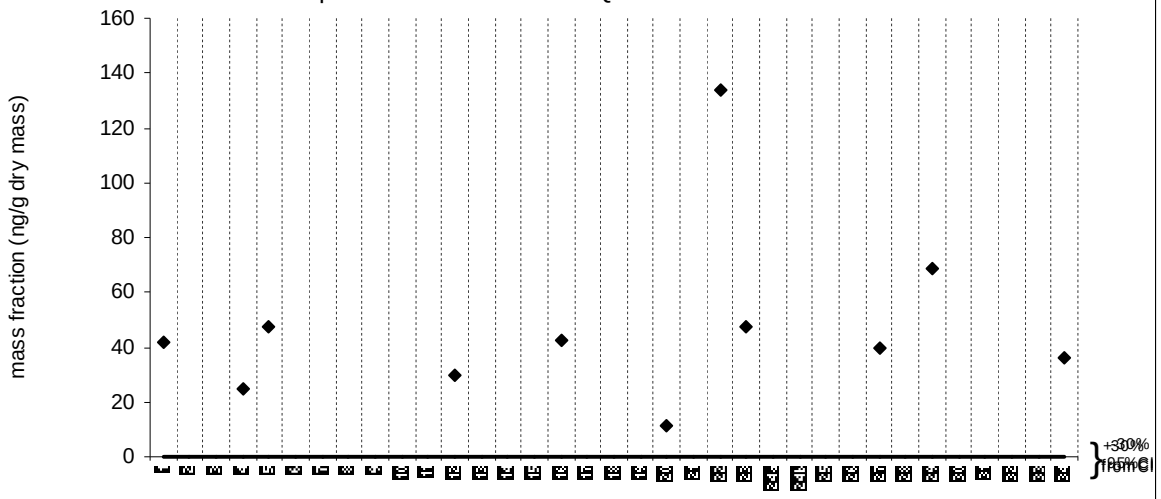
Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C3-fluoranthenes/pyrenes

SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 42.0 ng/g dry mass

Reported Results: 17 Quantitative Results: 11



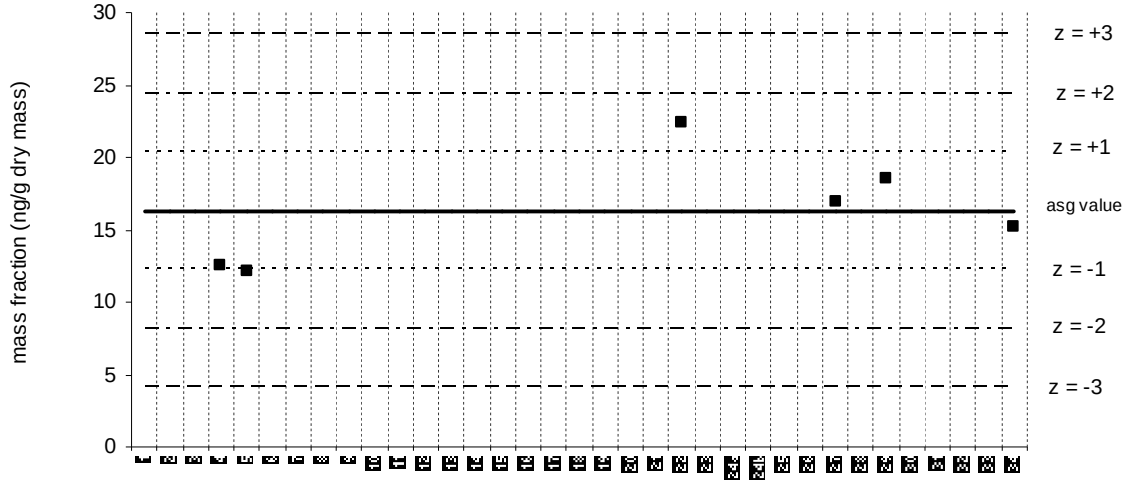
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C4-fluoranthenes/pyrenes — QA10TIS01

Assigned value = 16.3 ng/g dry mass s = 3.9 ng/g dry mass 95% CI = 3.1 ng/g dry mass Median value = 16.0 ng/g dry mass

Reported Results: 11 Quantitative Results: 6

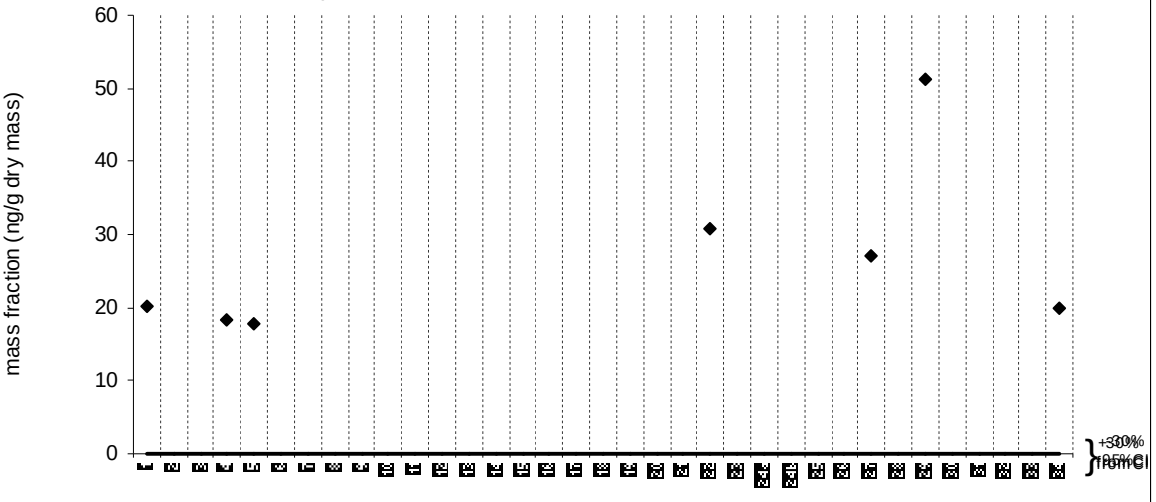


Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C4-fluoranthenes/pyrenes — SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 20.1 ng/g dry mass

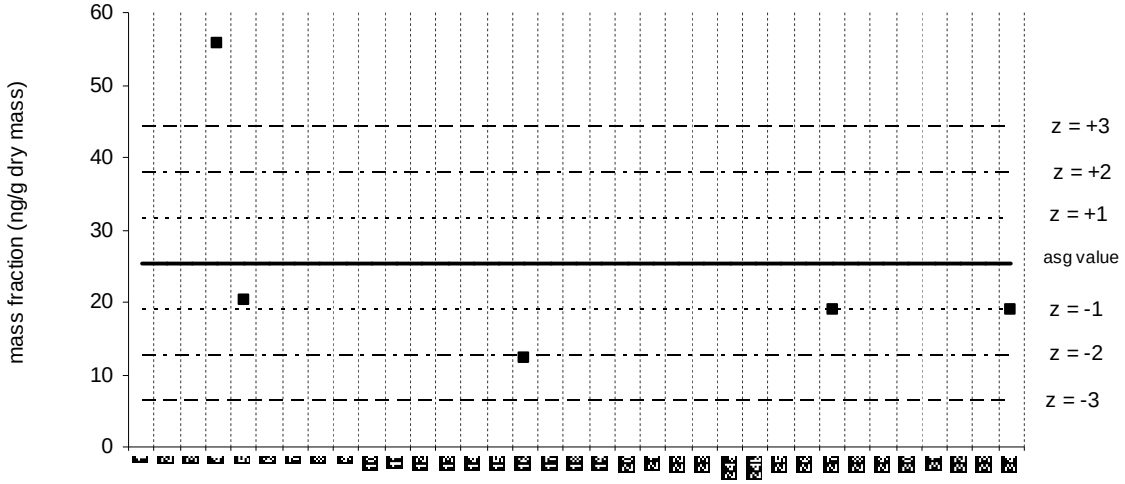
Reported Results: 10 Quantitative Results: 7



Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C1-naphthobenzothiophenes — QA10TIS01

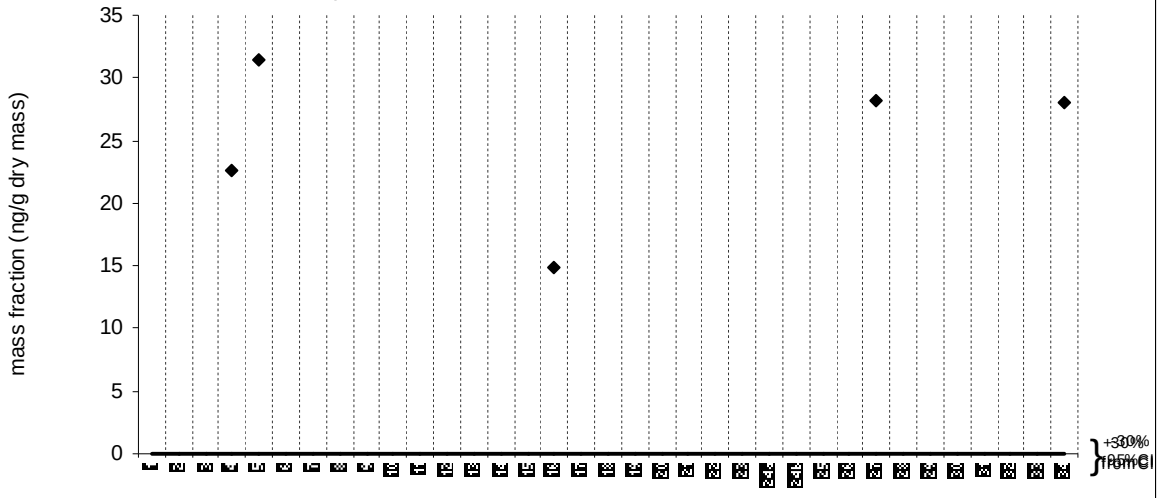
Assigned value = 25.2 ng/g dry mass s = 17.3 ng/g dry mass 95% CI = 15.2 ng/g dry mass
Median value = 19.1 ng/g dry mass
Reported Results: 10 Quantitative Results: 5



Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C1-naphthobenzothiophenes — SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 28.1 ng/g dry mass
Reported Results: 9 Quantitative Results: 5

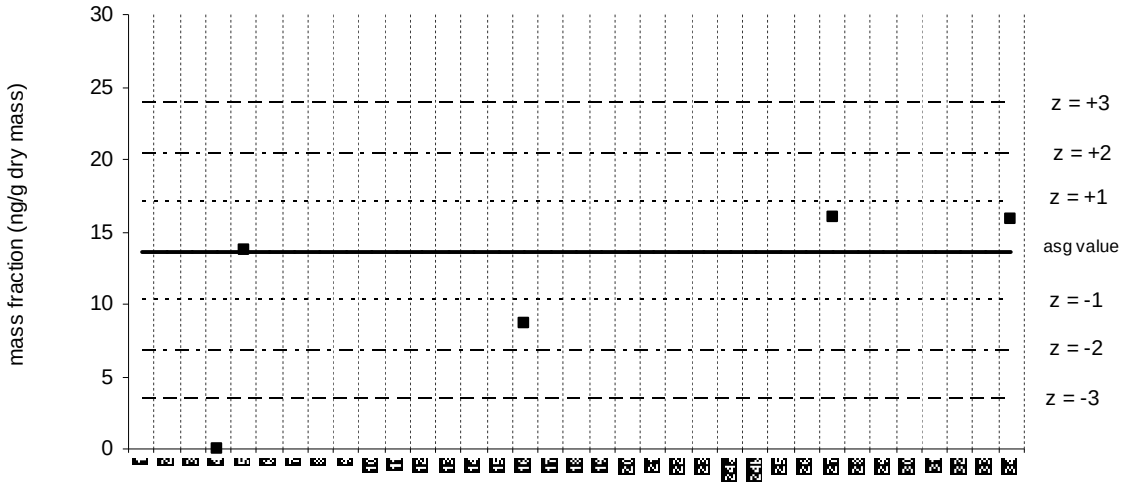


Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C2-naphthobenzothiophenes — QA10TIS01

Assigned value = 13.6 ng/g dry mass s = 3.4 ng/g dry mass 95% CI = 3.3 ng/g dry mass Median value = 13.8 ng/g dry mass

Reported Results: 10 Quantitative Results: 5



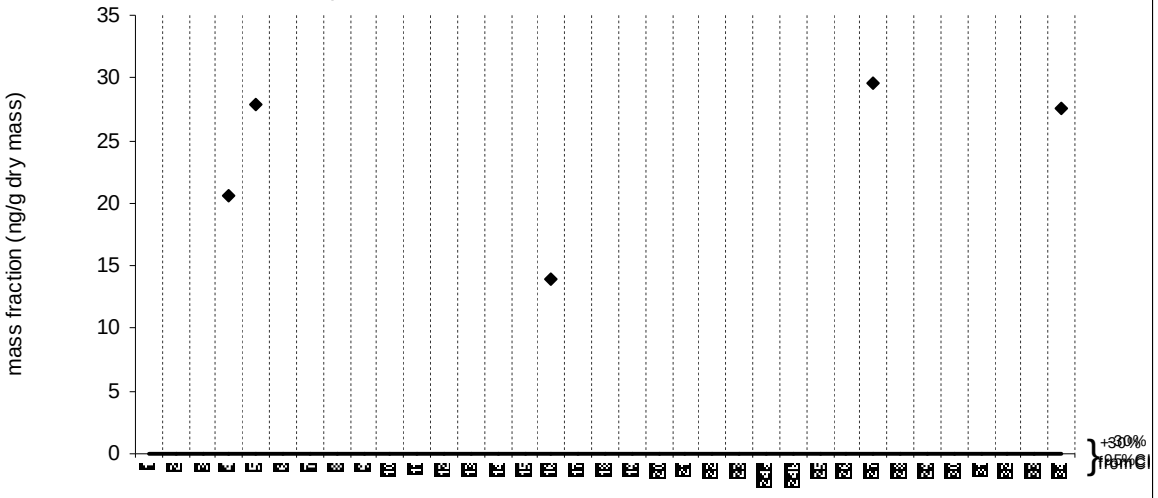
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C2-naphthobenzothiophenes — SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 27.6 ng/g dry mass

Reported Results: 9 Quantitative Results: 5

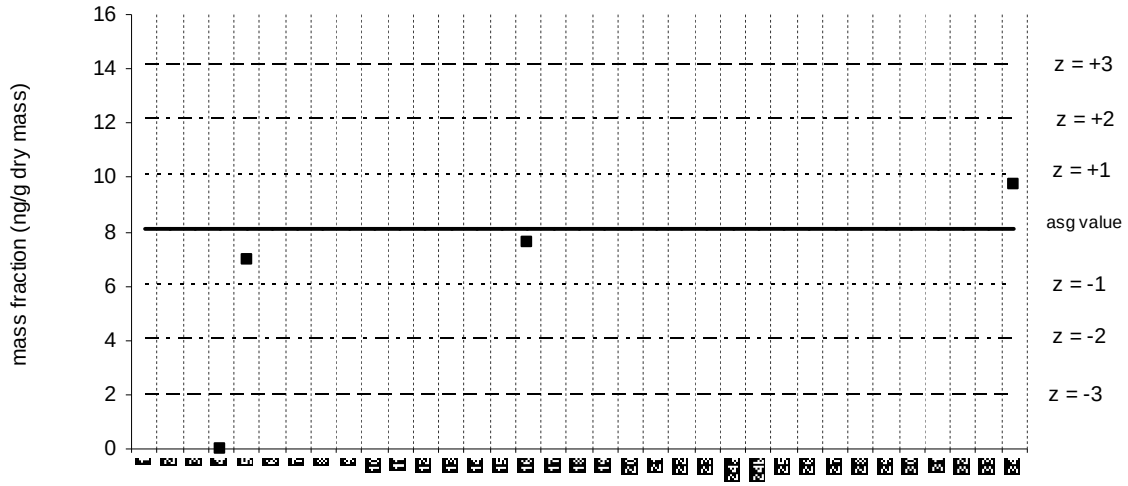


laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C3-naphthobenzothiophenes — QA10TIS01

Assigned value = 8.11 ng/g dry mass s = 1.46 ng/g dry mass 95% CI = 1.65 ng/g dry mass
Median value = 7.28 ng/g dry mass
Reported Results: 10 Quantitative Results: 4



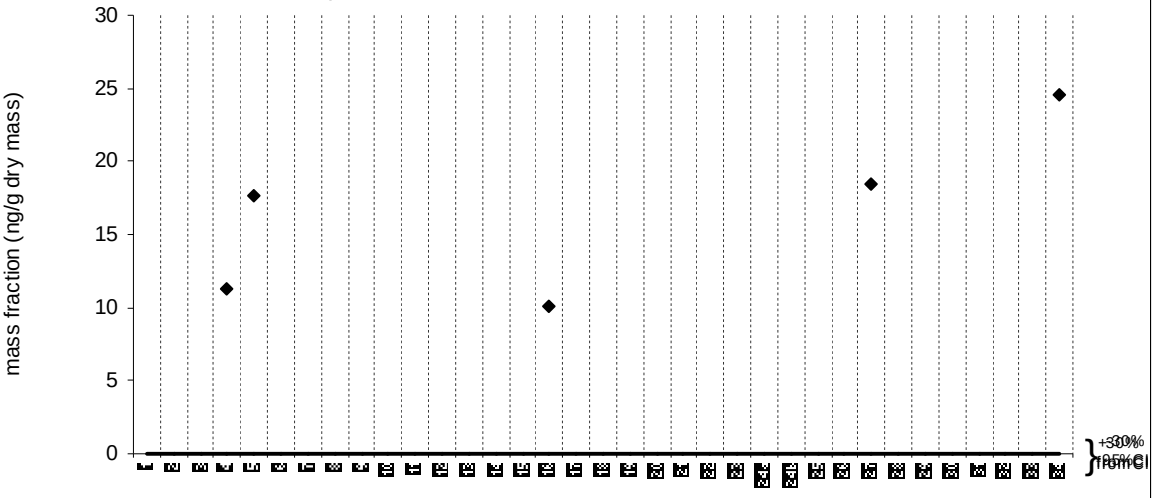
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C3-naphthobenzothiophenes — SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 17.7 ng/g dry mass

Reported Results: 9 Quantitative Results: 5



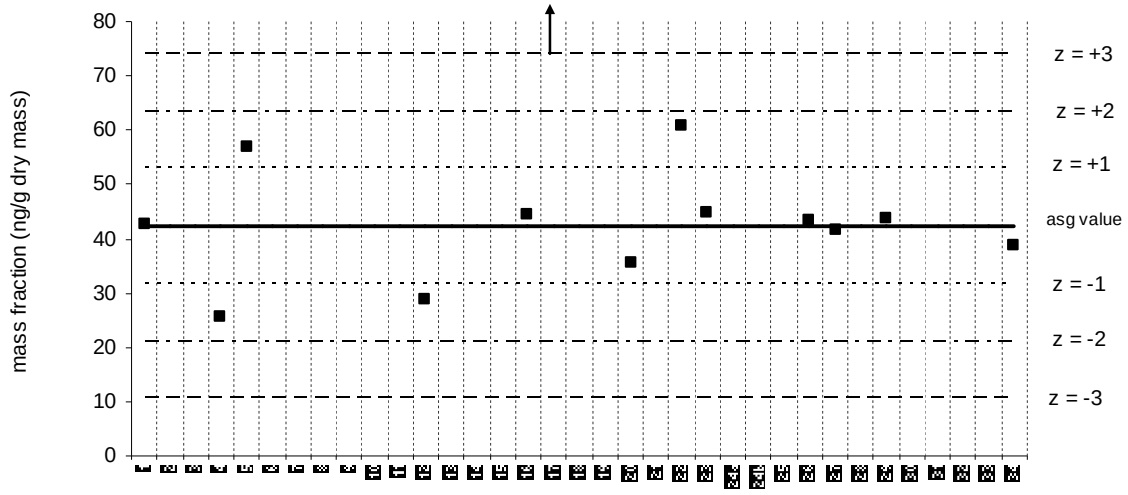
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C1-chrysenes **QA10TIS01**

Assigned value = 42.3 ng/g dry mass s = 9.9 ng/g dry mass 95% CI = 5.6 ng/g dry mass Median value = 43.5 ng/g dry mass

Reported Results: 19 Quantitative Results: 13



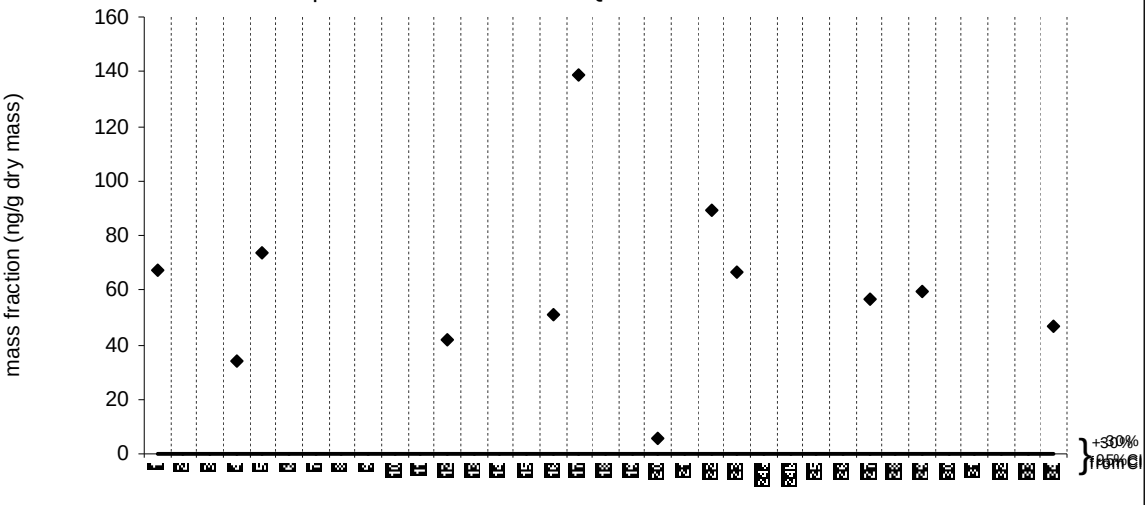
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C1-chrysenes **SRM 1974b**

Target Value = no target ng/g (dry mass): Median value = 53.8 ng/g dry mass

Reported Results: 17 Quantitative Results: 12



laboratory number

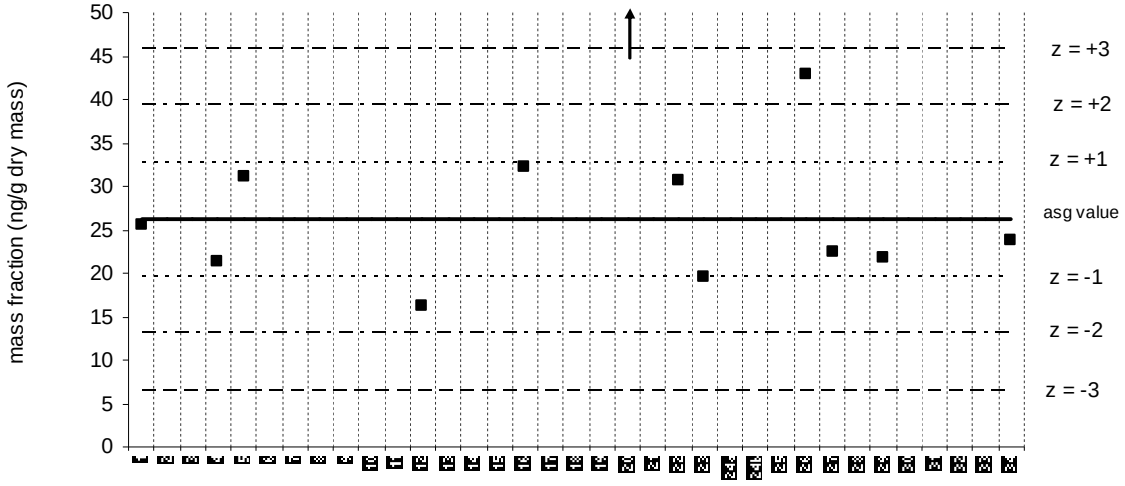
Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C2-chrysenes

QA10TIS01

Assigned value = 26.2 ng/g dry mass s = 7.6 ng/g dry mass 95% CI = 4.5 ng/g dry mass Median value = 24.8 ng/g dry mass

Reported Results: 19 Quantitative Results: 12



laboratory number

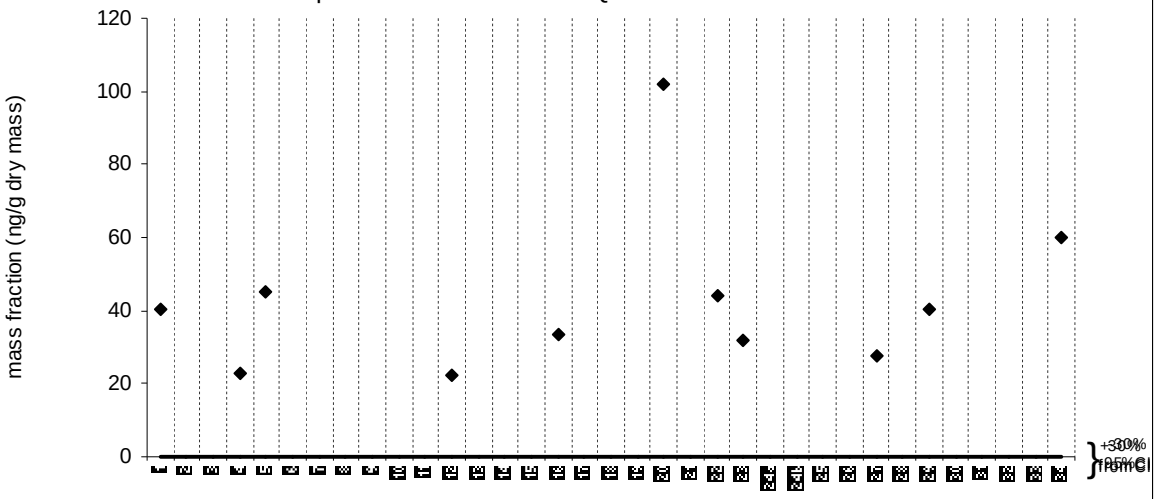
Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C2-chrysenes

SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 40.2 ng/g dry mass

Reported Results: 17 Quantitative Results: 11

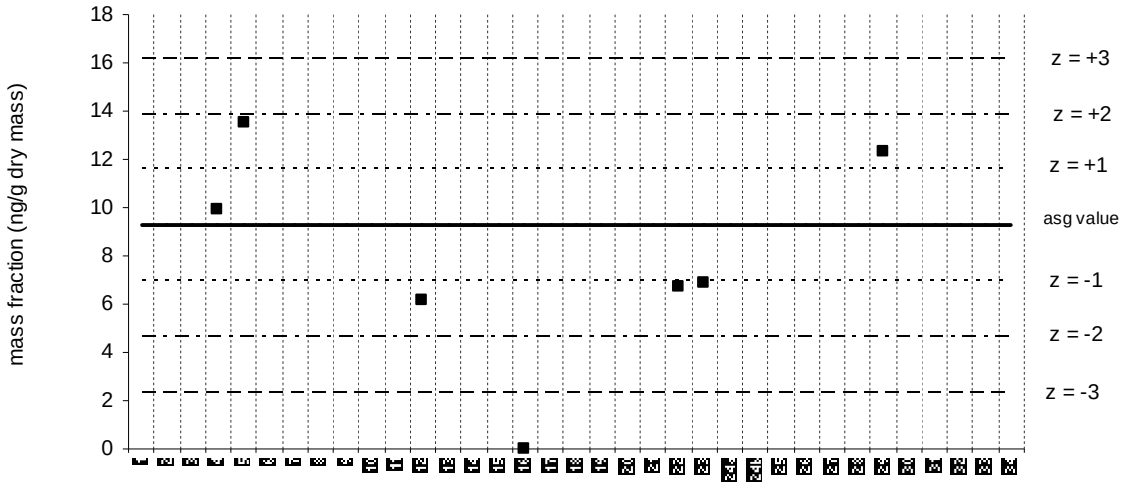


laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C3-chrysenes **QA10TIS01**

Assigned value = 9.25 ng/g dry mass s = 3.14 ng/g dry mass 95% CI = 2.51 ng/g dry mass
Median value = 6.84 ng/g dry mass
Reported Results: 19 Quantitative Results: 7



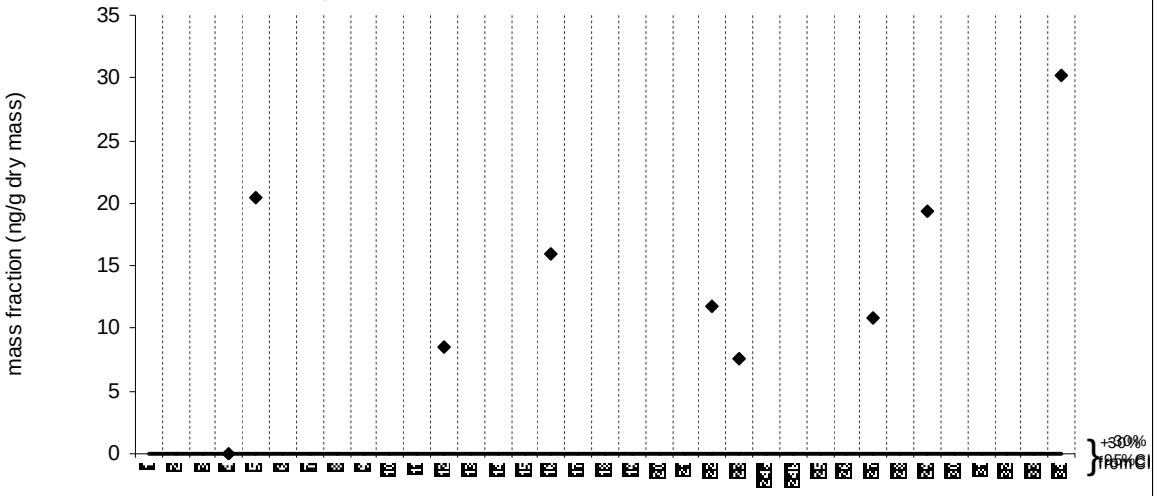
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C3-chrysenes **SRM 1974b**

Target Value = no target ng/g (dry mass): Median value = 11.7 ng/g dry mass

Reported Results: 17 Quantitative Results: 9



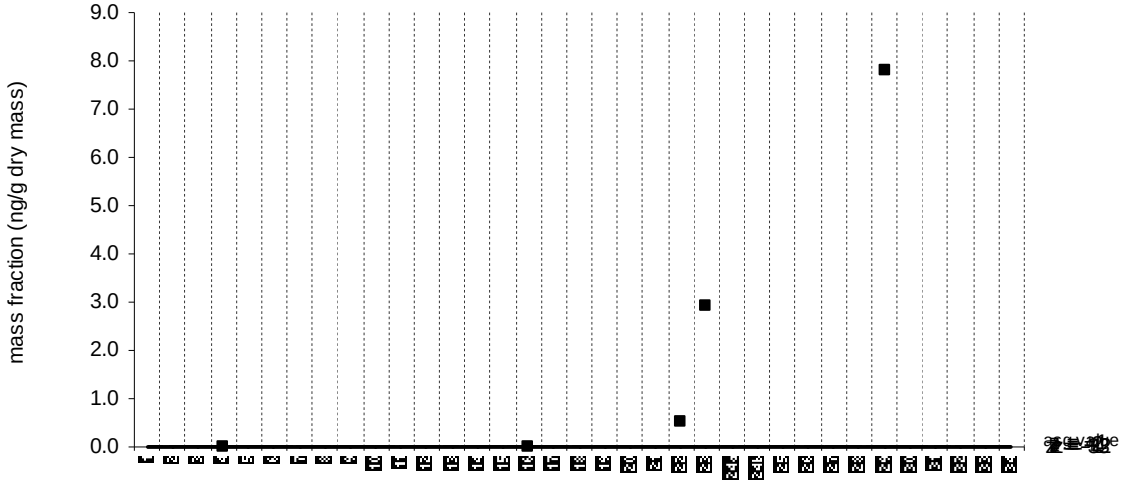
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

C4-chrysenes **QA10TIS01**

Assigned value = No Target ng/g (dry mass) Median value = 0.54 ng/g dry mass

Reported Results: 18 Quantitative Results: 5

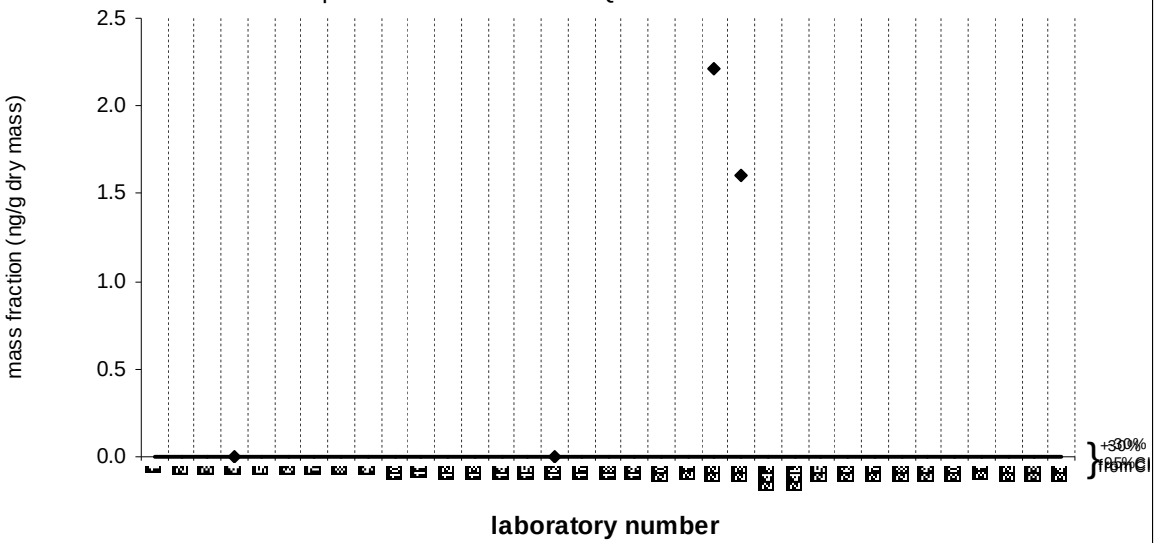


Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

C4-chrysenes **SRM 1974b**

Target Value = no target ng/g (dry mass): Median value = 0.80 ng/g dry mass

Reported Results: 16 Quantitative Results: 4

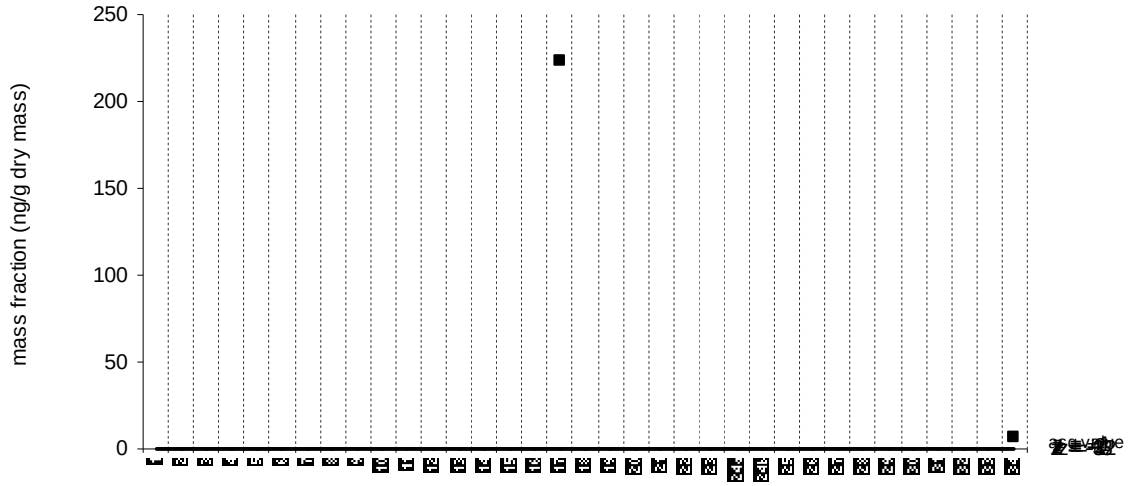


Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

Carbazole **QA10TIS01**

Assigned value = No Target ng/g (dry mass) Median value = 115 ng/g dry mass

Reported Results: 6 Quantitative Results: 2



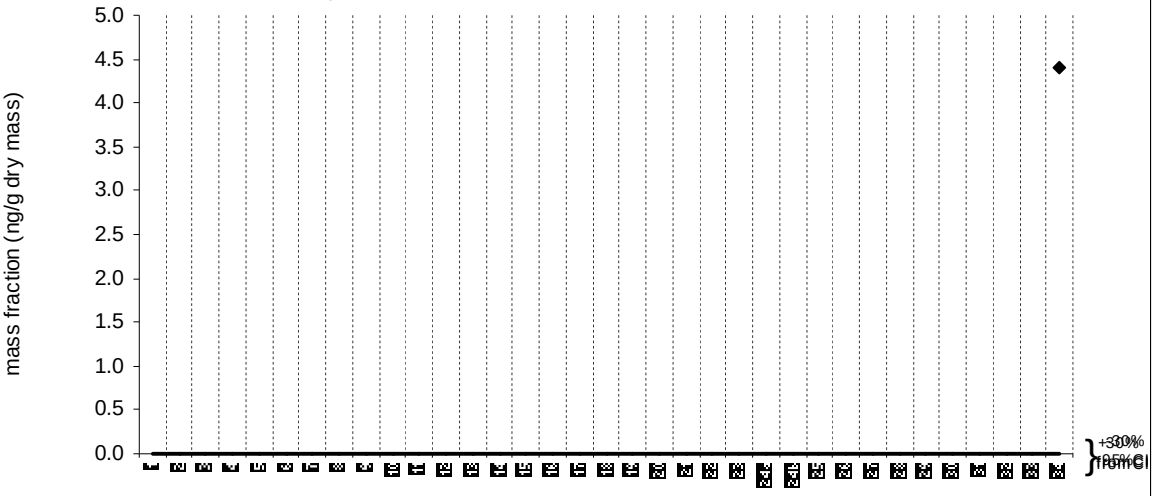
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

Carbazole **SRM 1974b**

Target Value = no target ng/g (dry mass): Median value = 4.40 ng/g dry mass

Reported Results: 6 Quantitative Results: 1



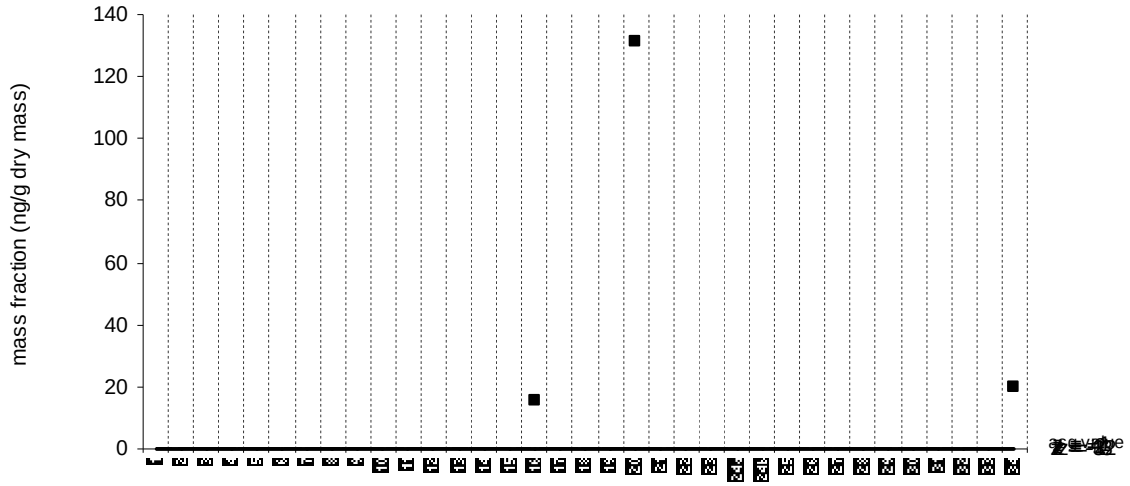
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

18a(H)-22,29,30-Trisnorhopane **QA10TIS01**

Assigned value = No Target ng/g (dry mass) Median value = 19.8 ng/g dry mass

Reported Results: 12 Quantitative Results: 3



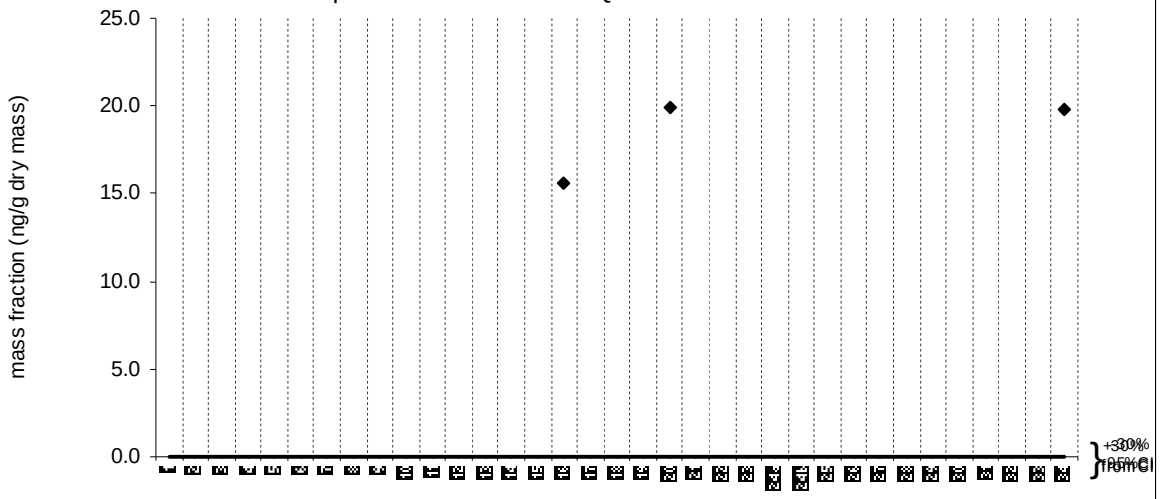
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

18a(H)-22,29,30-Trisnorhopane **SRM 1974b**

Target Value = no target ng/g (dry mass): Median value = 19.8 ng/g dry mass

Reported Results: 7 Quantitative Results: 3



laboratory number

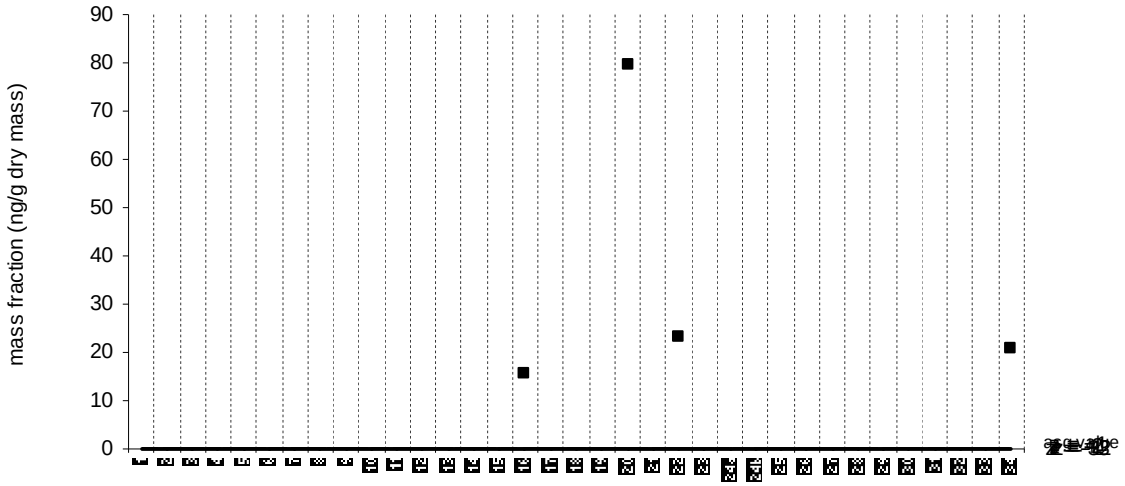
Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

17a(H)-22,29,30-Trisnorhopane

QA10TIS01

Assigned value = No Target ng/g (dry mass) Median value = 22.0 ng/g dry mass

Reported Results: 11 Quantitative Results: 4



laboratory number

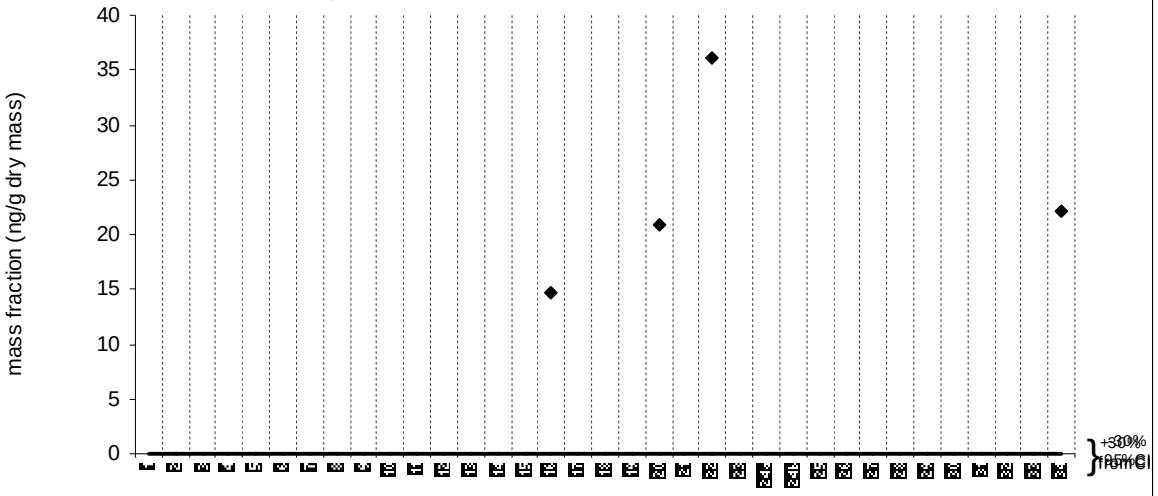
Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

17a(H)-22,29,30-Trisnorhopane

SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 21.5 ng/g dry mass

Reported Results: 9 Quantitative Results: 4



laboratory number

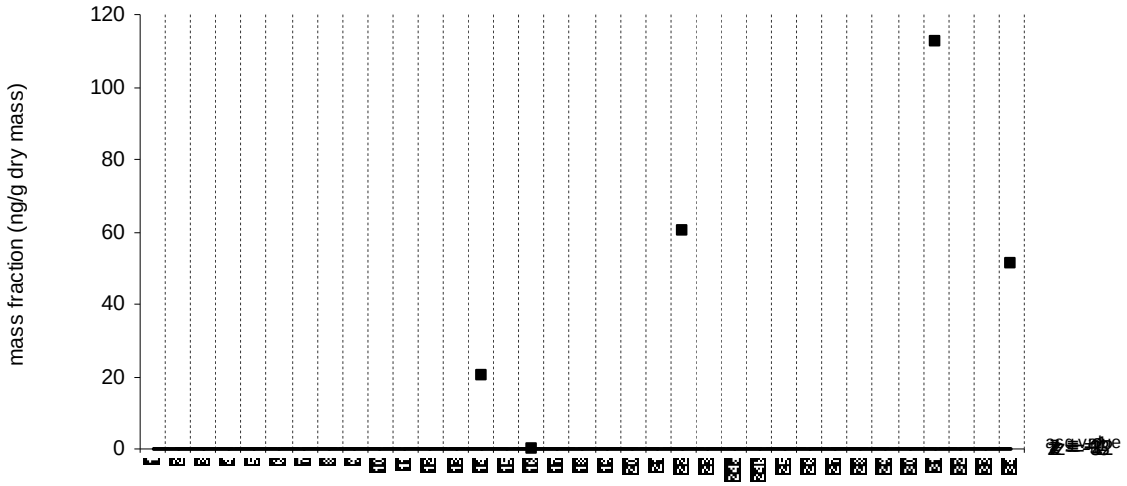
Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

17α(H),21β(H)-30-Norhopane

QA10TIS01

Assigned value = No Target ng/g (dry mass) Median value = 51.2 ng/g dry mass

Reported Results: 12 Quantitative Results: 5



laboratory number

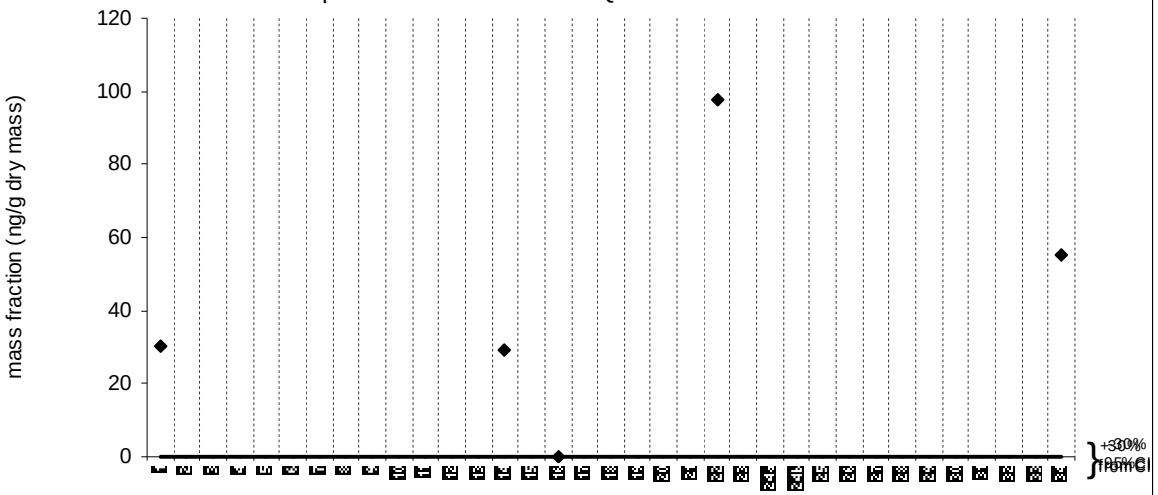
Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

17α(H),21β(H)-30-Norhopane

SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 30.4 ng/g dry mass

Reported Results: 10 Quantitative Results: 5



laboratory number

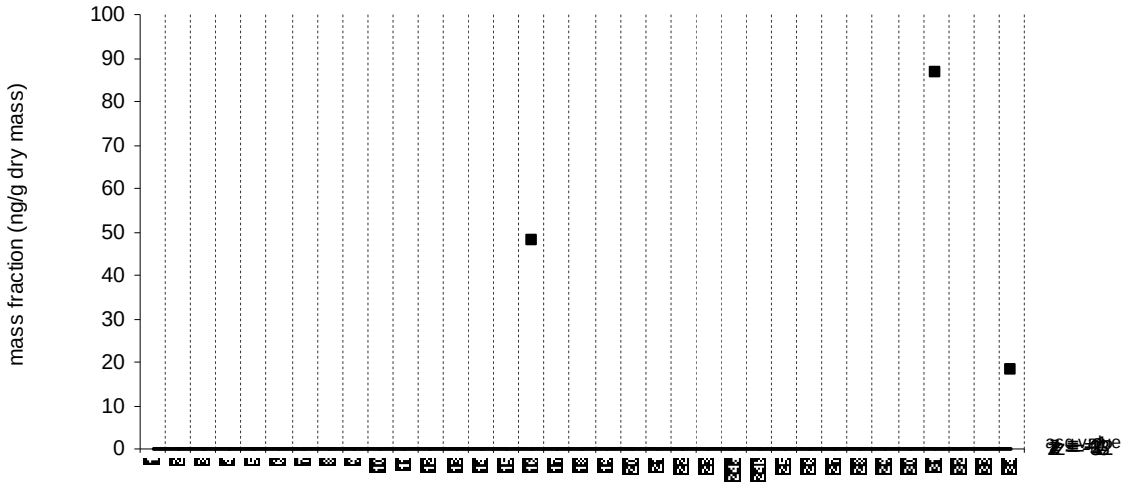
Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

18a(H)-30-Norneohopane

QA10TIS01

Assigned value = No Target ng/g (dry mass) Median value = 48.2 ng/g dry mass

Reported Results: 9 Quantitative Results: 3



laboratory number

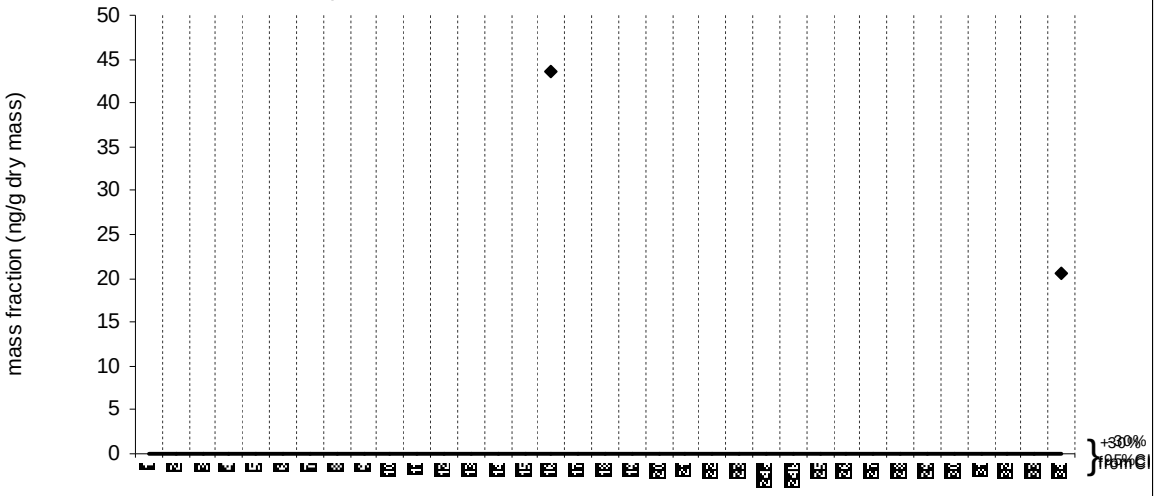
Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

18a(H)-30-Norneohopane

SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 32.1 ng/g dry mass

Reported Results: 7 Quantitative Results: 2



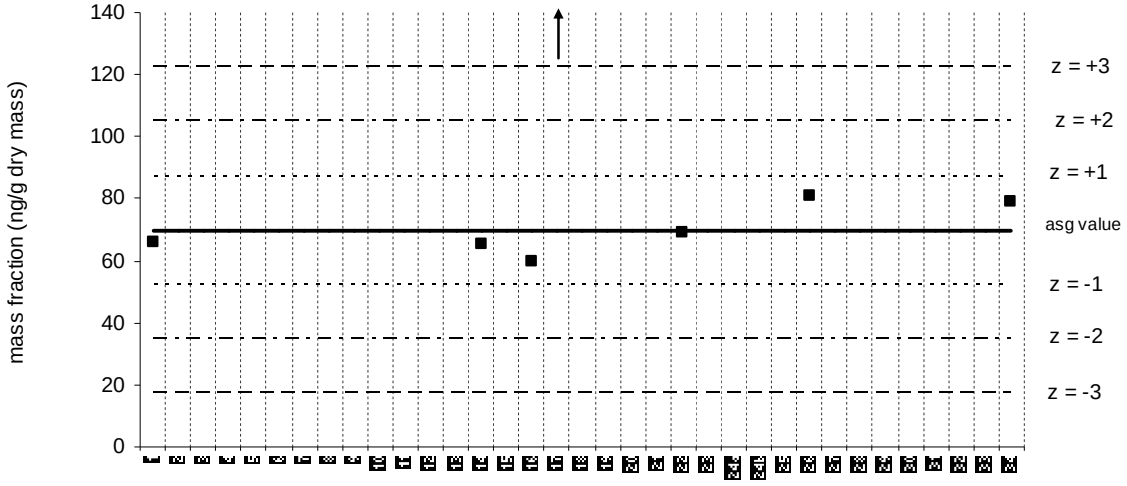
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

17α(H),21β(H)-Hopane — QA10TIS01

Assigned value = 69.9 ng/g dry mass s = 8.3 ng/g dry mass 95% CI = 6.7 ng/g dry mass Median value = 68.8 ng/g dry mass

Reported Results: 14 Quantitative Results: 7



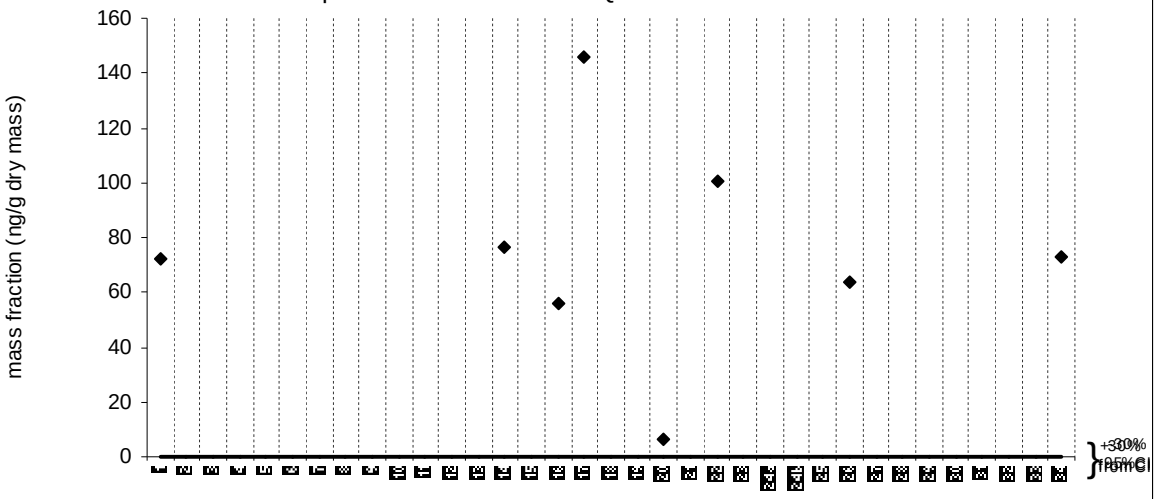
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

17α(H),21β(H)-Hopane — SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 72.8 ng/g dry mass

Reported Results: 12 Quantitative Results: 8



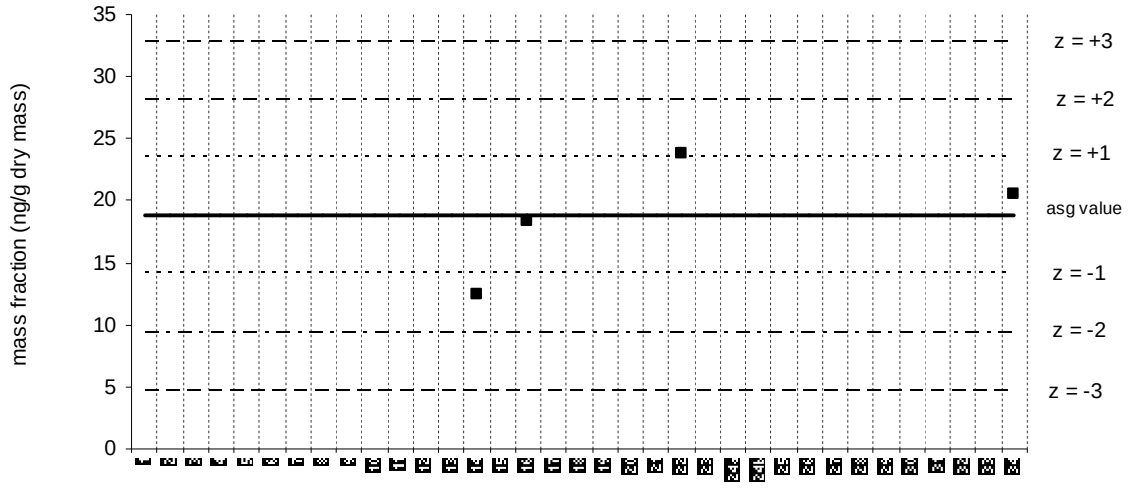
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

17α(H),21β(H)-22R-Homohopane QA10TIS01

Assigned value = 18.8 ng/g dry mass s = 4.8 ng/g dry mass 95% CI = 4.7 ng/g dry mass Median value = 19.4 ng/g dry mass

Reported Results: 12 Quantitative Results: 4



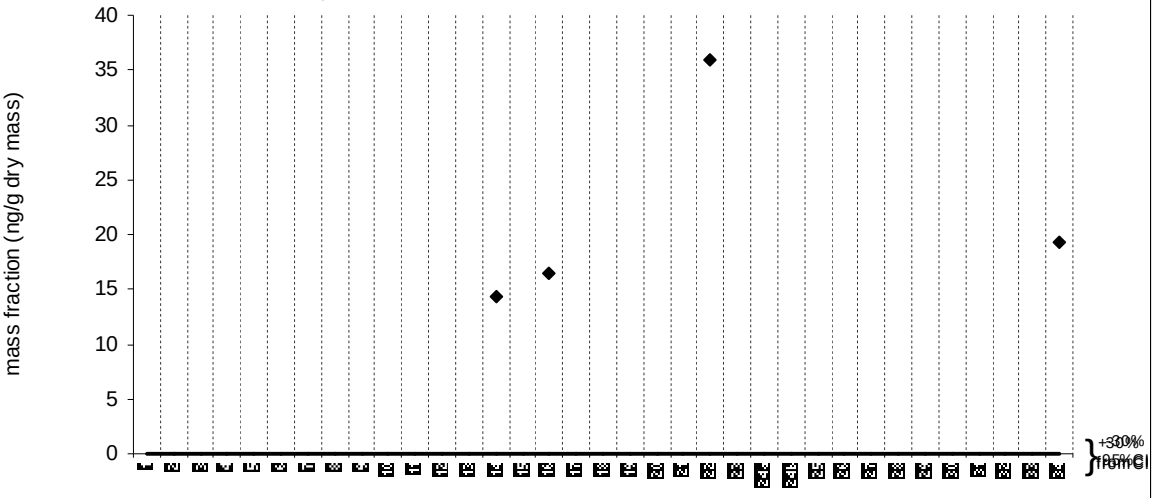
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

17α(H),21β(H)-22R-Homohopane SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 17.9 ng/g dry mass

Reported Results: 10 Quantitative Results: 4



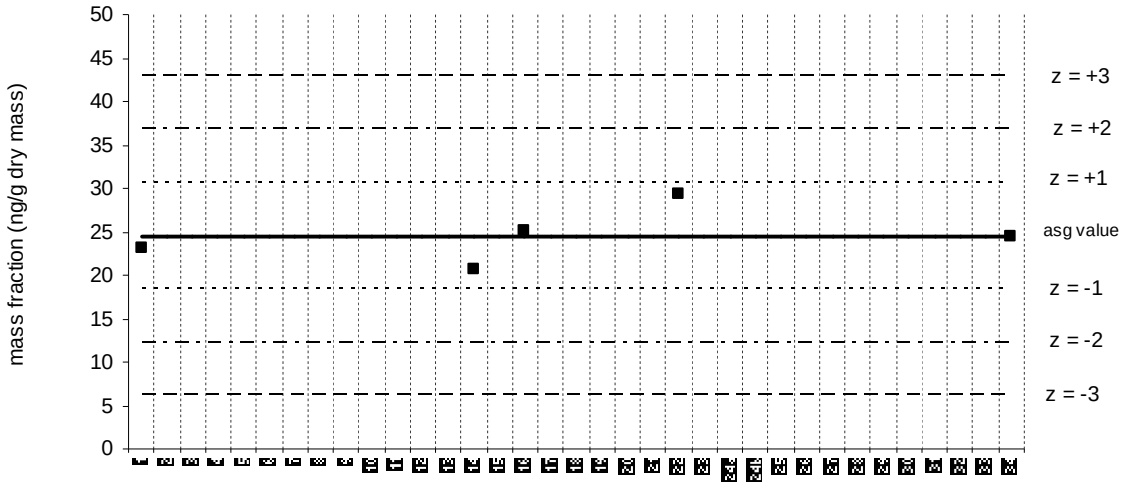
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

17α(H),21β(H)-22S-Homohopane — QA10TIS01

Assigned value = 24.5 ng/g dry mass s = 3.2 ng/g dry mass 95% CI = 2.8 ng/g dry mass Median value = 24.4 ng/g dry mass

Reported Results: 12 Quantitative Results: 5



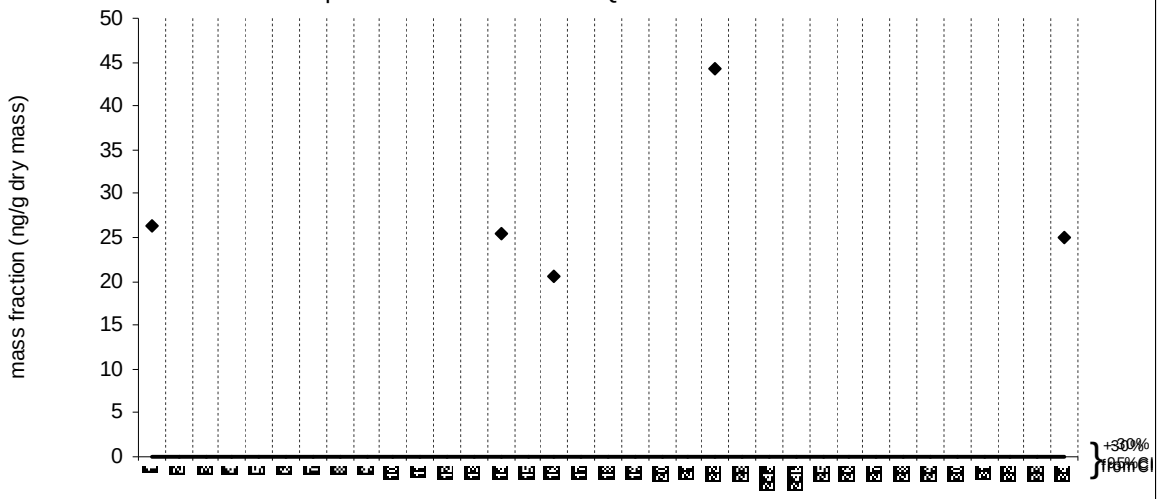
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

17α(H),21β(H)-22S-Homohopane — SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 25.4 ng/g dry mass

Reported Results: 10 Quantitative Results: 5



laboratory number

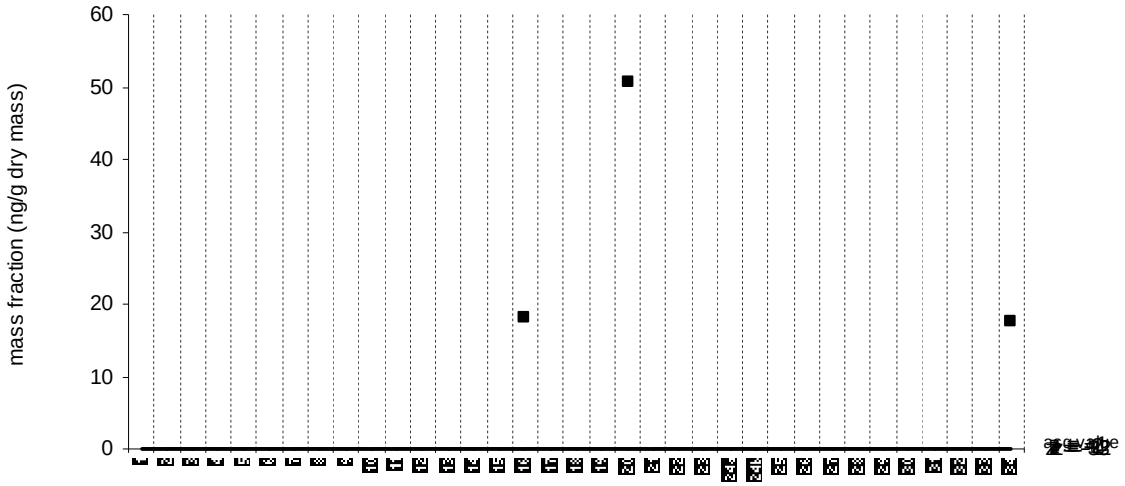
Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

13b(H)17a(H)-Diacholestane 20S

QA10TIS01

Assigned value = No Target ng/g (dry mass) Median value = 18.2 ng/g dry mass

Reported Results: 9 Quantitative Results: 3



laboratory number

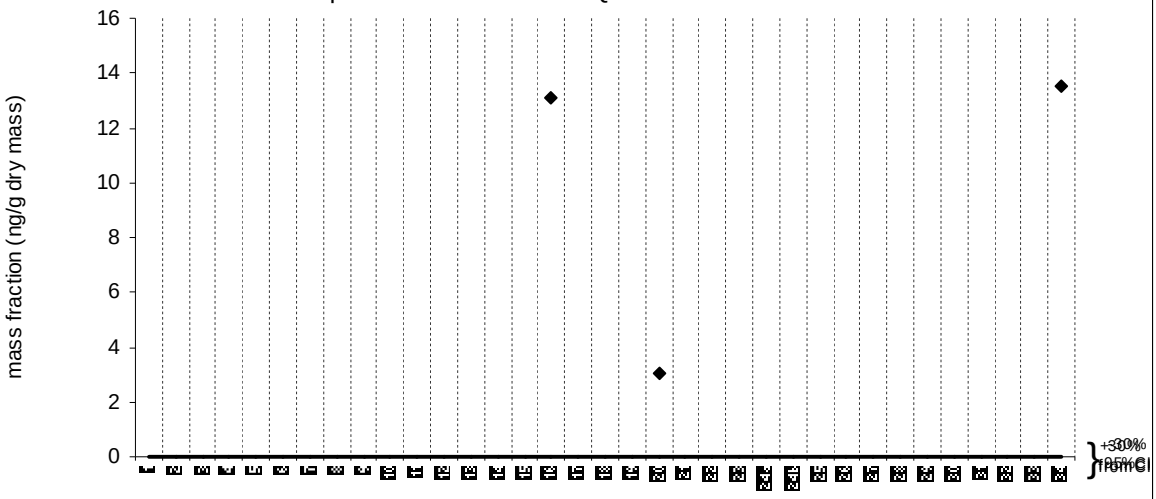
Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

13b(H)17a(H)-Diacholestane 20S

SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 13.1 ng/g dry mass

Reported Results: 7 Quantitative Results: 3



laboratory number

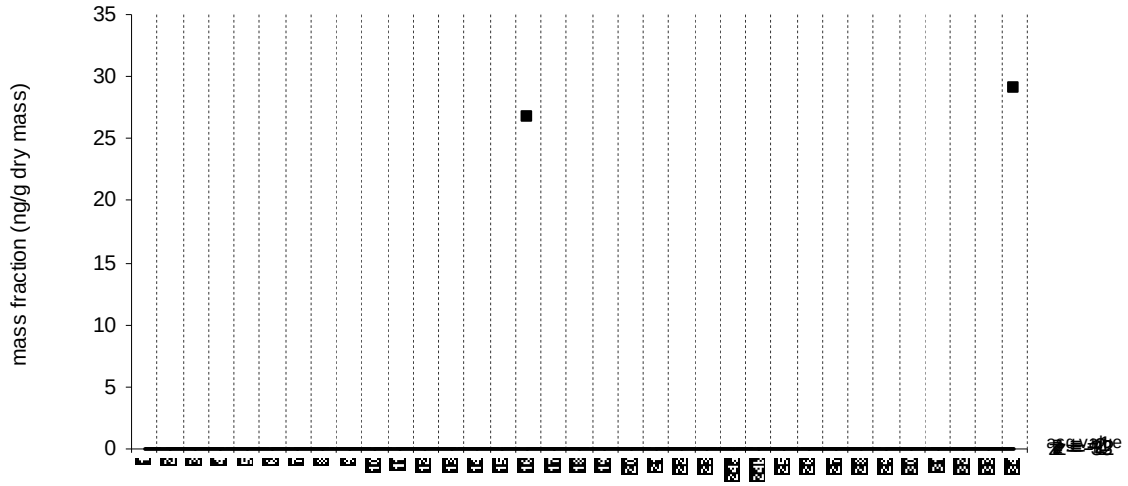
Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

5a(H),14a(H),17a(H)-Cholestane 20S

QA10TIS01

Assigned value = No Target ng/g (dry mass) Median value = 28.0 ng/g dry mass

Reported Results: 8 Quantitative Results: 2



laboratory number

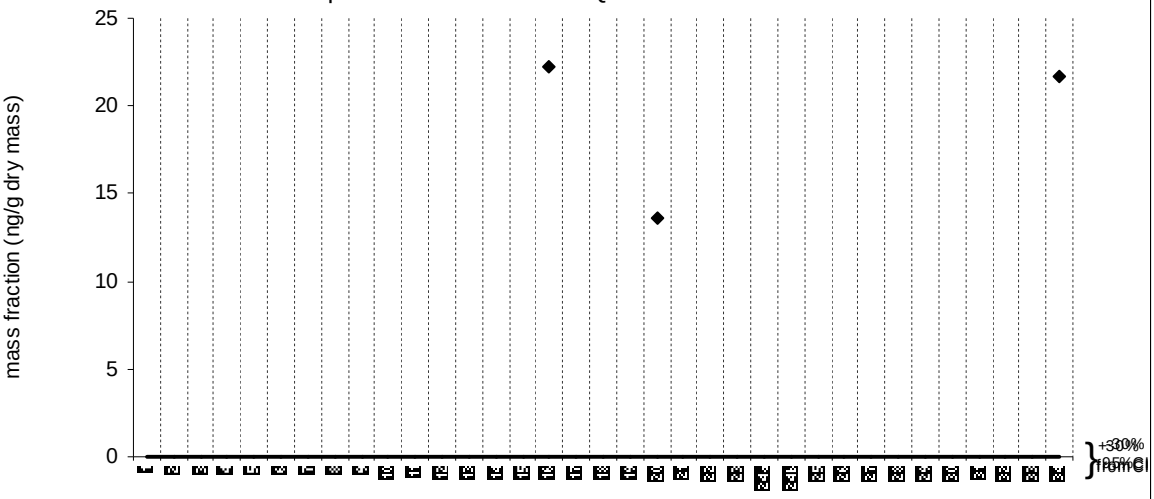
Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

5a(H),14a(H),17a(H)-Cholestane 20S

SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 21.7 ng/g dry mass

Reported Results: 7 Quantitative Results: 3



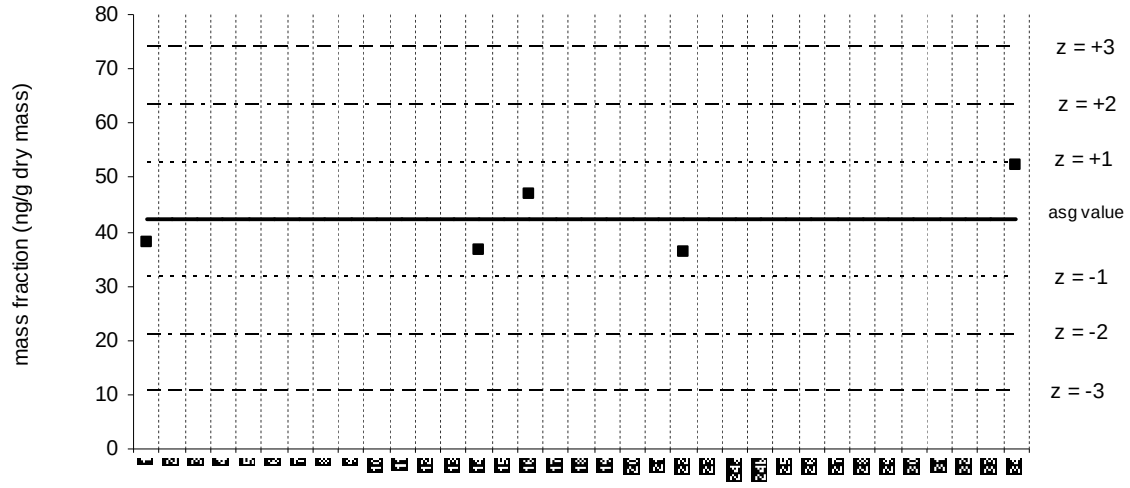
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

5a(H),14a(H),17a(H)-Cholestane 20R — QA10TIS01

Assigned value = 42.2 ng/g dry mass s = 7.2 ng/g dry mass 95% CI = 6.3 ng/g dry mass Median value = 38.2 ng/g dry mass

Reported Results: 12 Quantitative Results: 5

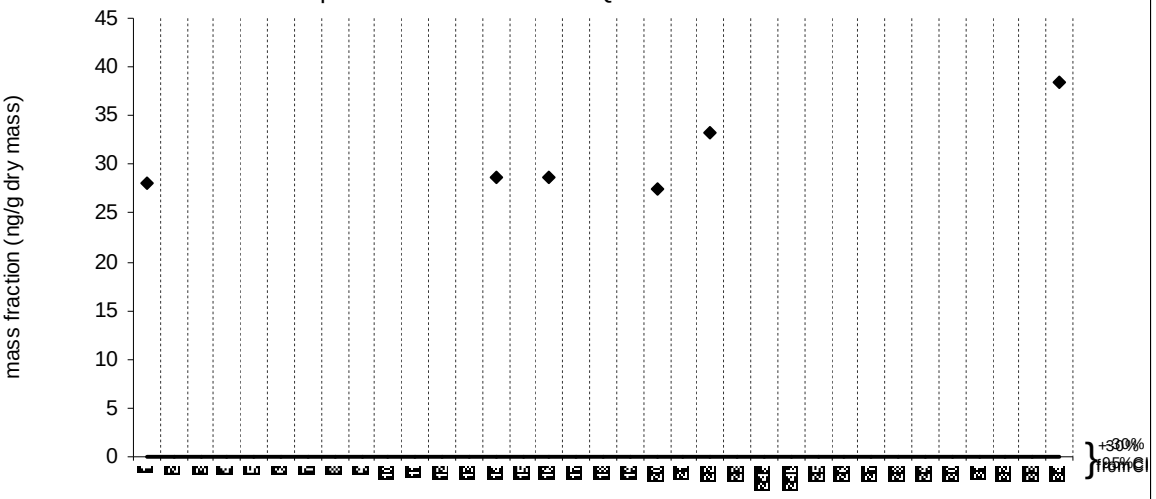


Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

5a(H),14a(H),17a(H)-Cholestane 20R — SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 28.7 ng/g dry mass

Reported Results: 10 Quantitative Results: 6

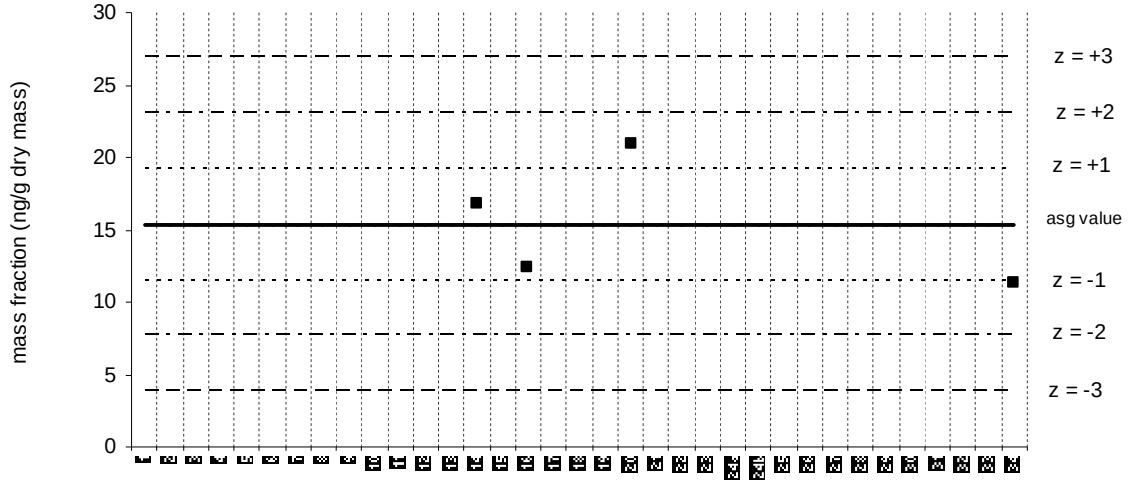


Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

5a(H),14a(H),17a(H)-24-Ethylcholestane 20S — QA10TIS01

Assigned value = 15.4 ng/g dry mass s = 4.4 ng/g dry mass 95% CI = 4.3 ng/g dry mass Median value = 14.6 ng/g dry mass

Reported Results: 10 Quantitative Results: 4

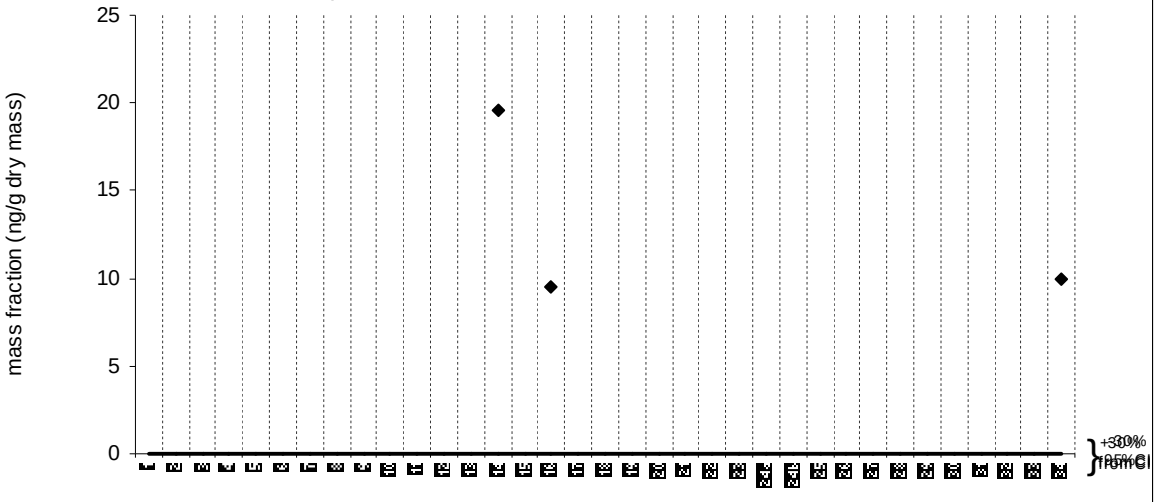


Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

5a(H),14a(H),17a(H)-24-Ethylcholestane 20S — SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 10.0 ng/g dry mass

Reported Results: 8 Quantitative Results: 3

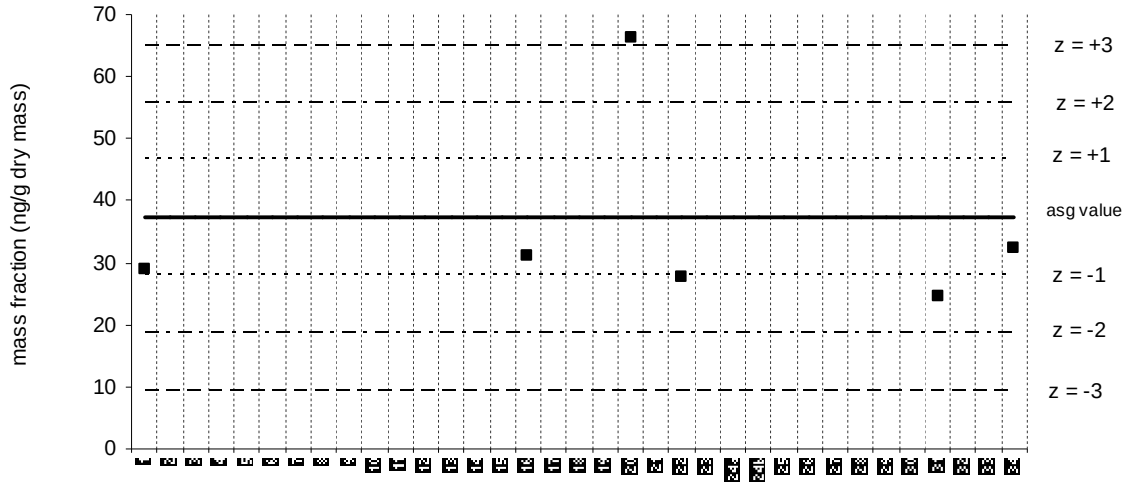


Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

5a(H),14a(H),17a(H)-24-Ethylcholestane 20R — QA10TIS01

Assigned value = 37.2 ng/g dry mass s = 16.3 ng/g dry mass 95% CI = 14.3 ng/g dry mass
Median value = 30.0 ng/g dry mass

Reported Results: 11 Quantitative Results: 6

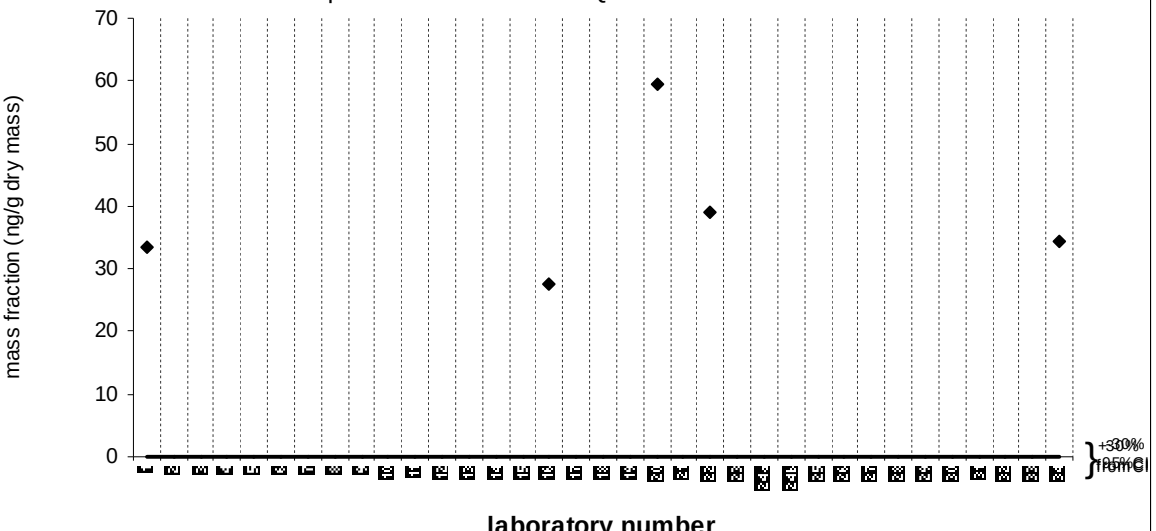


Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

5a(H),14a(H),17a(H)-24-Ethylcholestane 20R — SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 34.3 ng/g dry mass

Reported Results: 9 Quantitative Results: 5

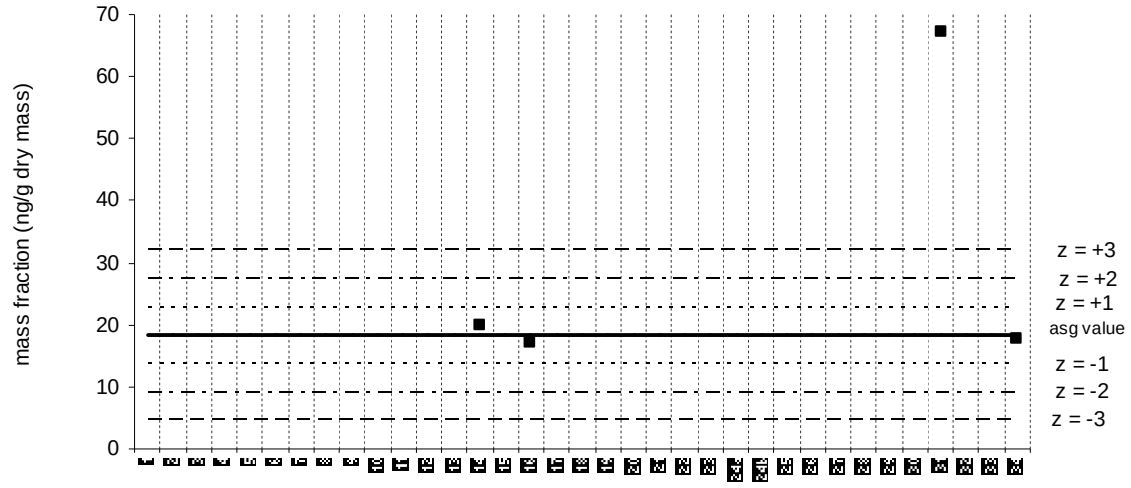


Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

5a(H),14b(H),17b(H)-Cholestane 20R — QA10TIS01

Assigned value = 18.3 ng/g dry mass s = 1.5 ng/g dry mass 95% CI = 1.7 ng/g dry mass Median value = 18.8 ng/g dry mass

Reported Results: 12 Quantitative Results: 4



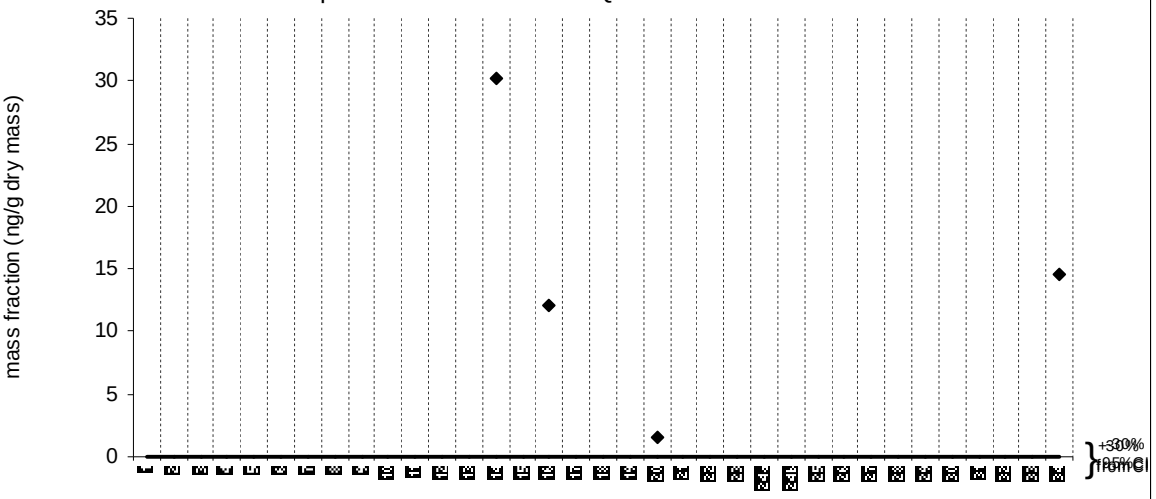
laboratory number

Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

5a(H),14b(H),17b(H)-Cholestane 20R — SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 13.4 ng/g dry mass

Reported Results: 10 Quantitative Results: 4



laboratory number

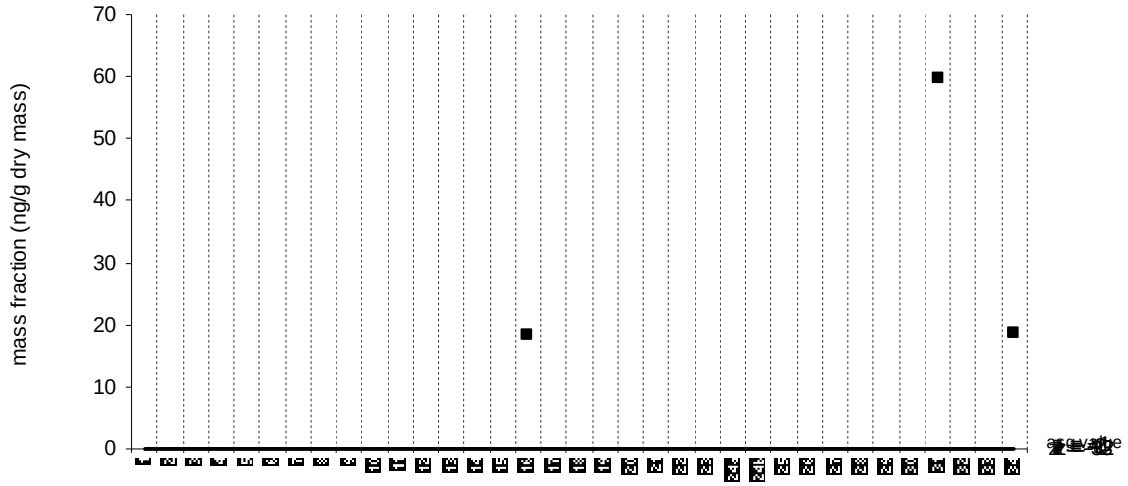
Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

5a(H),14b(H),17b(H)-Cholestane 20S

QA10TIS01

Assigned value = No Target ng/g (dry mass) Median value = 18.8 ng/g dry mass

Reported Results: 9 Quantitative Results: 3



laboratory number

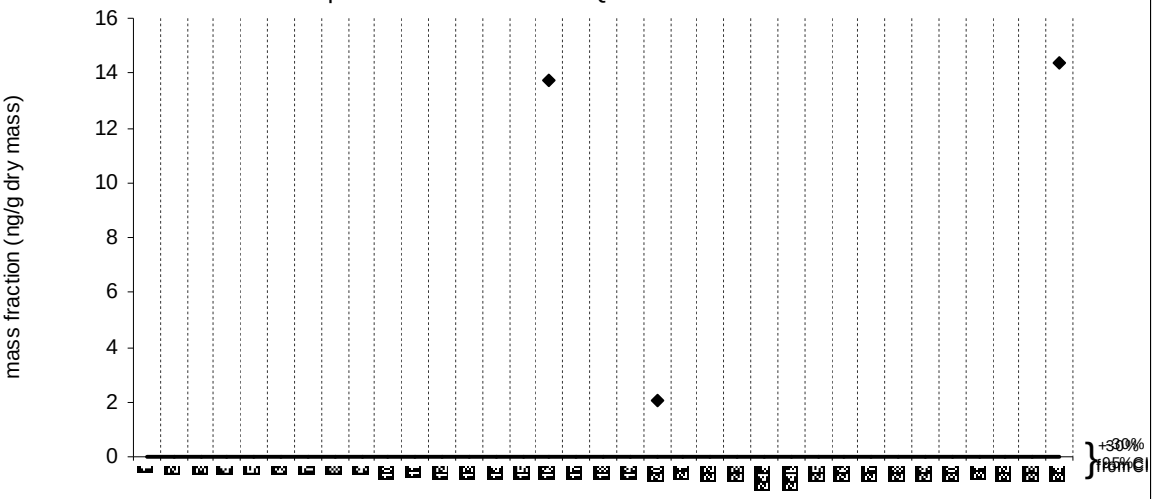
Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

5a(H),14b(H),17b(H)-Cholestane 20S

SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 13.8 ng/g dry mass

Reported Results: 7 Quantitative Results: 3



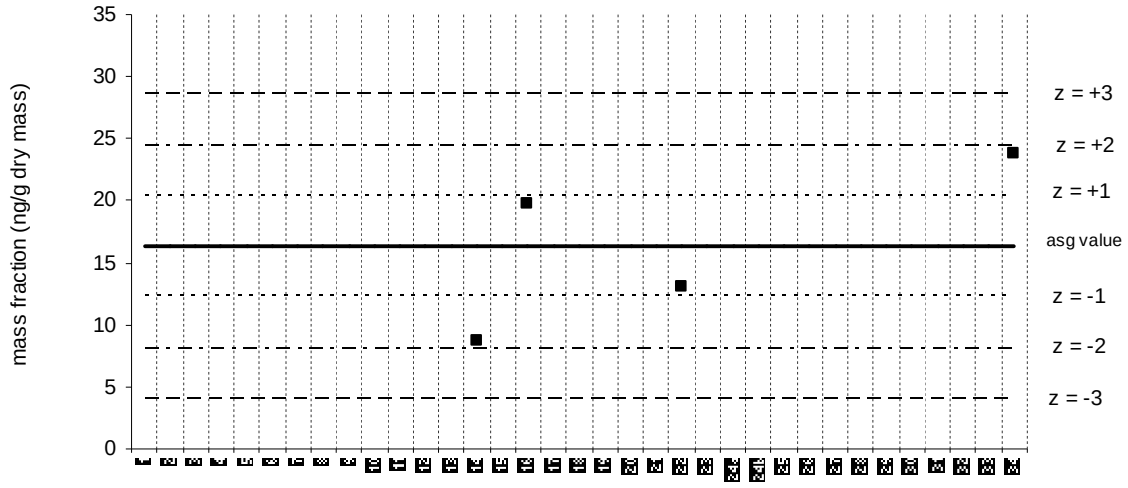
laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

5a(H),14b(H),17b(H)-24-Ethylcholestane 20R — QA10TIS01

Assigned value = 16.3 ng/g dry mass s = 6.7 ng/g dry mass 95% CI = 6.6 ng/g dry mass Median value = 16.4 ng/g dry mass

Reported Results: 12 Quantitative Results: 4

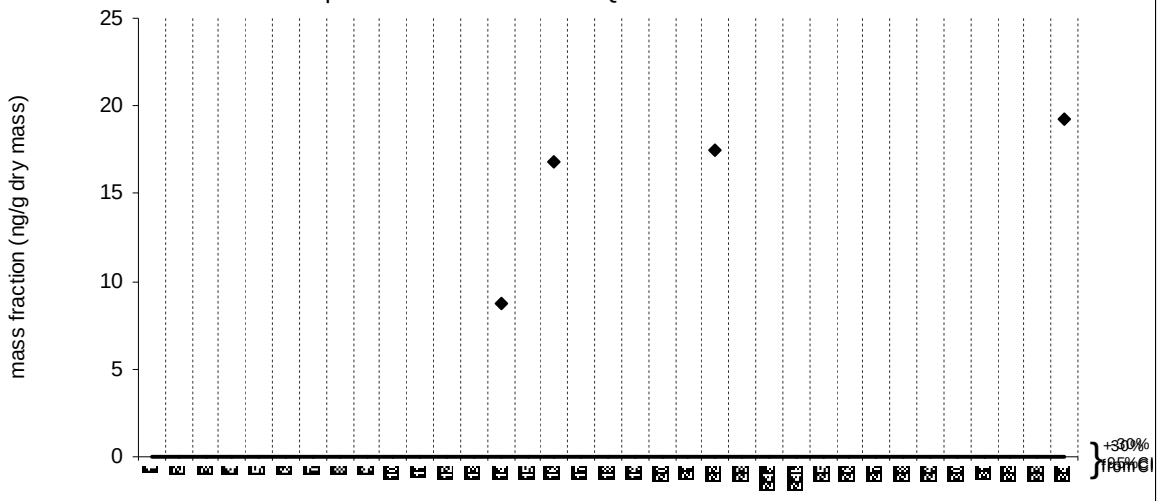


Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

5a(H),14b(H),17b(H)-24-Ethylcholestane 20R — SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 17.1 ng/g dry mass

Reported Results: 10 Quantitative Results: 4



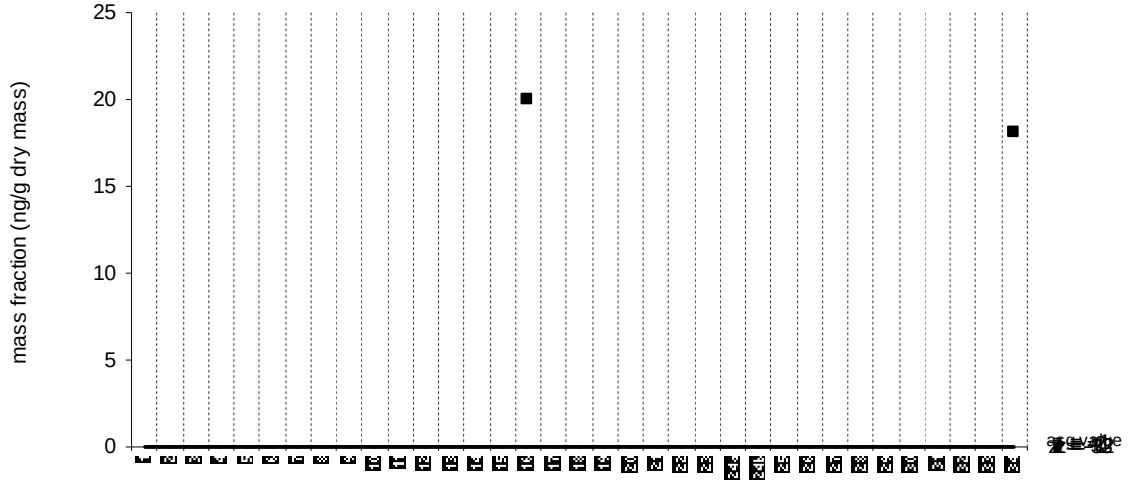
Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

5a(H),14b(H),17b(H)-24-Ethylcholestane 20S

QA10TIS01

Assigned value = No Target ng/g (dry mass) Median value = 19.1 ng/g dry mass

Reported Results: 9 Quantitative Results: 2



laboratory number

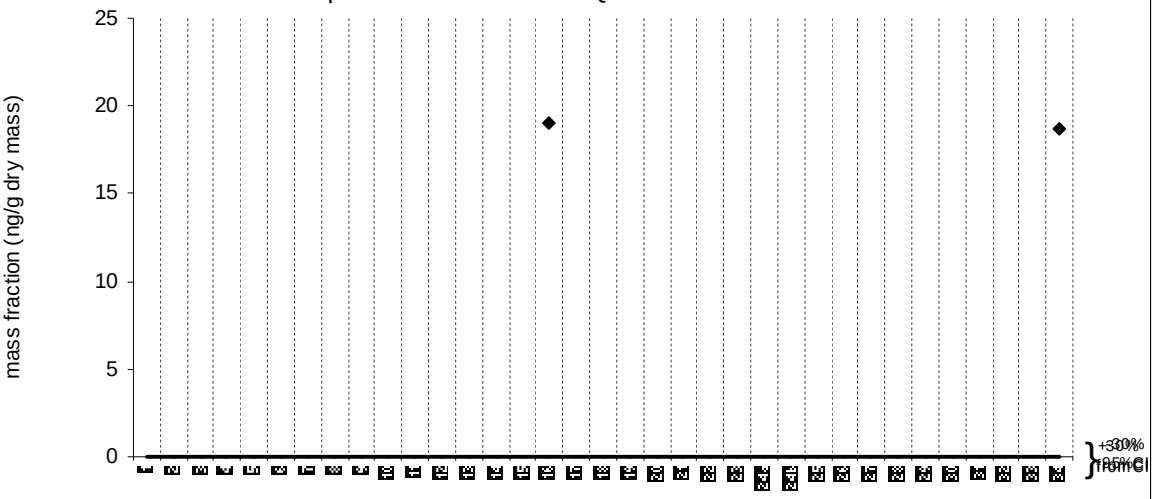
Solid line : exercise assigned value (EAV); dotted line: z=±1 (25% from EAV); dotted/dashed line: z=±2 (50% from EAV); dashed line: z=±3 (75% from EAV)

5a(H),14b(H),17b(H)-24-Ethylcholestane 20S

SRM 1974b

Target Value = no target ng/g (dry mass): Median value = 18.9 ng/g dry mass

Reported Results: 7 Quantitative Results: 2



laboratory number

Solid line: value from Certificate of Analysis ; dotted line: 95% confidence limits; dashed line: 30% from 95% confidence limits

Appendix E
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