

Worldwide Open Proficiency Test for Nuclear and Related Analytical Techniques Laboratories

PTNATIAEA19

**Determination of Major, Minor and
Trace Elements in a Clay Sample and
in a Plant Sample**

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FOREWORD

The IAEA assists its Member States laboratories to continuously improve their analytical performance by producing reference materials, by developing standardized analytical methods, and by conducting interlaboratory comparisons and proficiency tests. To ensure a reliable worldwide, rapid and consistent response, the IAEA Nuclear Science and Instrumentation Laboratory in Seibersdorf, Austria, coordinates proficiency tests for Member States laboratories.

This summary report presents the results of the worldwide proficiency test PTNATIAEA19 on the determination of major, minor and trace elements in a clay sample and in a plant sample. Methodologies, statistical analysis, and evaluation of results (for each element and for each laboratory) are also reported. The test was carried out within the IAEA project Nuclear Instrumentation, under the Accelerators and Nuclear Spectrometry Subprogram, Nuclear Science Program. The main objective of the project is to enhance capability of interested Member States in effective utilization of nuclear spectrometry and analytical services in agriculture, monitoring an evaluation of the environment and other disciplines.

This proficiency test was designed to identify potential analytical problems, to support IAEA Member States laboratories to improve the quality of their analytical results, to maintain their accreditation and to provide a regular forum for discussion and technology transfer in this topic.

The coordinator of the proficiency test and responsible for this publication was Mr. A. Migliori of the IAEA Nuclear Science and Instrumentation Laboratory, Department of Nuclear Sciences and Applications. The IAEA acknowledges the valuable contribution of the international expert Mr. P. Bode (Netherlands). Acknowledgments go also to Mr. N. Pessoa Barradas of the IAEA Physics Section and to Mr. R. Padilla Alvarez of the IAEA Nuclear Science and Instrumentation Laboratory for their support throughout the whole implementation of the test and to Mr. R. Fernandez Roque (Cuba) for the maintenance and upgrades to the PT-NSIL website.

1. INTRODUCTION

The PTNATIAEA19 proficiency test was aimed at nuclear and related analytical techniques laboratories. The participants were requested to use their established and proven analytical procedures for the determination of major, minor and trace elements in a clay sample and in a plant sample.

Clay samples and plant samples with ascertained homogeneity and well characterized known target values of the mass fractions of measurands (e.g., chemical elements) were distributed to the laboratories that accepted the invitation to the test. The laboratories were requested to analyse the samples using established techniques following their analytical procedures. Based on the results of the proficiency test presented in this report, each participating laboratory should assess its analytical performance by using the specified criteria and, if appropriate, to identify discrepancies, and to correct relevant analytical procedures.

The feasibility of the proficiency test was, as for the previous test PTNATIAEA18, partially hindered by the critical situation related to the COVID-19 pandemic, especially for what concerns the distribution of the samples and the accessibility of some of the participants to their laboratory. The proficiency test was announced on 19 May 2021. The clay samples and plant samples were distributed to most of the participating laboratories by August 2021. The deadline for submission of the results was 31 January 2022 after a postponement of a month related to the problems mentioned above. The proficiency test was implemented exploiting a web based platform [1] to facilitate and improve the processes and actions required for the organization and functionality of the test for the participants and the coordinator. Detailed instructions for analysts were also available on the website.

The most recent PTNATIAEA tests were already organized according to the recommendations stated in the ISO/IEC 17043:2010 “Conformity assessment – General requirements for proficiency testing” [2]. Since the previous test PTNATIAEA18, a significant upgrade of the statistical methods for data treatment was implemented, in order to adhere to the procedures recommended in the ISO 13528:2015 “Statistical methods for use in proficiency testing by interlaboratory comparison” [3].

The submitted results were processed, grouped versus measurands/participants and compared with the measurand’s assigned values, that were based on either the values of the mass fractions certified by the external provider of the proficiency test items or the consensus values of the participants’ results (when no assigned value from the external provider was available and the distribution of results justified considering the consensus value as the assigned one). In some case the determination of consensus values from participants’ results was not feasible.

The values of z - or z' -score as well as ζ -scores and R -scores were calculated on basis of the assigned values. For the definitions of the z , z' , ζ - and R -scores please see Section 3.4.

The obtained results as well as the description of the data evaluation procedures are illustrated in this report. Each laboratory was assigned a code, therefore full anonymity of the presented results is guaranteed. The link between the laboratory code and the laboratory name is known only to the organizers of the proficiency test and to the laboratory itself.

2. DESCRIPTION OF THE TEST SAMPLE

The test materials were a clay sample and a plant sample prepared and tested by an external provider through an independent interlaboratory survey. The powdered, homogenized, and dried materials were distributed to 101 participants in plastic bottles (PPCO with PP screw cap, very good chemical resistance), each containing around 15 g of the test samples. The participants were asked to conduct the determination of the mass fractions of chemical elements constituting the samples according to their routine analytical procedures. They were also instructed to determine the moisture content of the material by using a separate sample and to report the results on a dry-weight basis. Only one result per element should be submitted. Each result should be accompanied by an estimate of its uncertainty expressed as one standard deviation. No restriction on the number of the reported elements was imposed.

3. DETAILS OF THE PROFICIENCY TEST

3.1. TERMS AND DEFINITIONS OF PARAMETERS USED IN THE TEST

Terminology and symbols are defined by ISO 13528:2015. The most important are shown below, and are, where appropriate, clarified for the PTNATIAEA test.

assigned value x_{pt} : is the value attributed to a particular property of the PTNATIAEA proficiency test item (in the case of this test, the elemental mass fraction). Assigned values x_{pt} can be obtained by formulation (i.e., by mixing materials with different known levels of a property in specified proportions, or by adding a specified proportion of a substance to a base material), using a certified reference material, as results from one laboratory, as consensus values from expert laboratories or as consensus values from participant results.

In the case of this test, assigned values were available as the ones certified by the external provider of the proficiency test items through an independent interlaboratory survey organized by the external provider itself. When not available, for some elements they could be determined as consensus values of the results of the participants in the PTNATIAEA test, through the application of robust statistic methods (see Section 3.2 for more details).

standard deviation of the assigned value SD : is the standard deviation of the certified property values, as declared by the external provider of the proficiency test items. When not available, it can be determined as standard deviation of the results of the participants in the PTNATIAEA test, through the application of robust statistic methods (s^* , see below).

uncertainty of the assigned value $u(x_{pt})$: is the combined standard uncertainty of the assigned value. It is composed of the following contributions:

$$u(x_{pt}) = \sqrt{u_{char}^2 + u_{hom}^2 + u_{trans}^2 + u_{stab}^2} \quad (1)$$

Where u_{char} is the uncertainty due to characterization, u_{hom} is related to the homogeneity between items (covering both the between-bottle and within-bottle inhomogeneity), u_{trans} is due

to instability under transport conditions and u_{stab} is related to the stability of the material in the period during the test.

Typically, the first one, u_{char} , is obtained from the external provider of the proficiency test items. The value may sometimes already include estimates of the other contributions to the uncertainty of the assigned value, especially u_{hom} and u_{stab} . If the external provider has characterized its material on the basis of its independent interlaboratory study, it is assumed that the standard deviation SD of the certified property values cover u_{hom} , u_{trans} and u_{stab} . If the property values have been declared as “certified” by the external provider, obtained through such an independent interlaboratory survey, $u(x_{pt})$ is determined as the standard deviation of the mean, i.e., the standard deviation of the certified property value SD divided by the square root of the number N of participants in that interlaboratory survey that were accounted for in establishing the certified value: $u(x_{pt}) = SD/\sqrt{N}$.

When certified values are not available from the external provider of the proficiency test items, $u(x_{pt})$ can be obtained from the results of the participants of the proficiency test, through the application of robust statistic methods (see Section 3.2 for more details). The value of $u(x_{pt})$ is determined in this case as:

$$u(x_{pt}) = 1.25 \cdot \frac{s^*}{\sqrt{p}} \quad (2)$$

with s^* = participant standard deviation (see below) and p = number of results for that element in this test.

consensus value x^* : is the value derived from a collection of results in the PTNATIAEA interlaboratory comparison. It is obtained from robust statistics of the submitted results (see Section 3.2 for more details). It can be used as assigned value for elements that are not certified by the external provider of the proficiency test items.

participant standard deviation s^* : is the estimate of the participant standard deviation derived from a collection of results in the PTNATIAEA interlaboratory comparison. It is obtained from robust statistics of the submitted results (see Section 3.2 for more details).

standard deviation for proficiency assessment σ_{pt} : is a measure of dispersion used in the evaluation of results of the PTNATIAEA proficiency testing. In the data treatment of this test, the standard deviation for proficiency assessment σ_{pt} is determined from the assigned values (either available from the external provider of the proficiency test items or obtained as consensus values from the submitted results) using a modified Horwitz function (σ_R), which is defined [3,4] as (please note that x_{pt} and σ_{pt} are considered as mass fractions [g/g]):

$$\sigma_{pt} = \sigma_R = \begin{cases} 0.22x_{pt} & \text{when } x_{pt} < 1.2 \cdot 10^{-7} \\ 0.02(x_{pt})^{0.8495} & \text{when } 1.2 \cdot 10^{-7} \leq x_{pt} \leq 0.138 \\ 0.01\sqrt{x_{pt}} & \text{when } x_{pt} > 0.138 \end{cases} \quad (3)$$

The relative value of the standard deviation for proficiency assessment ($\frac{\sigma_{pt}}{x_{pt}} \cdot 100$) as a function of the assigned mass fraction of the measurand, x_{pt} , is shown in Figure 1.

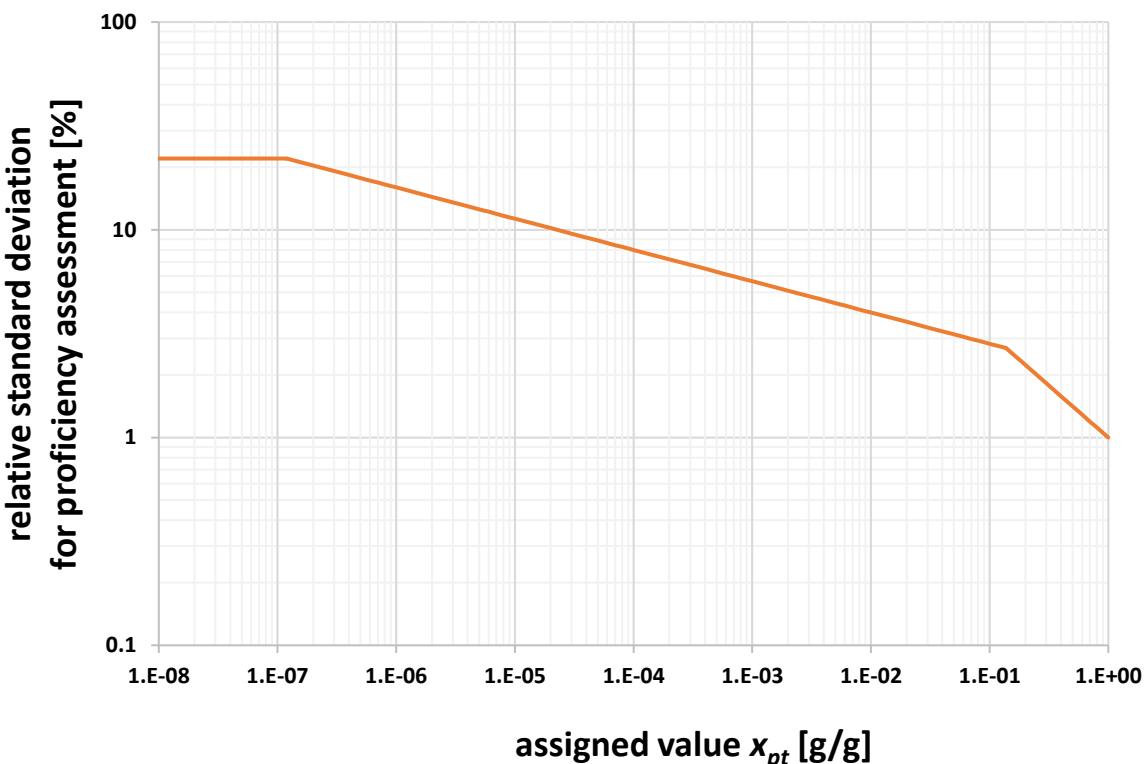


FIG. 1. Relative value of the standard deviation for proficiency assessment, as a function of the assigned mass fraction of the measurand, calculated by using a modified Horwitz function, Eqn. (3).

This approach gives a general model for the reproducibility of analytical methods. The Horwitz model is empirical, based on observations from collaborative trials of many parameters over an extended time period. The σ_R values are the expected upper limits of interlaboratory variability when the collaborative trial had no significant problems. Therefore, a comparison of σ_R with s^* gives indications about the variability of the results in the test. Furthermore, it is also worth comparing σ_R with the standard deviation of the distributions obtained by the external provider of the proficiency test items from its independent interlaboratory survey. Preferably, this standard deviation of the distribution should be of the same order of magnitude as σ_R .

3.2. ROBUST STATISTICS

No limits were set to the number of measurands (chemical element) to be reported. Participants were asked to report only one measurement value for each measurand, also if they have made measurements in replicates.

After receiving the results from the participants, the median of the distribution was determined for every element. Those results that differed more than an order of magnitude from the median were considered as “blunder outliers” (later on, “blunders”) and were not further considered in the application of robust statistics.

For those elements having 5 or more reported valid (i.e., “no-blunder”) results, the consensus values x^* and the participant standard deviations s^* were determined using the Algorithm A approach of the ISO 13528:2015, described below.

The results submitted (total number $p \geq 5$) are sorted into increasing order:

$$x_1, x_2, \dots, x_p$$

the initial values of robust average and robust standard deviation of these data are denoted by x_I^* and s_I^* , respectively. They are determined from the set of p values as:

$$x_I^* = median$$

$$s_I^* = 1.483 \cdot MAD = MAd$$

where MAD is the median absolute deviation and MAd the scaled median absolute deviation. The following quantity is then defined:

$$\delta_I = 1.5 \cdot s_I^* \quad (4)$$

Each x_i is replaced by x'_i according to the rules below:

$$x'_i = \begin{cases} x_I^* - \delta_I & \text{when } x_i < x_I^* - \delta_I \\ x_I^* + \delta_I & \text{when } x_i > x_I^* + \delta_I \\ x_i & \text{otherwise} \end{cases} \quad (5)$$

The new values of robust average and robust standard deviation are denoted by x_{II}^* and s_{II}^* , respectively, and are determined as:

$$x_{II}^* = \frac{\sum_{i=1}^p x'_i}{p} \quad (6)$$

$$s_{II}^* = 1.134 \sqrt{\frac{\sum_{i=1}^p (x'_i - x_{II}^*)^2}{(p-1)}} \quad (7)$$

The final robust estimates are then derived by an iterative calculation, i.e., by updating the values of x^* and s^* several times using equations (4) to (7) until the process converges. Convergence is assumed when there is no change from one iteration to the next in the third significant figures of the robust mean and robust standard deviation. Those two quantities are finally considered as consensus value (x^*) and participant standard deviation (s^*) of the distribution.

The consensus value x^* and participant standard deviation s^* have not been determined if the number of valid submitted results was less than 5. It should be noted that, in case of assigned values based on certified values by the external provider, the z -, z' -, zeta - and R -scores were calculated for any number of results.

For elements without an assigned value from the external provider and for which the total number of submitted results – after blunders removal – was equal or above 5, the consensus values from the submitted results was considered as assigned value in case the distribution of results was not too broad. The latter condition was defined by a more objective method to assess such cases: the standard deviation of the distribution s^* was compared with the value $0.3 \cdot x^*$ and

if $s^* \geq 0.3 \cdot x^*$, the consensus value was not considered as assigned value [5]. In such cases the results from the test were considered inconclusive. As stated above in Section 3.3, outliers were not calculated for these elements, whereas blunders were determined.

3.3. DETERMINATION OF OUTLIERS

As stated in the previous Section, blunders are those values that differ more than an order of magnitude from the median of the submitted results and are not further considered in the application of robust statistics.

Assigned values are the ones determined by the external provider of the proficiency test items or, when not available, those obtained through robust statistic methods as consensus values of the results of the participants (when the number of valid submitted results is at least 5), as described in Section 3.1-3.2. Outliers are defined as the values that differ more than 4.5 standard deviations from the assigned value. This means that for assigned values determined by the external provider of the proficiency test items, the standard deviation SD is the one declared by the external provider itself, so $(x_i)_{outlier-} < x_{pt} - 4.5 \cdot SD$ and $(x_i)_{outlier+} > x_{pt} + 4.5 \cdot SD$. For assigned values obtained through robust statistic methods as consensus values of the results of the participants, the value s^* is considered: $(x_i)_{outlier-} < x_{pt} - 4.5 \cdot s^*$ and $(x_i)_{outlier+} > x_{pt} + 4.5 \cdot s^*$.

Please note that outliers, differently from the blunders, are taken into account for the determination of x^* and s^* through robust statistics. Since removal of blunders may still lead to a multi-modal distribution of the remaining results of some elements, also the values of x^* and s^* after outlier removal are shown for every element, in order to get indications on how deeply outliers affect the results of robust statistics (see Table 3).

Outliers were not calculated for those elements having at least 5 valid results and for which the assigned values were neither determined by the external provider of the proficiency test items nor calculated from the submitted results (see Section 4). In such cases, only blunders were determined.

3.4. PERFORMANCE INDICATORS

All reported mass fractions of measurands (including those identified as blunders and outliers) were compared with the assigned values by using different performance indicators.

In case $u(x_{pt}) \leq 0.3\sigma_{pt}$, for every result a z -score was calculated, defined as:

$$z_i = \frac{(x_i - x_{pt})}{\sigma_{pt}} \quad (8)$$

in which the term x_i denotes the reported mass fraction of the measurand.

If $u(x_{pt}) > 0.3\sigma_{pt}$, for every result a z' -score was calculated, defined as:

$$z'_i = \frac{(x_i - x_{pt})}{\sqrt{\sigma_{pt}^2 + u^2(x_{pt})}} \quad (9)$$

The conventional interpretation of z - or z' -scores is as follows (see also ISO/IEC 17043:2010, B.4.1.1):

- $|z, z'| \leq 2$ the result is considered acceptable
- $2 < |z, z'| < 3$ the result is considered to give a warning signal
- $|z, z'| \geq 3$ the result is considered unacceptable (or to give an action signal)

Generally speaking, any z - or z' -score for an element outside the range $-2 \leq |z, z'| \leq 2$ should be examined by the analyst and all steps of the analytical procedure verified to identify the source(s) of the analytical bias.

The reported results were accompanied by the standard uncertainty estimate made by the participant. The values were used to calculate the *zeta*-scores:

$$\zeta_i = \frac{x_i - x_{pt}}{\sqrt{u^2(x_i) + u^2(x_{pt})}} \quad (10)$$

Where $u(x_i)$ is the participant's own estimate of the standard uncertainty of its result x_i . Please note that this definition differs from the one of u -scores, as for *zeta*-scores $u(x_{pt})$ replaces σ_{pt} . In principle, the same interpretation as described in the above for the z - and z' -scores may be applied to *zeta*-scores.

In order to provide a performance indicator having an easier and more intuitive interpretation than z - and z' -scores, the values of the ratios R_i are also reported:

$$R_i = \frac{x_i}{x_{pt}} \quad (11)$$

Although this parameter is not defined and included in the ISO 13528:2015, its values can provide to the participant an additional feedback on the data submitted.

4. RESULTS

The invitation to participate to the proficiency test PTNATIAEA19 was accepted by 101 laboratories; the test samples were finally distributed to 97 of them, in the remaining 4 cases problems were faced in delivering the parcel to the final consignee. Out of the 97 laboratories that received the samples, 71 (from 42 Member States) participated in the test by submitting in total 1639 and 974 individual results for 66 and 54 chemical elements for the clay sample and the plant sample, respectively. All submitted results have been evaluated. The list of the participating laboratories is presented at the end of this report.

When uploading their results, participants were asked first to select which technique was used for sample preparation and analysis from a list of options. In principle, a participant could submit results obtained with different techniques for different elements. The analytical techniques used by the participants, their codes and abbreviations and corresponding number of results are listed in Table 1.

Figures 2 and 3 represents the proportion of results submitted according to the analytical techniques used for the clay sample and the plant sample, respectively. Most of the analyses were carried out either by Neutron Activation Analysis (about 52% and 51%, reddish shades) or by X-Ray Fluorescence spectrometry (about 39% and 40%, bluish shades). Particle Induced X-ray/Gamma Emission results account for 1.9% and 2.8% of the total number of results (yellowish shades), Atomic Absorption Spectrometry techniques for 0.5% and 1.3% (greenish shades) and Inductively Coupled Plasma Spectrometry techniques for 6.4% and 5.1% (brownish shades).

TABLE 1. THE CODING, DESCRIPTION AND THE ABBREVIATED NAMES OF THE ANALYTICAL TECHNIQUES USED BY PARTICIPANTS OF THE PROFICIENCY TEST AND THEIR CORRESPONDING NUMBER OF RESULTS.

Code Description	Abbreviation	Results	Blunders	Percent	Outliers	Percent	Results	Blunders	Percent	Outliers	Percent
							Clay sample				Plant sample
1.13 EDXRF, radioisotope excitation, 109Cd	EDXRFISO-CD	22	-	-	2	9.1	11	-	-	-	-
1.16 EDXRF, radioisotope excitation and secondary targets	EDXRFISO-ST	20	-	-	4	20.0	-	-	-	-	-
1.21 EDXRF, X-ray tube direct excitation	EDXRFTUBE-DIRECT	146	2	1.4	38	26.0	74	5	6.8	28	37.8
1.22 EDXRF, X-ray tube and filter	EDXRFTUBE-FILTERS	120	4	3.3	39	32.5	100	12	12.0	21	21.0
1.23 EDXRF, X-ray tube and secondary targets	EDXRFTUBE-ST	132	-	-	22	16.7	65	2	3.1	15	23.1
1.24 Milli-XRF, x-ray tube and pin-hole colimator	m-XRF	19	-	-	3	15.8	9	-	-	2	22.2
1.32 TXRF with monochromator	TXRF-MON	61	-	-	21	34.4	52	-	-	10	19.2
2.0 Wavelength dispersive X-ray fluorescence	WDXRF	125	2	1.6	31	24.8	77	11	14.3	28	36.4
4.2 PIXE, vacuum chamber	PIXE-VAC	14	-	-	4	28.6	12	-	-	-	-
4.31 Micro-PIXE, external beam	uPIXE-EXT	14	-	-	2	14.3	12	-	-	8	66.7
4.4 Particle Induced Gamma Emission	PIGE	3	-	-	1	33.3	3	-	-	1	33.3
5.1 K0 Neutron Activation Analysis	K0 NAA	360	-	-	19	5.3	213	7	3.3	20	9.4
5.2 Neutron Activation Analysis using comparators or RMs for calibration	CNAA	482	2	0.4	19	3.9	279	8	2.9	26	9.3
5.4 Prompt Gamma Ray Activation Analysis	PGAA	8	-	-	1	12.5	4	1	25.0	-	-
6.2 Graphite furnace- AAS	GFAAS	7	1	14.3	2	28.6	12	1	8.3	2	16.7
6.4 Cold vapor AAS	CVAAS	1	-	-	-	-	-	1	-	-	-
7.1 ICP - optical emission spectrometry	ICP-OES	1	-	-	1	100.0	4	2	50.0	1	25.0
7.2 Inductively Coupled Plasma Mass Spectrometry	ICP-MS	104	1	1.0	12	11.5	46	5	10.9	6	13.0

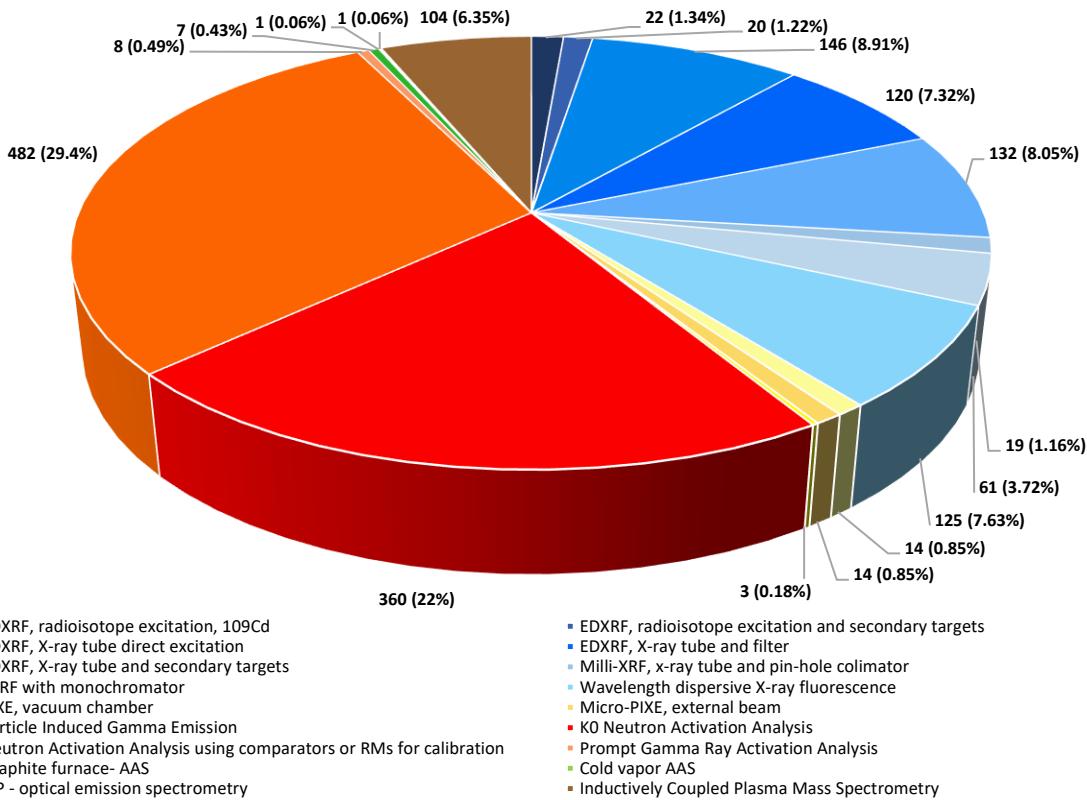


FIG. 2. Utilization of analytical techniques for the clay sample. For each analytical technique the number of submitted results is shown. The percent values relate to the total number of 1639 submitted results.

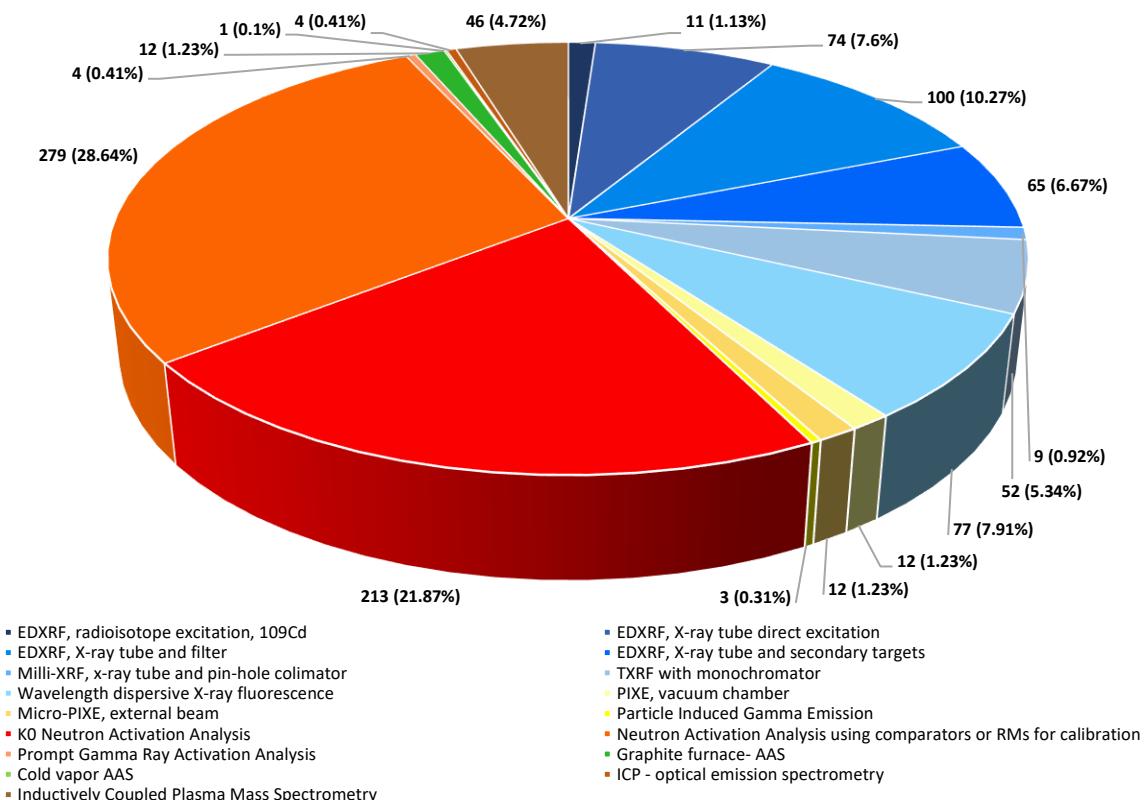


FIG. 3. Utilization of analytical techniques for the plant sample. For each analytical technique the number of submitted results is shown. The percent values relate to the total number of 974 submitted results.

For the clay sample, assigned (“certified”) values by the external provider of the proficiency test items were available for 40 of the 66 elements reported by the participants; for the plant samples, such assigned (certified) values were available for 26 of the 54 elements reported by the participants. In addition, the external provider made available indicative values for 4 elements in the clay sample and 5 in the plant sample. These indicative values were not considered as assigned values for the test and are reported in brackets in Tables 2 and 3.

In the case of the clay sample, for 10 elements (Dy, Eu, Gd, Hf, Lu, Sm, Ta, Tb, W, Yb) the consensus values from the submitted results was considered as assigned value; for the plant sample, only for one element (Cl) the consensus value could be considered as assigned value. These elements are reported in italic type in the tables.

For other 2 elements (Cl, Se) of the clay sample the distribution of results was too broad and the rule mentioned in Section 3.2 was not complied with; in the case of the plant sample, for 9 elements (Ce, Cr, La, Na, Sc, Se, Si, Sm, Ti) the distribution of results was too broad. No assigned value could be therefore determined with a sufficient level of confidence in these cases. Nevertheless, for all elements having at least 5 valid results, the consensus value of all results as well as the ones obtained separately by all XRF laboratories and all NAA laboratories are shown individually (Table 3), allowing for a self-assessment of performance.

All the data submitted by participants and those obtained from the external provider of the proficiency test items are reported with the original number of significant digits. Data calculated by our system (x^* , s^* , $u(x_{pt})$, σ_{pt}) were processed keeping significant digits up to the third one after the decimal point, but, for reporting in the tables, were subsequently rounded to the greatest decimal unit (...10, 1, 0.1, 0.01...) which doesn't exceed half of the value of the corresponding uncertainty (for x^* the value $1.25 \cdot s^* / \sqrt{p}$ was used) [6]. The values of z , z' , $zeta$ were processed keeping significant digits up to the third one after the decimal point, but in the tables are shown up to the first digit after the decimal point. The same approach was used for the R -scores, but these were finally reported in the tables up to the second digit after the decimal point. The performance indicators could therefore be very slightly affected when calculated using the rounded data reported in the tables.

For every element the following parameters are reported in Tables 2a and 2b for the clay sample and the plant sample, respectively:

- Certified property value from the external provider of the proficiency test items. In this column also the indicative values from the external provider are reported in brackets.
- Standard deviation SD from the external provider
- Consensus value x^*
- Participant standard deviation s^*
- Assigned value x_{pt} . This is the certified property value from external provider or the consensus values x^* of the submitted results, when the distribution of data is good enough to justify the procedure (see Section 3.2). When x^* was considered as x_{pt} , the data are reported in italic type
- Uncertainty of the assigned value $u(x_{pt})$
- Standard deviation for proficiency assessment σ_{pt}
- Number of results

- Number of blunders
- Number of outliers

Please note that the values used for the determination of the performance indicator are x_{pt} , σ_{pt} and $u(x_{pt})$.

Tables 3a and 3b (clay sample and plant sample, respectively) show for every element the consensus value x^* and the participant standard deviation s^* , as obtained (after removal of blunders) from the whole set of results, after removing the outliers and similarly for XRF results only and for NAA results only. The values of x^* have been rounded to the correspondent value of uncertainty, determined as $1.25 \cdot s^*/\sqrt{p}$.

TABLE 2a. CERTIFIED (EXTERNAL PROVIDER) VALUES OF MEASURANDS, CONSENSUS VALUES, PROFICIENCY TEST PARAMETERS, TOTAL NUMBER OF RESULTS, NUMBER OF BLUNDERS AND NUMBER OF OUTLIERS FOR THE CLAY SAMPLE.

Measurand symbol	Value from external provider	SD from external provider	x^*	s^*	x_{pt}	$u(x_{pt})$	σ_{pt}	Number of results	Number of blunders	Number of outliers
[%]										
Al	5.5	0.202	6.0	1.2	5.5	0.02	0.17	43	0	18
Ca	12.8	0.41	13.0	1.8	12.8	0.04	0.3	51	0	14
Fe	2.49	0.124	2.50	0.3	2.49	0.012	0.09	69	0	7
K	2.29	0.074	2.36	0.3	2.29	0.007	0.08	66	0	23
Mg	0.956	0.065	1.00	0.16	0.956	0.007	0.04	31	0	5
Na	0.278	0.022	0.290	0.04	0.278	0.002	0.013	49	0	6
S	0.115	0.013	0.113	0.03	0.115	0.0015	0.006	19	0	4
Si	19.8	0.38	20.4	4	19.8	0.05	0.4	32	0	24
Ti	0.277	0.014	0.273	0.05	0.277	0.0015	0.013	54	1	12
[mg/kg]										
As	18.6	1.96	18.6	3	18.6	0.2	1.9	55	0	6
B	-	-	-	-	-	-	-	1	0	0
Ba	287	21.4	287	40	287	2	20	39	2	5
Br	6.5	0.79	6.1	1.1	6.5	0.14	0.8	33	0	1
Cd	0.269	0.061	0.53	0.3	0.269	0.01	0.05	8	1	4
Ce	50.5	3.91	51	9	50.5	0.7	4	34	0	5
Cl	-	-	115	50	-	-	-	14	0	0
Co	9.07	1.73	8.96	0.7	9.07	0.2	1.0	41	1	1
Cr	52.8	6.99	56.1	10	52.8	0.7	5	53	0	3
Cs	7.83	1.041	7.87	0.5	7.83	0.2	0.9	34	0	1
Cu	16.5	1.81	19.4	8	16.5	0.2	1.7	25	0	7
Ga	14.8	1.79	14.5	4	14.8	0.3	1.6	27	0	1
I	(4.25)	(0.968)	-	-	-	-	-	4	0	0
La	25.3	2.54	25.0	3	25.3	0.4	2	40	0	3
Li	61.2	11.01	-	-	61.2	3	5	1	0	0
Mn	315	32.4	314	50	315	3	20	56	3	3
Mo	2.59	0.36	2.7	1.2	2.59	0.05	0.4	12	0	1
Nb	9.45	1.381	8.0	4	9.45	0.2	1.1	11	1	1
Nd	23.3	1.93	21.8	3	23.3	0.4	2	29	0	2
Ni	22.4	2.62	22.4	8	22.4	0.3	2	28	0	4
P	649	64.1	630	200	649	7	40	17	1	4
Pb	20.2	2.66	22.4	7	20.2	0.3	2	25	0	3

Measurand symbol	Value from external provider	SD from external provider	x^*	s^*	x_{pt}	$u(x_{pt})$	σ_{pt}	Number of results	Number of blunders	Number of outliers
Rb	107	7.3	108	12	107	1.0	8	53	0	7
Sb	1.49	0.23	1.46	0.3	1.49	0.04	0.2	31	0	2
Sc	9.31	1.994	8.81	0.6	9.31	0.4	1.1	37	1	1
Se	-	-	2.1	1.4	-	-	-	6	0	0
Sn	3.92	0.721	8	7	3.92	0.13	0.5	6	0	3
Sr	387	32.6	393	50	387	4	30	50	0	6
Th	8.88	1.63	8.9	1.6	8.88	0.3	1.0	41	0	1
U	2.8	0.319	2.63	0.6	2.8	0.06	0.4	32	0	5
V	69.7	7.6	72	15	69.7	0.9	6	36	0	3
Y	17.8	1.75	16.2	6	17.8	0.3	1.8	16	0	3
Zn	54.8	5.33	60.4	11	54.8	0.5	5	55	0	7
Zr	140	13.1	143	40	140	1.9	11	34	0	4
[ug/kg]										
Ag	-	-	-	-	-	-	-	2	0	0
Au	-	-	-	-	-	-	-	1	0	0
Be	(1980)	(577)	-	-	-	-	-	1	0	0
Bi	-	-	-	-	-	-	-	2	0	0
Dy	-	-	3220	400	3220	140	400	15	0	0
Er	-	-	-	-	-	-	-	1	0	0
Eu	-	-	870	110	870	20	140	31	0	2
Gd	-	-	3800	600	3800	300	500	6	0	0
Ge	-	-	-	-	-	-	-	2	0	0
Hf	-	-	4070	500	4070	120	500	28	0	0
Hg	20.4	3.5	-	-	20.4	0.5	5	2	0	0
Ho	-	-	-	-	-	-	-	4	0	0
In	-	-	-	-	-	-	-	1	0	0
Lu	-	-	288	40	288	14	60	16	0	2
Pr	-	-	-	-	-	-	-	4	0	0
Sm	-	-	4280	700	4280	150	600	29	0	0
Ta	-	-	880	110	880	30	140	24	0	2
Tb	-	-	550	60	550	15	100	22	0	2
Te	-	-	-	-	-	-	-	1	0	0
Tl	(610)	(159.6)	-	-	-	-	-	4	0	0
Tm	-	-	-	-	-	-	-	3	0	0
W	(2650)	(717)	2410	300	2410	100	300	17	1	1
Yb	-	-	1740	300	1740	80	300	25	0	2

TABLE 2b. CERTIFIED (EXTERNAL PROVIDER) VALUES OF MEASURANDS, CONSENSUS VALUES, PROFICIENCY TEST PARAMETERS, TOTAL NUMBER OF RESULTS, NUMBER OF BLUNDERS AND NUMBER OF OUTLIERS FOR THE PLANT SAMPLE.

Measurand symbol	Value from external provider	SD from external provider	x^*	s^*	x_{pt}	$u(x_{pt})$	σ_{pt}	Number of results	Number of blunders	Number of outliers
[%]										
C	48	1.02	-	-	48	0.10	0.7	1	0	0
Ca	1.56	0.093	1.63	0.3	1.56	0.004	0.06	51	1	14
K	1.12	0.062	1.14	0.14	1.12	0.003	0.04	64	1	14
Mg	0.236	0.013	0.230	0.06	0.236	0.0006	0.012	31	0	10
P	0.242	0.012	0.255	0.05	0.242	0.0006	0.012	18	1	5
[mg/kg]										
Al	53.2	8.29	130	110	53.2	1.4	5	27	3	11
B	18.1	1.6	-	-	18.1	0.09	1.9	1	0	0
Ba	14	1.21	13.9	2	14	0.15	1.5	25	0	4
Br	1.27	0.183	1.29	0.3	1.27	0.04	0.2	38	2	4
Cl	-	-	214	40	214	9	15	30	0	1
Cr	(0.372)	(0.1106)	0.89	0.7	-	-	-	30	1	0
Cu	6.61	0.602	8.4	3	6.61	0.03	0.8	29	0	12
Fe	75.9	8.44	89	19	75.9	0.4	6	57	2	12
I	(0.164)	(0.0497)	-	-	-	-	-	1	0	0
Mn	101	6.1	107	18	101	0.3	8	57	2	11
Na	(39.4)	(18.31)	52	30	-	-	-	39	1	0
Rb	11.4	0.92	11.3	1.6	11.4	0.15	1.3	51	0	6
S	761	85.4	840	300	761	5	40	17	0	3
Se	(0.025)	0.00844)	0.25	0.2	-	-	-	7	0	0
Si	-	-	460	200	-	-	-	9	2	0
Sr	36.9	2.79	38.2	6	36.9	0.4	3	43	0	6
Ti	-	-	9	7	-	-	-	13	2	0
Y	-	-	-	-	-	-	-	4	0	0
Zn	31.6	2.07	32.6	7	31.6	0.09	3	57	1	13
Zr	-	-	-	-	-	-	-	4	0	0
[ug/kg]										
As	58.5	7	72	30	58.5	0.8	13	23	3	5
Au	-	-	-	-	-	-	-	2	0	0
Cd	75.1	7.3	500	400	75.1	0.6	17	9	3	5
Ce	-	-	100	50	-	-	-	8	2	0

Measurand symbol	Value from external provider	SD from external provider	x^*	s^*	x_{pt}	$u(x_{pt})$	σ_{pt}	Number of results	Number of blunders	Number of outliers
Co	119	20.5	163	80	119	2	30	33	3	7
Cs	17.3	2.2	20	6	17.3	0.5	4	12	1	2
Eu	-	-	-	-	-	-	-	2	0	0
Ga	-	-	-	-	-	-	-	3	0	0
Hf	-	-	-	-	-	-	-	4	0	0
Hg	29.5	1.5	-	-	29.5	0.16	6	4	0	0
In	-	-	-	-	-	-	-	1	0	0
La	-	-	77	30	-	-	-	25	2	0
Lu	-	-	-	-	-	-	-	1	0	0
Mo	524	54.1	840	500	524	5	90	12	0	4
Nb	-	-	-	-	-	-	-	3	0	0
Nd	-	-	-	-	-	-	-	4	0	0
Ni	990	125.3	1190	400	990	11	160	14	3	2
Pb	740	68.3	1000	600	740	6	120	15	3	6
Sb	58.4	7.7	63	15	58.4	1.1	13	21	1	2
Sc	-	-	11.0	4	-	-	-	20	2	0
Sm	-	-	9.3	5	-	-	-	18	5	0
Sn	(73.5)	(34.97)	-	-	-	-	-	1	0	0
Te	-	-	-	-	-	-	-	1	0	0
Th	-	-	-	-	-	-	-	9	5	0
Tl	-	-	-	-	-	-	-	3	0	0
Tm	-	-	-	-	-	-	-	1	0	0
U	-	-	-	-	-	-	-	5	2	0
V	111	19.4	330	300	111	3	20	15	0	9
W	-	-	-	-	-	-	-	1	0	0

TABLE 3a. CONSENSUS VALUE x^* AND PARTICIPANT STANDARD DEVIATION s^* FOR THE WHOLE SET OF RESULTS, AFTER REMOVING THE OUTLIERS AND ONLY FOR XRF RESULTS AND ONLY FOR NAA RESULTS (CLAY SAMPLE).

Measurand symbol	Value from external provider	SD from external provider	Total		Outliers removed		XRF		NAA	
			x^*	s^*	x^*	s^*	x^*	s^*	x^*	s^*
			[%]							
Al	5.5	0.202	6.0	1.2	5.71	0.9	6.9	1.7	5.39	0.4
Ca	12.8	0.41	13.0	1.8	12.57	0.8	13.1	3	12.6	0.8
Fe	2.49	0.124	2.50	0.3	2.48	0.2	2.50	0.4	2.50	0.15
K	2.29	0.074	2.36	0.3	2.33	0.16	2.48	0.5	2.28	0.14
Mg	0.956	0.065	1.00	0.16	1.01	0.11	0.95	0.3	1.06	0.10
Na	0.278	0.022	0.290	0.04	0.288	0.03	0.34	0.09	0.287	0.017
S	0.115	0.013	0.113	0.03	0.119	0.019	0.105	0.04	-	-
Si	19.8	0.38	20.4	4	19.6	1.0	21.0	5	-	-
Ti	0.277	0.014	0.273	0.05	0.268	0.03	0.280	0.07	0.273	0.03
[mg/kg]										
As	18.6	1.96	18.6	3	18.6	2	19.1	6	18.5	2
Ba	287	21.4	287	40	289	30	280	90	291	30
Br	6.5	0.79	6.1	1.1	6.0	1.0	6.0	1.3	6.2	1.0
Cd	0.27	0.06	0.53	0.3	-	-	-	-	-	-
Ce	50.5	3.91	51	9	51.4	7	51	17	52.0	7
Cl	-	-	115	50	115	50	-	-	108	40
Co	9.07	1.73	8.96	0.7	8.92	0.7	8.2	1.6	9.10	0.7
Cr	52.8	6.99	56.1	10	55.3	9	53	13	58.9	5
Cs	7.83	1.04	7.87	0.5	7.84	0.5	-	-	7.94	0.4
Cu	16.5	1.81	19.4	8	16.7	4	19.0	6	-	-
Ga	14.8	1.79	14.5	4	14.2	3	15.2	4	13.8	3
La	25.3	2.54	25.0	3	24.8	3	24	13	25.4	2
Li	61.2	11.01	-	-	-	-	-	-	-	-
Mn	315	32.4	314	50	313	50	303	70	327	30
Mo	2.59	0.36	2.7	1.2	2.9	1.0	2.4	1.5	-	-
Nb	9.45	1.38	8.0	4	7.4	3	7.9	4	-	-
Nd	23.3	1.93	21.8	3	21.8	2	21	5	22.3	1.9
Ni	22.4	2.62	22.4	8	22.5	6	23	9	-	-
P	649	64.1	630	200	620	150	640	200	-	-
Pb	20.2	2.66	22.4	7	21.0	6	23	8	-	-
Rb	107	7.3	108	12	108.8	9	104	20	110.2	7
Sb	1.49	0.23	1.46	0.3	1.43	0.2	1.8	1.2	1.48	0.19

Measurand symbol	Value from external provider	SD from external provider	Total		Outliers removed		XRF		NAA	
			x^*	s^*	x^*	s^*	x^*	s^*	x^*	s^*
Sc	9.31	1.99	8.81	0.6	8.78	0.6	-	-	8.85	0.5
Se	-	-	2.1	1.4	2.1	1.4	-	-	-	-
Sn	3.92	0.72	8	7	-	-	-	-	-	-
Sr	387	32.6	393	50	394	40	389	80	394	40
Th	8.88	1.63	8.9	1.6	9.0	1.5	7.8	3	9.4	0.9
U	2.8	0.32	2.63	0.6	2.60	0.5	2.7	2	2.76	0.3
V	69.7	7.6	72	15	71	12	71	30	72.1	5
Y	17.8	1.75	16.2	6	16.9	4	17.2	5	-	-
Zn	54.8	5.33	60.4	11	58.0	8	59	12	61.7	8
Zr	140	13.1	143	40	143	30	149	30	143	30
[ug/kg]										
Dy	-	-	3220	400	3220	400	-	-	3310	400
Eu	-	-	870	110	870	90	-	-	870	100
Gd	-	-	3800	600	3800	600	-	-	-	-
Hf	-	-	4070	500	4070	500	-	-	4140	400
Hg	20.4	3.5	-	-	-	-	-	-	-	-
Lu	-	-	288	40	278	30	-	-	293	40
Sm	-	-	4280	700	4280	700	-	-	4450	600
Ta	-	-	880	110	860	80	-	-	870	90
Tb	-	-	550	60	553	40	-	-	560	40
W	(2650)	(717)	2410	300	2440	300	-	-	2400	300
Yb	-	-	1740	300	1740	300	-	-	1780	300

TABLE 3b. CONSENSUS VALUE x^* AND PARTICIPANT STANDARD DEVIATION s^* FOR THE WHOLE SET OF RESULTS, AFTER REMOVING THE OUTLIERS AND ONLY FOR XRF RESULTS AND ONLY FOR NAA RESULTS (PLANT SAMPLE).

Measurand symbol	Value from external provider	SD from external provider	Total		Outliers removed		XRF		NAA	
			x^*	s^*	x^*	s^*	x^*	s^*	x^*	s^*
[%]										
C	48	1.02	-	-	-	-	-	-	-	-
Ca	1.56	0.093	1.63	0.3	1.52	0.14	1.61	0.4	1.60	0.2
K	1.12	0.062	1.14	0.14	1.108	0.07	1.14	0.3	1.126	0.08
Mg	0.236	0.013	0.230	0.06	0.236	0.02	0.22	0.13	0.233	0.02
P	0.242	0.012	0.255	0.05	0.250	0.02	0.255	0.06	-	-
[mg/kg]										
Al	53.2	8.29	130	110	58	18	300	300	91	50
B	18.1	1.6	-	-	-	-	-	-	-	-
Ba	14	1.21	13.9	2	14.2	1.6	7	8	14.3	1.9
Br	1.27	0.18	1.29	0.3	1.26	0.2	1.4	0.8	1.30	0.15
Cl	-	-	214	40	212	40	210	70	214	30
Cr	(0.372)	(0.1106)	0.89	0.7	0.89	0.7	1.6	1.2	0.54	0.3
Cu	6.61	0.6	8.4	3	6.8	0.7	8.6	3	-	-
Fe	75.9	8.44	89	19	81.9	8	95	30	83	10
Mn	101	6.1	107	18	102.3	10	110	30	103	10
Na	(39.4)	(18.31)	52	30	41	14	200	150	39	11
Rb	11.4	0.92	11.3	1.6	11.1	1.2	11.4	2	11.2	1.3
S	761	85.4	840	300	760	150	820	200	-	-
Se	(0.025)	(0.0084)	0.25	0.2	0.25	0.2	-	-	-	-
Si	-	-	460	200	410	140	500	200	-	-
Sr	36.9	2.79	38.2	6	37.7	5	39	9	38.0	4
Ti	-	-	9	7	7.3	5	8	5	-	-
Zn	31.6	2.07	32.6	7	31.0	4	34.1	7	30.9	5
[ug/kg]										
As	58.5	7	72	30	60	9	-	-	63	14
Cd	75.1	7.3	500	400	-	-	-	-	-	-
Ce	-	-	100	50	100	50	-	-	109	20
Co	119	20.5	163	80	126	30	300	200	138	30
Cs	17.3	2.2	20	6	18.4	4	-	-	20	7
Hg	29.5	1.5	-	-	-	-	-	-	-	-
La	-	-	77	30	77	30	-	-	71	20
Mo	524	54.1	840	500	560	120	2200	2000	590	130

Measurand symbol	Value from external provider	SD from external provider	Total		Outliers removed		XRF		NAA	
			x^*	s^*	x^*	s^*	x^*	s^*	x^*	s^*
Ni	990	125.3	1190	400	1050	300	1700	1500	-	-
Pb	740	68.3	1000	600	660	70	1300	1000	-	-
Sb	58.4	7.7	63	15	61	11	-	-	62	13
Sc	-	-	11.0	4	9.8	2	-	-	11.0	4
Sm	-	-	9.3	5	8.2	3	-	-	9.3	5
V	111	19.4	330	300	136	30	600	500	210	110

Participants submitted results obtained with different nuclear and related analytical techniques (as shown in Table 1). The most used techniques, even if including a variety of “sub-techniques”, were X-Ray Fluorescence, XRF (codes 1.13, 1.16, 1.21, 1.22, 1.23, 1.24, 1.32, 2.0) and Neutron Activation Analysis, NAA (codes 5.1, 5.2, 5.4). Most of the graphs, like density distributions, are presented highlighting the data in different colors depending on whether they were obtained by XRF (labelled blue), NAA (labelled red) or other analytical techniques (labelled grey).

The correlation between the values from the external provider of the proficiency test items and the consensus values x^* (for those elements with enough results, including outliers, to allow the calculation of the consensus value) is shown in Figures 4 and 5 for the clay sample and the plant sample, respectively. Figures 6 and 7 show the same correlations as obtained only by XRF laboratories (see Tables 3a and 3b). Analogously, Figures 8 and 9 show the correlations as obtained only by NAA laboratories. Please note that some elements might not be present in Figures 6-9 due to the fact that the total number of valid results is less than 5.

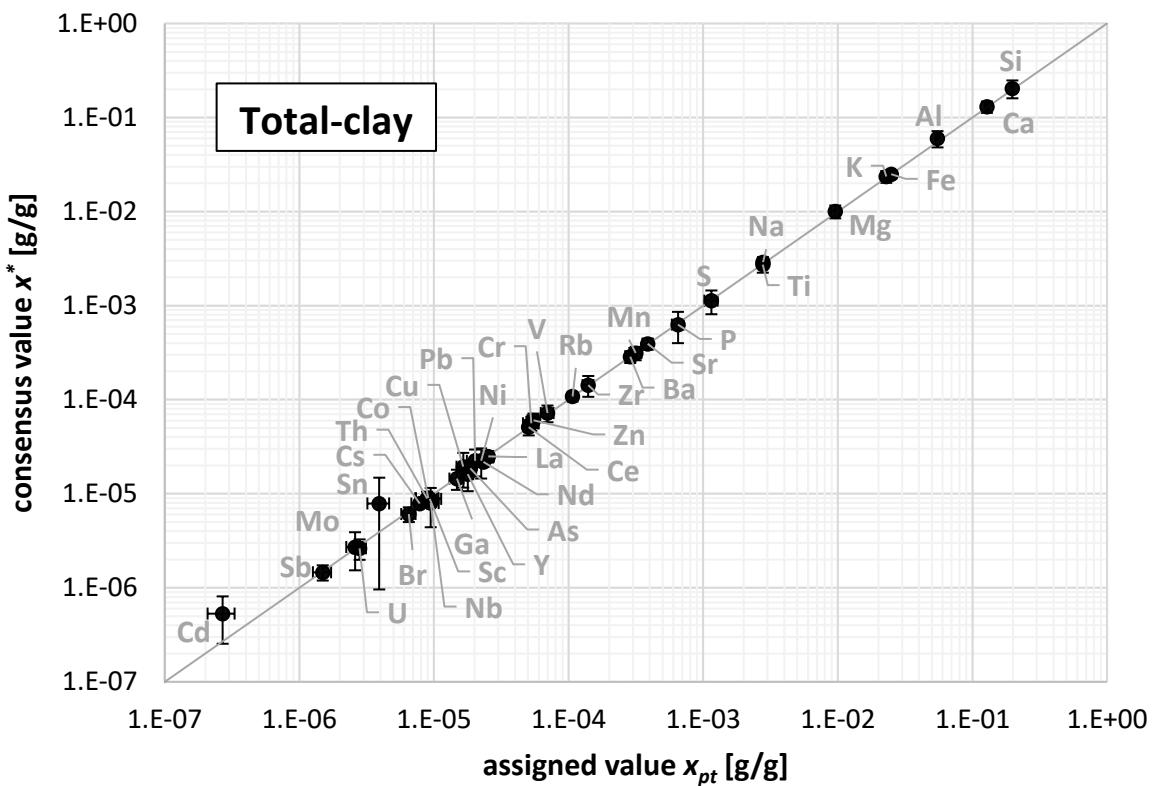


FIG. 4. Correlation between the values from external provider and the consensus values x^ . The error bars are the standard deviations from the external provider SD and the participant standard deviations s^* (clay sample).*

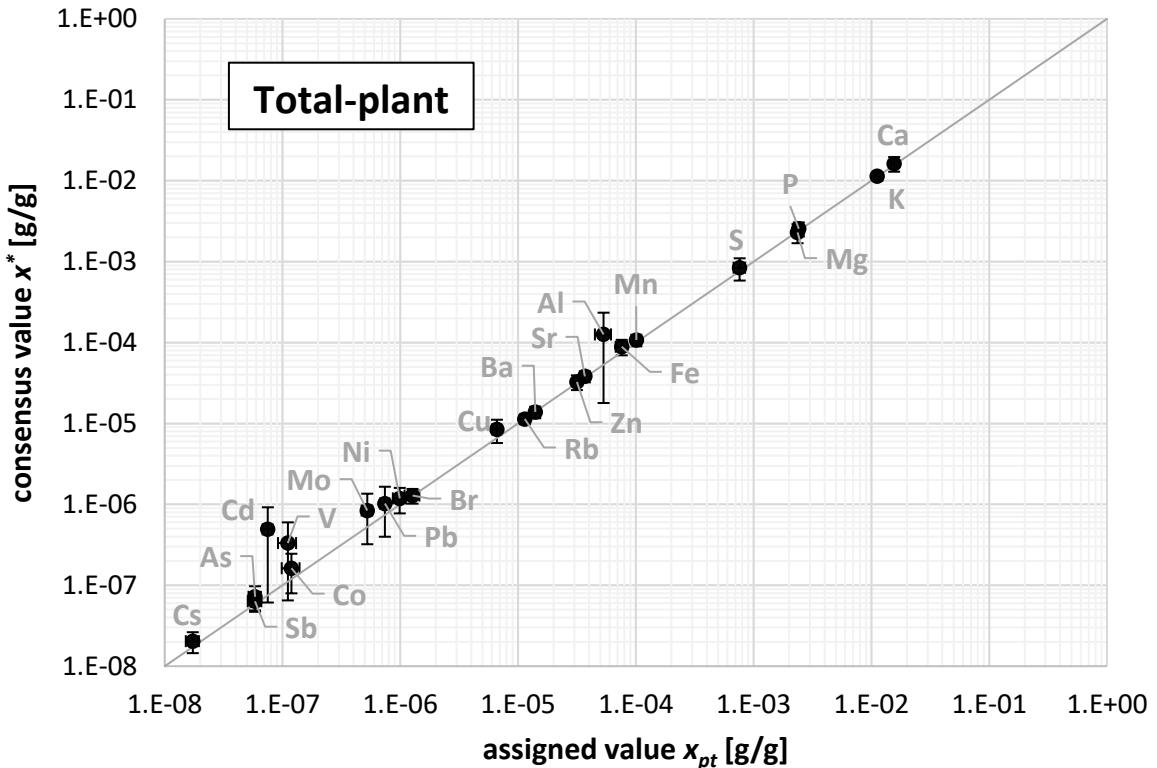


FIG. 5. Correlation between the values from external provider and the consensus values x^ . The error bars are the standard deviations from the external provider SD and the participant standard deviations s^* (plant sample).*

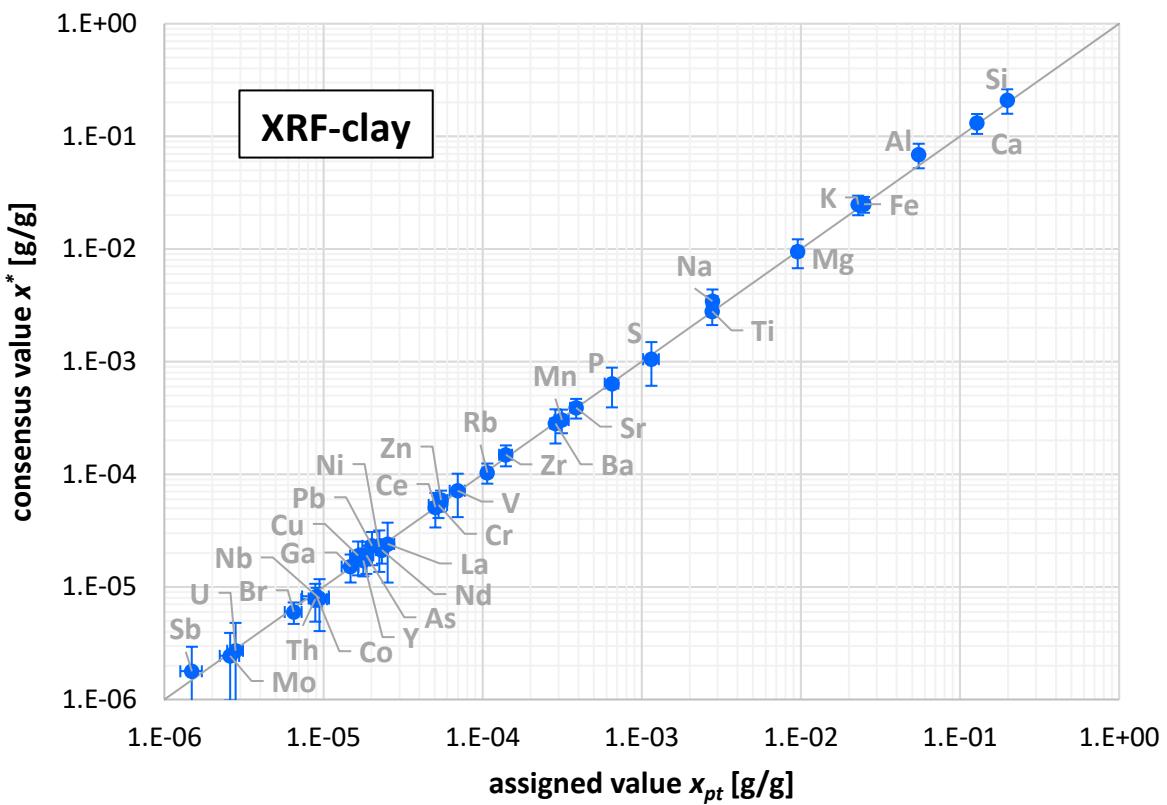


FIG. 6. Correlation between the values from external provider and the consensus values x^* for the XRF laboratories only. The error bars are the standard deviations from the external provider SD and the participant standard deviations s^* (clay sample).

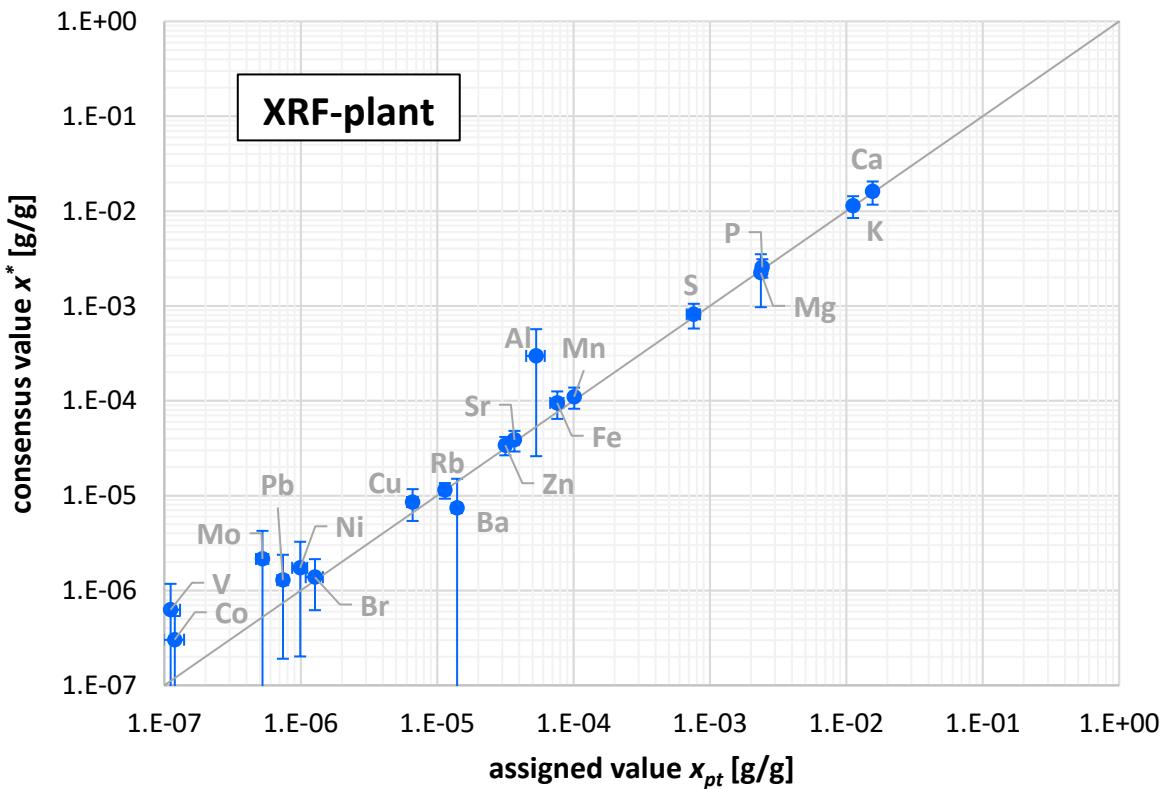


FIG. 7. Correlation between the values from external provider and the consensus values x^* for the XRF laboratories only. The error bars are the standard deviations from the external provider SD and the participant standard deviations s^* (plant sample).

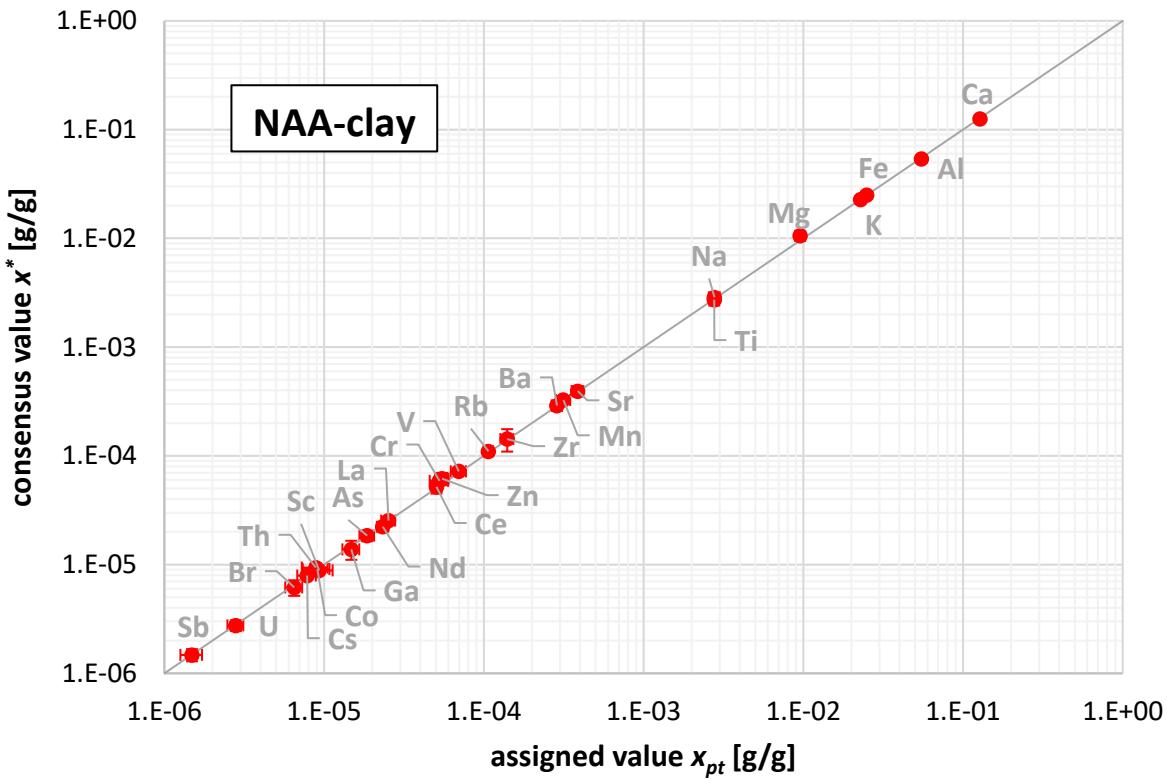


FIG. 8. Correlation between the values from external provider and the consensus values x^* for the NAA laboratories only. The error bars are the standard deviations from the external provider SD and the participant standard deviation s^* (clay sample).

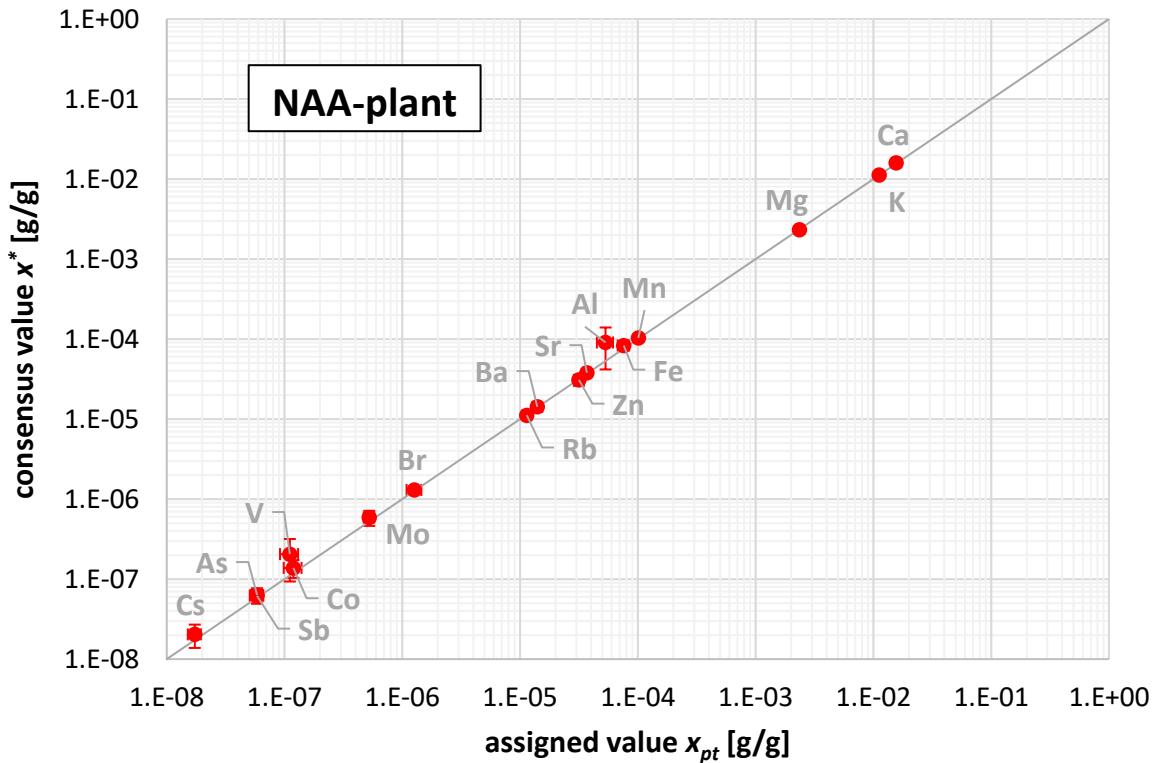


FIG. 9. Correlation between the values from external provider and the consensus values x^* for the NAA laboratories only. The error bars are the standard deviations from the external provider SD and the participant standard deviation s^* (plant sample).

Tables 4a and 4b list, for every element, the values submitted by each participants (measurand mass fraction and standard deviation) and their corresponding calculated performance indicators, i.e., z - or z' -scores, *zeta*-scores and *R*-scores for the clay sample and the plant sample, respectively. In brackets, next to the element symbol, the parameters used to determine the performance indicators are shown: the assigned value of the element mass fraction x_{pt} , the standard deviation for proficiency assessment σ_{pt} and the uncertainty of the assigned value $u(x_{pt})$. The results that were identified as blunder are marked with “**” and the outliers with “*” in the “Measurand mass fraction” column. Please note that, if the number of valid results was less than 5, the performance indicators could be obtained only if the assigned value was available by the external provider of the proficiency test items.

Figures 10-109 present the distributions of the proficiency test results for the elements having at least 5 valid (no-blunder) results for the clay sample. Analogously, Figures 110-175 show the distributions for the plant sample. A more detailed explanation of the distribution graphs is given below, where the numbers of the Figures refer to the clay sample; the equivalent numbers of the Figures referring to the plant sample are indicated in brackets.

In Figures 10-57 (110-133 for the plant sample) the individual results are marked with filled circles, in blue for XRF, in red for NAA and in grey for the other analytical techniques. Blunders are not shown in these graphs. The density distribution line for all results (excluding the blunders) is shown by the solid black line. The vertical dotted black lines show the range of non-outlier results. The assigned value x_{pt} is shown as vertical solid green line. In case $u(x_{pt}) \leq 0.3\sigma_{pt}$, the range $\pm 3\sigma_{pt}$ is also shown by vertical dotted green lines. When $u(x_{pt}) > 0.3\sigma_{pt}$, the range shown is calculated with $\sqrt{\sigma_{pt}^2 + u^2(x_{pt})}$ instead of σ_{pt} (see definition of z - and z' -scores in Section 3.4).

Figures 58-59 (134-142 for the plant sample) show the density distributions for those element having more than 5 valid results but for which an assigned value was not available by the external provider and could not be determined as consensus value of the results.

Figures 60-107 (143-166 for the plant sample) show the bar chart distributions of results for the measurands with at least 5 submitted results. The results are sorted in ascending order versus participant/technique code. The bar charts show the distance between the reported and the assigned values of the measurand. The submitted results are accompanied by uncertainty bars.

As for the density distribution graphs, the range of three times σ_{pt} or $\sqrt{\sigma_{pt}^2 + u^2(x_{pt})}$ is also shown by the horizontal dotted green lines. The codes of the labs are shown in the bottom horizontal axis whereas the techniques codes (including the relative colours employed already in this report, blue for XRF, red for NAA and grey for the other analytical techniques) are shown in the top horizontal axis.

For those element having more than 5 valid results but for which an assigned value was not available and could not be determined, in Figures 108-109 (167-175 for the plant sample) a bar chart is shown reporting the results of the laboratories. The colour of the columns follows again the rules established for previous graphs.

For every participating laboratory its overall performance is presented in Figures 176-312. These plots show the absolute values of *zeta*-scores and z - or z' -scores calculated for each

laboratory. Each result is marked as a circle, the different colour depending on whether z - or z' -score was considered. Also reported are the lines for $|\zeta| = 3$ and $|z|$ or $|z'| = 3$. They divide the plot area in four quadrants. The well performing laboratories would have more points located in the lower-left quadrant of the plot. If there are many points located in the upper-right quadrant, it suggests that these results do not fall in the defined range of acceptable results and, therefore, action should be taken to improve the performance of the analysis. For each laboratory, the separated plots for the clay sample and the plant sample are reported in the same page at the top and the bottom, respectively. When a laboratory submitted results only for one sample, the corresponding page reports just the related plot.

Tables 5a and 5b summarizes for every participant the performance indicators for the clay sample and the plant sample, respectively. The number of results for which the absolute values of the performance indicators z - or z' -scores as well as ζ -scores are less than 3 are shown. The number of results for which the same indicators are equal or above 3 are also shown. Please note that the sum of results derived from these columns can be lower than the total number of results submitted by the participant (second column) since for some elements the assigned value was not available and no performance indicator could be determined.

The overall performance for each participant is shown graphically in Figures 313-320, reporting the box-and-whisker plots (defined below) for the z - and z' -scores and for the R -scores. For the clay sample, the box-and-whisker plots for the z - and z' -scores are shown in Figures 313 and 314, the latter with the vertical scale reduced to the range $-5 \div 5$. The box-and-whisker plots for the R -scores are reported in Figures 315 and 316, the latter with the vertical scale reduced to the range $0 \div 2$. Analogously, for the plant sample the box-and-whisker plots for the z - and z' -scores are shown in Figures 317 and 318, the plots for the R -scores are reported in Figures 319 and 320. Please note that some data might not been shown in Figures 313-320 since they lie out of the range of the scale reported in the graphs. The code of the participant is reported in the horizontal axis.

Given a set of data, a box-and-whisker plot is generated defining the following parameters:

- Median of the data set Q_2
- First quartile (Q_1), the median of the lower half of the data set, including the median
- Third quartile (Q_3), the median of the upper half of the data set, including the median

The quantity “interquartile range” (IQR) is defined as $IQR = Q_3 - Q_1$. A data is considered an outlier (please note that this is a different definition of outlier from the one given in Section 3.3, and it is used only in this context for the box-and-whisker plots) when either it exceeds a distance of 1.5 times the IQR below the first quartile ($Q_1 - 1.5 \cdot IQR$) or 1.5 times the IQR above the third quartile ($Q_3 + 1.5 \cdot IQR$). In the graphs, the box represents the data in the range between Q_1 and Q_3 , whereas the median is shown as a horizontal line. The whiskers (vertical lines) extend from the ends of the box to the minimum value and maximum value that are not outliers. The single points out of the whiskers represent the outliers of the dataset.

The drawing below summarizes all the different parameters calculated for the creation of a box-and-whisker plot.

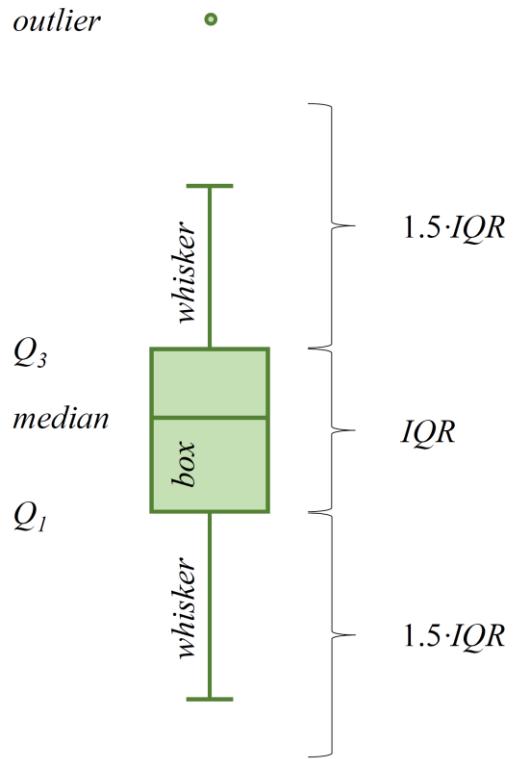


TABLE 4a. SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [%] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
Al ($x_{pt} = 5.5$, $\sigma_{pt} = 0.17$, $u(x_{pt}) = 0.02$) [%]								
151	7.2	4.252*	0.009	0.21	-7.3	-	-55.2	0.77
105	1.32	4.576*	0.412	9.00	-5.4	-	-2.2	0.83
182	5.1	4.59*	0.13	2.83	-5.3	-	-6.9	0.83
85	7.2	4.66	0.05	1.07	-4.9	-	-15.5	0.85
194	5.1	4.66	0.046	0.99	-4.9	-	-16.6	0.85
203	5.2	4.83	0.34	7.04	-3.9	-	-2.0	0.88
124	1.23	5.014	0.139	2.77	-2.9	-	-3.5	0.91
235	1.21	5.15	0.01	0.19	-2.1	-	-15.2	0.94
237	5.1	5.23	0.13	2.49	-1.6	-	-2.1	0.95
202	5.1	5.23	0.45	8.60	-1.6	-	-0.6	0.95
172	5.2	5.24	0.21	4.01	-1.5	-	-1.2	0.95
176	5.2	5.29	0.09	1.70	-1.2	-	-2.3	0.96
183	5.4	5.3	0.1	1.89	-1.2	-	-2.0	0.96
232	5.1	5.31	0.41	7.72	-1.1	-	-0.5	0.97
35	1.21	5.35	0.03	0.56	-0.9	-	-4.1	0.97
240	5.2	5.37	0.03	0.56	-0.8	-	-3.6	0.98
192	5.2	5.37	0.33	6.15	-0.8	-	-0.4	0.98
167	5.2	5.382	0.037	0.69	-0.7	-	-2.8	0.98
248	5.2	5.55	0.09	1.62	0.3	-	0.5	1.01
247	5.2	5.56	0.148	2.66	0.4	-	0.4	1.01
84	5.2	5.6	0.32	5.71	0.6	-	0.3	1.02
250	2	5.66	0.37	6.54	0.9	-	0.4	1.03
215	5.1	5.68	0.34	5.99	1.1	-	0.5	1.03
243	2	5.77	0.577	10.00	1.6	-	0.5	1.05
152	5.2	5.92	0.23	3.89	2.5	-	1.8	1.08
219	5.2	6.09	0.786	12.91	3.5	-	0.8	1.11
206	1.22	6.165	0.01	0.16	3.9	-	28.9	1.12
137	1.22	6.33	0.77	12.16	4.9	-	1.1	1.15
130	2	6.44*	0.01	0.16	5.5	-	40.8	1.17
245	5.2	6.49*	0.085	1.31	5.8	-	11.3	1.18
238	1.13	6.91*	0.67	9.70	8.3	-	2.1	1.26
44	4.2	6.916*	1.059	15.31	8.3	-	1.3	1.26
65	1.23	6.972*	0.466	6.68	8.6	-	3.2	1.27
234	2	7.02*	0.13	1.85	8.9	-	11.5	1.28
244	2	7.07*	0.07	0.99	9.2	-	21.5	1.29
230	1.24	7.11*	0.72	10.13	9.5	-	2.2	1.29
126	1.23	7.13*	0.7	9.82	9.6	-	2.3	1.30
133	4.4	7.64*	0.8	10.47	12.6	-	2.7	1.39
204	1.21	8.564*	0.242	2.83	18.0	-	12.6	1.56
161	2	8.645*	0.2	2.31	18.5	-	15.6	1.57
78	1.16	9.169*	0.031	0.34	21.6	-	98.4	1.67
242	1.21	11.976*	0.032	0.27	38.0	-	169.9	2.18
145	1.22	15.53*	0.007	0.05	58.9	-	458.5	2.82

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE zeta -SCORES AND THE R -SCORES FOR RESULTS IN THE [%] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	zeta -score	R -score
Ca ($x_{pt} = 12.8$, $\sigma_{pt} = 0.3$, $u(x_{pt}) = 0.04$) [%]								
108	1.32	7.25*	1.24	17.10	-15.9	-	-4.5	0.57
105	1.32	7.521*	0.904	12.02	-15.1	-	-5.8	0.59
54	1.21	8.3*	1.3	15.66	-12.9	-	-3.5	0.65
53	1.32	9.349*	1.402	15.00	-9.9	-	-2.5	0.73
73	1.21	11.07	0.073	0.66	-5.0	-	-20.6	0.86
194	5.1	11.197	0.698	6.23	-4.6	-	-2.3	0.87
79	1.22	11.368	0.1	0.88	-4.1	-	-13.2	0.89
133	4.31	11.6	0.5	4.31	-3.4	-	-2.4	0.91
171	5.1	11.9	0.17	1.43	-2.6	-	-5.1	0.93
169	5.1	11.922	0.42	3.52	-2.5	-	-2.1	0.93
237	5.1	12	0.4	3.33	-2.3	-	-2.0	0.94
192	5.2	12.03	0.63	5.24	-2.2	-	-1.2	0.94
235	1.21	12.04	0.04	0.33	-2.2	-	-13.2	0.94
55	5.2	12.1	0.4	3.31	-2.0	-	-1.7	0.95
85	7.2	12.12	2	16.50	-1.9	-	-0.3	0.95
246	1.21	12.14	0.448	3.69	-1.9	-	-1.5	0.95
243	2	12.245	1.225	10.00	-1.6	-	-0.5	0.96
183	5.1	12.26	0.5	4.08	-1.5	-	-1.1	0.96
78	1.16	12.351	0.125	1.01	-1.3	-	-3.4	0.96
250	2	12.36	0.75	6.07	-1.3	-	-0.6	0.97
206	1.22	12.388	0.011	0.09	-1.2	-	-9.7	0.97
61	5.1	12.5	2.2	17.60	-0.9	-	-0.1	0.98
234	2	12.5	0.1	0.80	-0.9	-	-2.8	0.98
172	5.2	12.5	0.5	4.00	-0.9	-	-0.6	0.98
137	1.22	12.53	0.59	4.71	-0.8	-	-0.5	0.98
35	1.21	12.701	0.017	0.13	-0.3	-	-2.2	0.99
215	5.1	12.8	0.8	6.25	0.0	-	0.0	1.00
230	1.24	12.88	1.29	10.02	0.2	-	0.1	1.01
217	5.1	12.89	0.077	0.60	0.3	-	1.0	1.01
176	5.2	12.9	0.3	2.33	0.3	-	0.3	1.01
151	7.2	12.976	0.01	0.08	0.5	-	4.2	1.01
238	1.13	13	1.2	9.23	0.6	-	0.2	1.02
248	5.2	13	0.2	1.54	0.6	-	1.0	1.02
247	5.2	13.016	0.842	6.47	0.6	-	0.3	1.02
249	1.23	13.337	0.7	5.25	1.5	-	0.8	1.04
244	2	13.41	0.046	0.34	1.7	-	9.9	1.05
240	5.2	13.51	0.45	3.33	2.0	-	1.6	1.06
124	1.23	13.82	1.02	7.38	2.9	-	1.0	1.08
225	1.21	14.07	0.09	0.64	3.6	-	12.8	1.10
130	2	14.071	0.012	0.09	3.6	-	29.6	1.10
65	1.23	14.151	1.909	13.49	3.9	-	0.7	1.11
126	1.23	15.2*	1	6.58	6.9	-	2.4	1.19
245	5.2	15.5*	0.362	2.34	7.7	-	7.4	1.21
233	1.23	15.74*	2	12.71	8.4	-	1.5	1.23
44	4.2	15.865*	1.805	11.38	8.8	-	1.7	1.24
242	1.21	16.063*	0.007	0.04	9.4	-	78.1	1.25
203	5.2	16.5*	1.2	7.27	10.6	-	3.1	1.29

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE zeta -SCORES AND THE R -SCORES FOR RESULTS IN THE [%] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	zeta -score	R -score
204	1.21	16.687*	0.063	0.38	11.1	-	51.6	1.30
145	1.22	17.589*	0.013	0.07	13.7	-	110.8	1.37
161	2	17.749*	0.52	2.93	14.2	-	9.5	1.39
236	1.22	22.18*	0.72	3.25	26.9	-	13.0	1.73
Fe ($x_{pt} = 2.49$, $\sigma_{pt} = 0.09$, $u(x_{pt}) = 0.012$) [%]								
108	1.32	1.8*	0.4	22.22	-7.9	-	-1.7	0.72
105	1.32	1.919*	0.205	10.68	-6.6	-	-2.8	0.77
73	1.21	2.001	0.003	0.15	-5.6	-	-39.2	0.80
197	5.1	2.07	0.2	9.66	-4.8	-	-2.1	0.83
100	1.21	2.072	0.007	0.34	-4.8	-	-29.9	0.83
233	1.23	2.12	0.01	0.47	-4.3	-	-23.6	0.85
85	7.2	2.15	0.2	9.30	-3.9	-	-1.7	0.86
79	1.22	2.163	0.032	1.48	-3.8	-	-9.6	0.87
246	1.21	2.192	0.331	15.10	-3.4	-	-0.9	0.88
202	5.1	2.23	0.06	2.69	-3.0	-	-4.2	0.90
234	2	2.23	0.13	5.83	-3.0	-	-2.0	0.90
161	2	2.263	0.062	2.74	-2.6	-	-3.6	0.91
250	2	2.27	0.11	4.85	-2.5	-	-2.0	0.91
130	2	2.32	0.002	0.09	-2.0	-	-13.9	0.93
149	5.2	2.336	0.015	0.64	-1.8	-	-8.0	0.94
137	1.22	2.34	0.15	6.41	-1.7	-	-1.0	0.94
65	1.23	2.348	0.198	8.43	-1.6	-	-0.7	0.94
215	5.1	2.353	0.14	5.95	-1.6	-	-1.0	0.94
99	5.2	2.357	0.35	14.85	-1.5	-	-0.4	0.95
204	1.21	2.362	0.064	2.71	-1.5	-	-2.0	0.95
205	5.2	2.376	3.731	157.03	-1.3	-	0.0	0.95
237	5.1	2.39	0.055	2.30	-1.2	-	-1.8	0.96
192	5.2	2.4	0.13	5.42	-1.0	-	-0.7	0.96
53	1.32	2.418	0.242	10.01	-0.8	-	-0.3	0.97
171	5.1	2.42	0.02	0.83	-0.8	-	-3.0	0.97
199	5.1	2.426	0.093	3.83	-0.7	-	-0.7	0.97
217	5.1	2.427	0.002	0.08	-0.7	-	-5.1	0.97
61	5.2	2.439	0.06	2.46	-0.6	-	-0.8	0.98
183	5.1	2.44	0.06	2.46	-0.6	-	-0.8	0.98
194	5.1	2.442	0.078	3.19	-0.6	-	-0.6	0.98
230	1.24	2.45	0.25	10.20	-0.5	-	-0.2	0.98
172	5.2	2.46	0.1	4.07	-0.3	-	-0.3	0.99
243	2	2.46	0.246	10.00	-0.3	-	-0.1	0.99
169	5.1	2.467	0.108	4.38	-0.3	-	-0.2	0.99
133	4.31	2.47	0.2	8.10	-0.2	-	-0.1	0.99
232	5.1	2.47	0.13	5.26	-0.2	-	-0.2	0.99
170	5.2	2.503	0.089	3.56	0.1	-	0.1	1.01
195	5.2	2.512	0.092	3.66	0.3	-	0.2	1.01
176	5.2	2.52	0.04	1.59	0.3	-	0.7	1.01
55	5.2	2.55	0.05	1.96	0.7	-	1.2	1.02
181	5.2	2.56	0.029	1.13	0.8	-	2.2	1.03
235	1.21	2.56	0.01	0.39	0.8	-	4.5	1.03
247	5.2	2.561	0.092	3.59	0.8	-	0.8	1.03

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [%] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
166	5.2	2.58	0.036	1.40	1.0	-	2.4	1.04
152	5.2	2.585	0.031	1.20	1.1	-	2.9	1.04
249	1.23	2.587	0.135	5.22	1.1	-	0.7	1.04
238	1.13	2.6	0.3	11.54	1.3	-	0.4	1.04
245	5.2	2.61	0.035	1.34	1.4	-	3.2	1.05
78	1.16	2.612	0.057	2.18	1.4	-	2.1	1.05
35	1.21	2.616	0.004	0.15	1.5	-	9.9	1.05
248	5.2	2.63	0.031	1.18	1.6	-	4.2	1.06
244	2	2.633	0.031	1.18	1.6	-	4.3	1.06
203	5.2	2.66	0.07	2.63	2.0	-	2.4	1.07
219	5.2	2.67	0.085	3.18	2.1	-	2.1	1.07
124	1.23	2.683	0.013	0.48	2.2	-	10.9	1.08
44	4.2	2.699	0.085	3.15	2.4	-	2.4	1.08
221	5.2	2.74	0.14	5.11	2.9	-	1.8	1.10
242	1.21	2.755	0.002	0.07	3.1	-	21.6	1.11
206	1.22	2.76	0.004	0.14	3.1	-	21.2	1.11
182	5.1	2.771	0.804	29.01	3.2	-	0.3	1.11
167	5.2	2.818	0.031	1.10	3.8	-	9.9	1.13
126	1.23	2.91	0.15	5.15	4.8	-	2.8	1.17
151	7.2	2.992	0.015	0.50	5.8	-	26.0	1.20
225	1.21	3.01	0.03	1.00	6.0	-	16.1	1.21
240	5.1	4.05*	0.03	0.74	18.0	-	48.2	1.63
236	1.22	4.326*	0.092	2.13	21.1	-	19.8	1.74
145	1.22	4.721*	0.004	0.08	25.7	-	175.0	1.90
54	1.21	14.9*	1.5	10.07	142.9	-	8.3	5.98
36	1.22	23*	0.003	0.01	236.2	-	1645.1	9.24
$K(x_{pt} = 2.29, \sigma_{pt} = 0.08, u(x_{pt}) = 0.007) [\%]$								
197	5.1	0.88*	0.02	2.27	-17.4	-	-66.1	0.38
108	1.32	1.13*	0.23	20.35	-14.3	-	-5.0	0.49
54	1.21	1.2*	0.2	16.67	-13.5	-	-5.4	0.52
100	1.21	1.239*	0.038	3.07	-13.0	-	-27.1	0.54
151	7.2	1.586*	0.016	1.01	-8.7	-	-39.9	0.69
217	5.1	1.747*	0.012	0.69	-6.7	-	-38.5	0.76
105	1.32	1.749*	0.179	10.23	-6.7	-	-3.0	0.76
53	1.32	1.763*	0.264	14.97	-6.5	-	-2.0	0.77
85	7.2	1.93*	0.02	1.04	-4.5	-	-16.9	0.84
172	5.2	2.09	0.08	3.83	-2.5	-	-2.5	0.91
78	1.16	2.092	0.017	0.81	-2.4	-	-10.7	0.91
192	5.2	2.103	0.11	5.23	-2.3	-	-1.7	0.92
199	5.1	2.128	0.127	5.97	-2.0	-	-1.3	0.93
219	5.2	2.14	0.301	14.07	-1.9	-	-0.5	0.93
84	5.2	2.17	0.1	4.61	-1.5	-	-1.2	0.95
55	5.2	2.19	0.03	1.37	-1.2	-	-3.2	0.96
235	1.21	2.2	0.01	0.45	-1.1	-	-7.2	0.96
246	1.21	2.202	0.098	4.45	-1.1	-	-0.9	0.96
237	5.1	2.22	0.055	2.48	-0.9	-	-1.3	0.97
183	5.1	2.22	0.05	2.25	-0.9	-	-1.4	0.97
152	5.2	2.221	0.015	0.68	-0.9	-	-4.1	0.97

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE zeta -SCORES AND THE R -SCORES FOR RESULTS IN THE [%] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	zeta -score	R -score
240	5.1	2.228	0.037	1.66	-0.8	-	-1.6	0.97
202	5.1	2.23	0.04	1.79	-0.7	-	-1.5	0.97
171	5.1	2.26	0.1	4.42	-0.4	-	-0.3	0.99
245	5.2	2.26	0.018	0.80	-0.4	-	-1.5	0.99
250	2	2.27	0.41	18.06	-0.2	-	0.0	0.99
169	5.1	2.274	0.09	3.96	-0.2	-	-0.2	0.99
232	5.1	2.29	0.12	5.24	0.0	-	0.0	1.00
248	5.2	2.29	0.06	2.62	0.0	-	0.0	1.00
124	1.23	2.29	0.05	2.18	0.0	-	0.0	1.00
176	5.2	2.3	0.04	1.74	0.1	-	0.2	1.00
215	5.1	2.32	0.19	8.19	0.4	-	0.2	1.01
182	5.1	2.327	0.077	3.31	0.5	-	0.5	1.02
194	5.1	2.354	0.062	2.63	0.8	-	1.0	1.03
221	5.2	2.36	0.23	9.75	0.9	-	0.3	1.03
205	5.2	2.378	0.43	18.08	1.1	-	0.2	1.04
170	5.2	2.38	0.084	3.53	1.1	-	1.1	1.04
130	2	2.386	0.006	0.25	1.2	-	10.1	1.04
247	5.2	2.397	0.206	8.59	1.3	-	0.5	1.05
238	1.13	2.41	0.24	9.96	1.5	-	0.5	1.05
249	1.23	2.42	0.137	5.66	1.6	-	0.9	1.06
203	5.2	2.42	0.1	4.13	1.6	-	1.3	1.06
243	2	2.42	0.242	10.00	1.6	-	0.5	1.06
166	5.2	2.45	0.03	1.22	2.0	-	5.2	1.07
149	5.2	2.498	0.062	2.48	2.6	-	3.3	1.09
230	1.24	2.5	0.25	10.00	2.6	-	0.8	1.09
244	2	2.51	0.03	1.20	2.7	-	7.1	1.10
44	4.2	2.547	0.278	10.91	3.2	-	0.9	1.11
126	1.23	2.55	0.26	10.20	3.2	-	1.0	1.11
206	1.22	2.551	0.004	0.16	3.2	-	31.0	1.11
133	4.31	2.59	0.3	11.58	3.7	-	1.0	1.13
79	1.22	2.596	0.125	4.82	3.8	-	2.4	1.13
35	1.21	2.63*	0.01	0.38	4.2	-	27.3	1.15
99	5.2	2.641*	0.059	2.23	4.3	-	5.9	1.15
167	5.2	2.665*	0.046	1.73	4.6	-	8.0	1.16
204	1.21	2.7*	0.109	4.04	5.1	-	3.8	1.18
137	1.22	2.73*	0.1	3.66	5.4	-	4.4	1.19
65	1.23	2.763*	0.385	13.93	5.8	-	1.2	1.21
161	2	2.822*	0.127	4.50	6.6	-	4.2	1.23
242	1.21	2.874*	0.003	0.10	7.2	-	73.1	1.26
225	1.21	2.88*	0.09	3.13	7.3	-	6.5	1.26
234	2	2.95*	0.07	2.37	8.2	-	9.4	1.29
73	1.21	2.97*	0.006	0.20	8.4	-	71.4	1.30
145	1.22	3.055*	0.004	0.13	9.5	-	90.9	1.33
233	1.23	3.2*	0.009	0.28	11.3	-	78.1	1.40
236	1.22	3.672*	0.005	0.14	17.1	-	154.7	1.60
Mg ($x_{pt} = 0.956$, $\sigma_{pt} = 0.04$, $u(x_{pt}) = 0.007$) [%]								
161	2	0.572*	0.037	6.47	-10.0	-	-10.2	0.60
204	1.21	0.58*	0.022	3.79	-9.8	-	-16.3	0.61

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE zeta -SCORES AND THE R -SCORES FOR RESULTS IN THE [%] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	zeta -score	R -score
234	2	0.625*	0.09	14.40	-8.6	-	-3.7	0.65
65	1.23	0.789	0.068	8.62	-4.3	-	-2.4	0.83
85	7.2	0.84	0.04	4.76	-3.0	-	-2.9	0.88
235	7.2	0.89	0.04	4.49	-1.7	-	-1.6	0.93
206	1.22	0.901	0.005	0.55	-1.4	-	-6.6	0.94
151	7.2	0.91	0.005	0.55	-1.2	-	-5.5	0.95
78	1.16	0.932	0.011	1.18	-0.6	-	-1.9	0.97
203	5.2	0.958	0.145	15.14	0.1	-	0.0	1.00
243	2	0.958	0.192	20.04	0.1	-	0.0	1.00
237	5.1	0.96	0.03	3.13	0.1	-	0.1	1.00
215	5.1	0.98	0.07	7.14	0.6	-	0.3	1.03
133	4.4	0.99	0.1	10.10	0.9	-	0.3	1.04
248	5.2	0.993	0.05	5.04	1.0	-	0.7	1.04
250	2	0.995	0.084	8.44	1.0	-	0.5	1.04
145	1.22	1.013	0.004	0.39	1.5	-	7.3	1.06
172	5.2	1.02	0.06	5.88	1.7	-	1.1	1.07
130	2	1.02	0.003	0.29	1.7	-	8.7	1.07
192	5.2	1.03	0.08	7.77	1.9	-	0.9	1.08
152	5.2	1.038	0.219	21.10	2.1	-	0.4	1.09
194	5.1	1.054	0.051	4.84	2.5	-	1.9	1.10
176	5.2	1.06	0.05	4.72	2.7	-	2.1	1.11
44	4.2	1.104	0.184	16.67	3.8	-	0.8	1.15
137	1.22	1.12	0.15	13.39	4.3	-	1.1	1.17
244	2	1.163	0.031	2.67	5.4	-	6.5	1.22
219	5.2	1.18	0.148	12.54	5.8	-	1.5	1.23
240	5.2	1.2	0.07	5.83	6.3	-	3.5	1.26
126	1.23	1.24	0.1	8.06	7.4	-	2.8	1.30
84	5.2	1.4*	0.1	7.14	11.5	-	4.4	1.46
242	1.21	2.302*	0.06	2.61	35.0	-	22.3	2.41
Na ($x_{pt} = 0.278$, $\sigma_{pt} = 0.013$, $u(x_{pt}) = 0.002$) [%]								
235	7.1	0.1*	0.01	10.00	-13.2	-	-17.3	0.36
145	1.22	0.156*	0.009	5.77	-9.0	-	-13.1	0.56
217	5.1	0.222	0.004	1.80	-4.2	-	-12.0	0.80
244	2	0.227	0.006	2.64	-3.8	-	-7.9	0.82
44	4.2	0.231	0.048	20.78	-3.5	-	-1.0	0.83
195	5.2	0.235	0.073	31.06	-3.2	-	-0.6	0.85
85	7.2	0.237	0.03	12.66	-3.0	-	-1.4	0.85
194	5.1	0.239	0.024	10.04	-2.9	-	-1.6	0.86
205	5.2	0.267	0.489	183.15	-0.8	-	0.0	0.96
55	5.2	0.27	0.001	0.37	-0.6	-	-3.1	0.97
172	5.2	0.27	0.01	3.70	-0.6	-	-0.8	0.97
192	5.2	0.273	0.014	5.13	-0.4	-	-0.4	0.98
61	5.1	0.274	0.047	17.15	-0.3	-	-0.1	0.99
199	5.1	0.276	0.016	5.80	-0.1	-	-0.1	0.99
84	5.2	0.28	0.03	10.71	0.1	-	0.1	1.01
133	4.4	0.28	0.03	10.71	0.1	-	0.1	1.01
197	5.1	0.28	0.003	1.07	0.1	-	0.5	1.01
183	5.1	0.28	0.006	2.14	0.1	-	0.3	1.01

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [%] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
240	5.1	0.286	0.002	0.70	0.6	-	2.6	1.03
176	5.2	0.286	0.007	2.45	0.6	-	1.1	1.03
202	5.1	0.286	0.014	4.90	0.6	-	0.6	1.03
245	5.2	0.287	0.001	0.35	0.7	-	3.5	1.03
237	5.1	0.287	0.007	2.44	0.7	-	1.2	1.03
248	5.2	0.288	0.004	1.39	0.7	-	2.1	1.04
215	5.1	0.29	0.019	6.55	0.9	-	0.6	1.04
99	5.2	0.291	0.004	1.37	1.0	-	2.8	1.05
171	5.1	0.292	0.004	1.37	1.0	-	3.0	1.05
169	5.1	0.292	0.012	4.11	1.0	-	1.1	1.05
247	5.2	0.293	0.016	5.46	1.1	-	0.9	1.05
170	5.2	0.293	0.005	1.71	1.1	-	2.7	1.05
65	1.23	0.294	0.018	6.12	1.2	-	0.9	1.06
232	5.1	0.295	0.015	5.08	1.3	-	1.1	1.06
152	5.2	0.298	0.003	1.01	1.5	-	5.2	1.07
166	5.2	0.3	0.004	1.33	1.6	-	4.7	1.08
182	5.1	0.302	84	27814.57	1.8	-	0.0	1.09
149	5.2	0.307	0.001	0.33	2.2	-	11.2	1.10
234	2	0.309	0.009	2.91	2.3	-	3.3	1.11
161	2	0.312	0.017	5.45	2.5	-	2.0	1.12
219	5.2	0.319	0.017	5.33	3.0	-	2.4	1.15
203	5.2	0.319	0.007	2.19	3.0	-	5.5	1.15
221	5.2	0.32	0.025	7.81	3.1	-	1.7	1.15
167	5.2	0.324	0.001	0.31	3.4	-	17.7	1.17
243	2	0.33	0.066	20.00	3.9	-	0.8	1.19
204	1.21	0.343	0.018	5.25	4.8	-	3.6	1.23
124	1.23	0.37	0.02	5.41	6.8	-	4.6	1.33
130	2	0.399*	0.007	1.75	9.0	-	16.4	1.44
126	1.23	0.427*	0.08	18.74	11.1	-	1.9	1.54
137	1.22	0.437*	0.093	21.28	11.8	-	1.7	1.57
206	1.22	0.471*	0.012	2.55	14.3	-	15.8	1.69
$S (x_{pt} = 0.115, \sigma_{pt} = 0.006, u(x_{pt}) = 0.0015) [\%]$								
204	1.21	0.027*	0.005	18.52	-13.8	-	-16.9	0.23
161	2	0.035*	0.003	8.57	-12.6	-	-23.8	0.30
100	1.21	0.047*	0.001	2.13	-10.7	-	-37.7	0.41
108	1.32	0.084	0.025	29.76	-4.9	-	-1.2	0.73
105	1.32	0.089	0.015	16.85	-4.1	-	-1.7	0.77
230	1.24	0.097	0.01	10.31	-2.8	-	-1.8	0.84
85	7.2	0.107	0.02	18.69	-1.3	-	-0.4	0.93
133	4.31	0.11	0.01	9.09	-0.8	-	-0.5	0.96
243	2	0.118	0.024	20.34	0.5	-	0.1	1.03
137	1.22	0.121	0.007	5.79	0.9	-	0.8	1.05
145	1.22	0.123	0.002	1.63	1.3	-	3.2	1.07
244	2	0.127	0.006	4.72	1.9	-	1.9	1.10
126	1.23	0.13	0.01	7.69	2.4	-	1.5	1.13
206	1.22	0.13	0.001	0.77	2.4	-	8.3	1.13
242	1.21	0.131	0.001	0.76	2.5	-	8.9	1.14
65	1.23	0.134	0.01	7.46	3.0	-	1.9	1.17

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE zeta -SCORES AND THE R -SCORES FOR RESULTS IN THE [%] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	zeta -score	R -score
183	5.4	0.14	0.01	7.14	3.9	-	2.5	1.22
44	4.2	0.142	0.022	15.49	4.2	-	1.2	1.23
36	1.22	0.85*	0.006	0.71	115.4	-	118.8	7.39
Si ($x_{pt} = 19.8$, $\sigma_{pt} = 0.4$, $u(x_{pt}) = 0.05$) [%]								
235	1.21	14.08*	0.1	0.71	-12.9	-	-51.9	0.71
233	1.23	14.5*	2.5	17.24	-11.9	-	-2.1	0.73
236	1.22	16.047*	0.529	3.30	-8.4	-	-7.1	0.81
244	2	16.31*	0.249	1.53	-7.8	-	-13.8	0.82
44	4.2	16.636*	2.735	16.44	-7.1	-	-1.2	0.84
238	1.13	17*	1.7	10.00	-6.3	-	-1.6	0.86
133	4.31	17.1*	1.7	9.94	-6.1	-	-1.6	0.86
126	1.23	17.3*	0.2	1.16	-5.6	-	-12.2	0.87
225	1.21	17.34*	0.96	5.54	-5.5	-	-2.6	0.88
35	1.21	17.84*	0.05	0.28	-4.4	-	-28.8	0.90
248	5.2	18*	6	33.33	-4.0	-	-0.3	0.91
183	5.4	18*	0.3	1.67	-4.0	-	-5.9	0.91
230	1.24	18.1	1.811	10.01	-3.8	-	-0.9	0.91
206	1.22	18.577	0.024	0.13	-2.7	-	-23.5	0.94
243	2	19.279	1.928	10.00	-1.2	-	-0.3	0.97
130	2	19.805	0.026	0.13	0.0	-	0.1	1.00
161	2	19.959	0.391	1.96	0.4	-	0.4	1.01
250	2	19.96	0.86	4.31	0.4	-	0.2	1.01
204	1.21	20.339	0.079	0.39	1.2	-	5.9	1.03
176	5.2	20.6	1.7	8.25	1.8	-	0.5	1.04
73	1.21	21.61*	0.037	0.17	4.1	-	30.6	1.09
145	1.22	21.693*	0.015	0.07	4.3	-	39.1	1.10
172	5.2	23.11*	1.94	8.39	7.4	-	1.7	1.17
242	1.21	23.123*	0.023	0.10	7.5	-	64.5	1.17
65	1.23	23.156*	1.481	6.40	7.5	-	2.3	1.17
137	1.22	23.5*	1.6	6.81	8.3	-	2.3	1.19
100	1.21	25.4*	0.142	0.56	12.6	-	37.5	1.28
234	2	26.5*	0.4	1.51	15.1	-	16.6	1.34
124	1.23	28.89*	1.21	4.19	20.4	-	7.5	1.46
78	1.16	30.69*	0.134	0.44	24.5	-	76.9	1.55
105	1.32	43.995*	4.12	9.36	54.4	-	5.9	2.22
36	1.22	51.5*	0.002	0.00	71.2	-	687.3	2.60
Ti ($x_{pt} = 0.277$, $\sigma_{pt} = 0.013$, $u(x_{pt}) = 0.0015$) [%]								
100	1.21	0.035*	0.016	45.71	-18.0	-	-15.1	0.13
151	7.2	0.112*	0.001	0.89	-12.3	-	-91.8	0.40
108	1.32	0.13*	0.03	23.08	-10.9	-	-4.9	0.47
105	1.32	0.196*	0.019	9.69	-6.0	-	-4.3	0.71
130	2	0.203*	0.01	4.93	-5.5	-	-7.3	0.73
73	1.21	0.219	0.005	2.28	-4.3	-	-11.1	0.79
182	5.1	0.225	0.025	11.11	-3.9	-	-2.1	0.81
234	2	0.23	0.01	4.35	-3.5	-	-4.6	0.83
133	4.31	0.23	0.02	8.70	-3.5	-	-2.3	0.83
233	1.23	0.23	0.005	2.17	-3.5	-	-9.0	0.83

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [%] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
167	5.2	0.238	0.017	7.14	-2.9	-	-2.3	0.86
194	5.1	0.239	0.016	6.69	-2.8	-	-2.4	0.86
203	5.2	0.24	0.02	8.33	-2.8	-	-1.8	0.87
53	1.32	0.242	0.024	9.92	-2.6	-	-1.5	0.87
79	1.22	0.245	0.014	5.71	-2.4	-	-2.3	0.88
65	1.23	0.246	0.022	8.94	-2.3	-	-1.4	0.89
85	7.2	0.25	0.05	20.00	-2.0	-	-0.5	0.90
237	5.1	0.258	0.007	2.71	-1.4	-	-2.7	0.93
243	2	0.258	0.052	20.16	-1.4	-	-0.4	0.93
183	5.4	0.26	0.01	3.85	-1.3	-	-1.7	0.94
35	1.21	0.262	0.002	0.76	-1.1	-	-6.0	0.95
44	4.2	0.263	0.016	6.08	-1.0	-	-0.9	0.95
206	1.22	0.263	0.003	1.14	-1.0	-	-4.2	0.95
172	5.2	0.263	0.013	4.94	-1.0	-	-1.1	0.95
249	1.23	0.264	0.016	6.06	-1.0	-	-0.8	0.95
240	5.2	0.266	0.014	5.26	-0.8	-	-0.8	0.96
238	1.13	0.272	0.027	9.93	-0.4	-	-0.2	0.98
176	5.2	0.272	0.007	2.57	-0.4	-	-0.7	0.98
232	5.1	0.275	0.03	10.91	-0.1	-	-0.1	0.99
55	5.2	0.275	0.036	13.09	-0.1	-	-0.1	0.99
192	5.2	0.276	0.02	7.25	-0.1	-	0.0	1.00
250	2	0.276	0.017	6.16	-0.1	-	-0.1	1.00
244	2	0.277	0.006	2.17	0.0	-	0.0	1.00
248	5.2	0.277	0.01	3.61	0.0	-	0.0	1.00
225	1.21	0.278	0.016	5.76	0.1	-	0.1	1.00
202	5.1	0.28	0.02	7.14	0.2	-	0.1	1.01
215	5.1	0.286	0.027	9.44	0.7	-	0.3	1.03
246	1.21	0.293	0.059	20.14	1.2	-	0.3	1.06
235	1.21	0.3	0.02	6.67	1.7	-	1.1	1.08
137	1.22	0.302	0.018	5.96	1.9	-	1.4	1.09
152	5.2	0.305	0.044	14.43	2.1	-	0.6	1.10
204	1.21	0.309	0.008	2.59	2.4	-	3.9	1.12
124	1.23	0.311	0.016	5.14	2.5	-	2.1	1.12
247	5.2	0.317	0.028	8.83	3.0	-	1.4	1.14
242	1.21	0.333	0.001	0.30	4.2	-	31.2	1.20
219	5.2	0.334	0.03	8.98	4.2	-	1.9	1.21
78	1.16	0.343*	0.008	2.33	4.9	-	8.1	1.24
161	2	0.372*	0.008	2.15	7.1	-	11.7	1.34
126	1.23	0.374*	0.03	8.02	7.2	-	3.2	1.35
145	1.22	0.485*	0.002	0.41	15.5	-	83.4	1.75
236	1.22	0.506*	0.011	2.17	17.0	-	20.6	1.83
166	5.2	0.79*	0.01	1.27	38.2	-	50.7	2.85
36	1.22	1.8*	0.003	0.17	113.3	-	454.5	6.50
54	1.21	3.3**	0.6	18.18	224.9	-	5.0	11.91

TABLE 4a. SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE zeta -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	zeta -score	R -score
As ($x_{pt} = 18.6$, $\sigma_{pt} = 1.9$, $u(x_{pt}) = 0.2$) [mg/kg]								
204	1.21	3.3*	0.42	12.73	-8.0	-	-32.0	0.18
161	2	4.7*	0.45	9.57	-7.3	-	-27.5	0.25
197	5.1	8.84*	0.3	3.39	-5.1	-	-25.8	0.48
194	5.1	11.754	0.441	3.75	-3.6	-	-13.8	0.63
195	5.2	12.1	2.6	21.49	-3.4	-	-2.5	0.65
206	1.22	12.119	0.5	4.13	-3.4	-	-11.8	0.65
84	5.2	15.6	0.3	1.92	-1.6	-	-7.9	0.84
99	5.2	15.67	1.4	8.93	-1.5	-	-2.1	0.84
234	2	15.7	2.8	17.83	-1.5	-	-1.0	0.84
229	6.2	15.94	1.5	9.41	-1.4	-	-1.8	0.86
217	5.1	16.11	0.064	0.40	-1.3	-	-10.5	0.87
85	7.2	16.4	1.6	9.76	-1.1	-	-1.4	0.88
238	1.13	16.6	2	12.05	-1.0	-	-1.0	0.89
152	5.2	16.8	1.2	7.14	-0.9	-	-1.5	0.90
100	1.21	17	1.7	10.00	-0.8	-	-0.9	0.91
65	1.23	17.49	1.034	5.91	-0.6	-	-1.0	0.94
237	5.1	17.5	0.45	2.57	-0.6	-	-2.2	0.94
199	5.1	17.608	1.404	7.97	-0.5	-	-0.7	0.95
192	5.2	17.7	0.92	5.20	-0.5	-	-0.9	0.95
215	5.1	17.7	1.1	6.21	-0.5	-	-0.8	0.95
105	1.32	18	1.8	10.00	-0.3	-	-0.3	0.97
233	1.23	18	2	11.11	-0.3	-	-0.3	0.97
182	5.1	18.03	0.9	4.99	-0.3	-	-0.6	0.97
172	5.2	18.3	0.7	3.83	-0.2	-	-0.4	0.98
170	5.2	18.365	0.466	2.54	-0.1	-	-0.5	0.99
61	5.2	18.4	0.96	5.22	-0.1	-	-0.2	0.99
205	5.2	18.487	0.806	4.36	-0.1	-	-0.1	0.99
124	1.23	18.8	1.12	5.96	0.1	-	0.2	1.01
169	5.1	18.9	1	5.29	0.2	-	0.3	1.02
203	5.2	19	0.4	2.11	0.2	-	0.9	1.02
248	5.2	19	0.4	2.11	0.2	-	0.9	1.02
232	5.1	19.1	1	5.24	0.3	-	0.5	1.03
183	5.1	19.1	0.5	2.62	0.3	-	0.9	1.03
242	1.21	19.24	0.32	1.66	0.3	-	1.6	1.03
245	5.2	19.3	0.54	2.80	0.4	-	1.2	1.04
247	5.2	19.52	0.539	2.76	0.5	-	1.6	1.05
55	5.2	19.6	0.74	3.78	0.5	-	1.3	1.05
166	5.2	19.72	0.31	1.57	0.6	-	2.9	1.06
171	5.1	19.9	0.4	2.01	0.7	-	2.8	1.07
108	1.32	20	4	20.00	0.7	-	0.3	1.08
221	5.2	20.1	1.2	5.97	0.8	-	1.2	1.08
126	1.23	20.2	1	4.95	0.8	-	1.6	1.09
240	5.1	20.24	0.46	2.27	0.9	-	3.2	1.09
202	5.1	20.34	0.72	3.54	0.9	-	2.3	1.09
78	1.16	20.8	0.8	3.85	1.1	-	2.6	1.12

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
230	1.24	21	2	9.52	1.3	-	1.2	1.13
176	5.2	21.6	1	4.63	1.6	-	2.9	1.16
151	7.2	21.681	0.521	2.40	1.6	-	5.4	1.17
167	5.2	22.429	0.22	0.98	2.0	-	12.0	1.21
149	5.2	22.694	0.409	1.80	2.1	-	8.7	1.22
137	1.22	23.6	2.9	12.29	2.6	-	1.7	1.27
133	4.31	27	3	11.11	4.4	-	2.8	1.45
244	2	28*	1.414	5.05	4.9	-	6.6	1.51
53	1.32	28.378*	4.257	15.00	5.1	-	2.3	1.53
236	1.22	52.502*	1.586	3.02	17.7	-	21.2	2.82
B [mg/kg]								
183	5.4	84	0.8	0.95	-	-	-	-
Ba ($x_{pt} = 287$, $\sigma_{pt} = 20$, $u(x_{pt}) = 2$) [mg/kg]								
152	5.2	11**	0.5	4.55	-14.1	-	-111.6	0.04
130	2	25.46**	22.59	88.73	-13.4	-	-11.5	0.09
105	1.32	31*	5.1	16.45	-13.1	-	-45.3	0.11
197	5.1	90.02*	7.48	8.31	-10.1	-	-25.1	0.31
108	1.32	150*	29	19.33	-7.0	-	-4.7	0.52
151	7.2	212.737	0.632	0.30	-3.8	-	-29.7	0.74
242	1.21	220.96	4.78	2.16	-3.4	-	-12.3	0.77
192	5.2	245	13	5.31	-2.1	-	-3.2	0.85
237	5.1	254	7.5	2.95	-1.7	-	-4.2	0.89
234	2	258	23	8.91	-1.5	-	-1.3	0.90
85	7.2	260.6	26	9.98	-1.3	-	-1.0	0.91
169	5.1	264.2	12.9	4.88	-1.2	-	-1.7	0.92
245	5.2	267	7.909	2.96	-1.0	-	-2.4	0.93
199	5.1	269.4	30.785	11.43	-0.9	-	-0.6	0.94
61	5.1	271	54	19.93	-0.8	-	-0.3	0.94
248	5.2	272	20	7.35	-0.8	-	-0.7	0.95
65	1.23	281.315	21.43	7.62	-0.3	-	-0.3	0.98
183	5.1	282	25	8.87	-0.3	-	-0.2	0.98
176	5.2	285	14	4.91	-0.1	-	-0.1	0.99
215	5.1	286	30	10.49	-0.1	-	0.0	1.00
205	5.2	290.273	0.333	0.11	0.2	-	1.3	1.01
232	5.1	295	17	5.76	0.4	-	0.5	1.03
233	1.23	296	6	2.03	0.5	-	1.4	1.03
182	5.1	297	32	10.77	0.5	-	0.3	1.03
166	5.2	299	18	6.02	0.6	-	0.7	1.04
126	1.23	300	30	10.00	0.7	-	0.4	1.05
238	1.13	300.8	31.7	10.54	0.7	-	0.4	1.05
217	5.1	305.2	7.63	2.50	0.9	-	2.3	1.06
78	1.16	308	6	1.95	1.1	-	3.2	1.07
171	5.1	309	9	2.91	1.1	-	2.4	1.08
172	5.2	311	14	4.50	1.2	-	1.7	1.08
204	1.21	315	20	6.35	1.4	-	1.4	1.10
247	5.2	319.323	37.595	11.77	1.7	-	0.9	1.11
203	5.2	321	9	2.80	1.7	-	3.6	1.12

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
221	5.2	323	48.5	15.02	1.8	-	0.7	1.13
219	5.2	349	41.7	11.95	3.2	-	1.5	1.22
202	5.1	354	47	13.28	3.4	-	1.4	1.23
161	2	392*	25	6.38	5.4	-	4.2	1.37
206	1.22	530.5*	13	2.45	12.4	-	18.4	1.85
$\text{Br } (x_{pt} = 6.5, \sigma_{pt} = 0.8, u(x_{pt}) = 0.14) [\text{mg/kg}]$								
195	5.2	3.3	0.4	12.12	-4.1	-	-7.6	0.51
197	5.1	3.51	0.3	8.55	-3.8	-	-9.0	0.54
161	2	3.98	0.6	15.08	-3.2	-	-4.1	0.61
206	1.22	4.96	0.5	10.08	-2.0	-	-3.0	0.76
152	5.2	4.97	0.7	14.08	-2.0	-	-2.1	0.76
230	1.24	5	1	20.00	-1.9	-	-1.5	0.77
217	5.1	5.056	0.025	0.49	-1.8	-	-10.2	0.78
105	1.32	5.2	0.45	8.65	-1.7	-	-2.8	0.80
242	1.21	5.5	0.1	1.82	-1.3	-	-5.8	0.85
137	1.22	5.5	1	18.18	-1.3	-	-1.0	0.85
65	1.23	5.634	0.754	13.38	-1.1	-	-1.1	0.87
199	5.1	5.637	0.392	6.95	-1.1	-	-2.1	0.87
237	5.1	5.86	0.135	2.30	-0.8	-	-3.3	0.90
169	5.1	5.9	0.23	3.90	-0.8	-	-2.2	0.91
61	5.1	6	1.1	18.33	-0.6	-	-0.5	0.92
192	5.2	6.2	0.32	5.16	-0.4	-	-0.9	0.95
172	5.2	6.2	0.25	4.03	-0.4	-	-1.0	0.95
215	5.1	6.24	0.41	6.57	-0.3	-	-0.6	0.96
182	5.1	6.26	0.67	10.70	-0.3	-	-0.4	0.96
238	1.13	6.3	0.7	11.11	-0.3	-	-0.3	0.97
183	5.1	6.31	0.33	5.23	-0.2	-	-0.5	0.97
176	5.2	6.43	0.13	2.02	-0.1	-	-0.4	0.99
248	5.2	6.5	0.2	3.08	0.0	-	0.0	1.00
233	1.23	6.5	0.4	6.15	0.0	-	0.0	1.00
249	1.23	6.537	0.78	11.93	0.0	-	0.0	1.01
204	1.21	6.7	1.1	16.42	0.3	-	0.2	1.03
171	5.1	6.75	0.21	3.11	0.3	-	1.0	1.04
240	5.1	7.18	0.25	3.48	0.9	-	2.4	1.10
221	5.2	7.27	0.62	8.53	1.0	-	1.2	1.12
203	5.2	7.78	0.4	5.14	1.6	-	3.0	1.20
124	1.23	8	0.457	5.71	1.9	-	3.1	1.23
126	1.23	8.4	0.5	5.95	2.4	-	3.7	1.29
205	5.2	12.297*	4.373	35.56	7.4	-	1.3	1.89
$\text{Cd } (x_{pt} = 0.269, \sigma_{pt} = 0.05, u(x_{pt}) = 0.01) [\text{mg/kg}]$								
85	7.2	0.24	0.04	16.67	-0.6	-	-0.7	0.89
151	7.2	0.274	0.001	0.36	0.1	-	0.5	1.02
161	2	0.42	0.08	19.05	2.9	-	1.9	1.56
229	6.2	0.58*	0.3	51.72	5.9	-	1.0	2.16
233	1.23	0.6*	0.15	25.00	6.3	-	2.2	2.23
204	1.21	0.66*	0.13	19.70	7.5	-	3.0	2.45
206	1.22	1.3*	0.6	46.15	19.7	-	1.7	4.83

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
130	2	9.47**	8.89	93.88	175.5	-	1.0	35.20
Ce ($x_{pt} = 50.5$, $\sigma_{pt} = 4$, $u(x_{pt}) = 0.7$) [mg/kg]								
235	7.2	25.22*	4.41	17.49	-5.6	-	-5.7	0.50
204	1.21	31.1*	1.6	5.14	-4.3	-	-11.2	0.62
152	5.2	32.7*	1.5	4.59	-4.0	-	-10.9	0.65
161	2	34.2	2.7	7.89	-3.6	-	-5.9	0.68
205	5.2	42.597	4.309	10.12	-1.8	-	-1.8	0.84
55	5.2	42.9	2.4	5.59	-1.7	-	-3.1	0.85
151	7.2	43.817	0.31	0.71	-1.5	-	-9.3	0.87
85	7.2	45	4	8.89	-1.2	-	-1.4	0.89
194	5.1	45.434	1.998	4.40	-1.1	-	-2.4	0.90
176	5.2	47.2	0.8	1.69	-0.7	-	-3.2	0.93
192	5.2	47.3	2.4	5.07	-0.7	-	-1.3	0.94
202	5.1	48.03	1.75	3.64	-0.6	-	-1.3	0.95
169	5.1	48.3	2.4	4.97	-0.5	-	-0.9	0.96
215	5.1	49.2	3	6.10	-0.3	-	-0.4	0.97
199	5.1	49.858	4.152	8.33	-0.1	-	-0.2	0.99
61	5.2	50	3.1	6.20	-0.1	-	-0.2	0.99
232	5.1	51.4	2.7	5.25	0.2	-	0.3	1.02
237	5.1	51.4	1.2	2.33	0.2	-	0.7	1.02
247	5.2	52.297	1.336	2.55	0.4	-	1.2	1.04
183	5.1	52.6	1.1	2.09	0.5	-	1.6	1.04
166	5.2	52.96	1	1.89	0.5	-	2.1	1.05
248	5.2	53.5	1.2	2.24	0.7	-	2.2	1.06
238	1.13	53.8	5.3	9.85	0.7	-	0.6	1.07
221	5.2	54	5	9.26	0.8	-	0.7	1.07
233	1.23	54.3	5	9.21	0.8	-	0.8	1.08
170	5.2	56.139	4.93	8.78	1.3	-	1.1	1.11
171	5.1	56.3	0.8	1.42	1.3	-	5.6	1.11
203	5.2	56.5	2.6	4.60	1.3	-	2.2	1.12
167	5.2	62.387	0.771	1.24	2.7	-	11.8	1.24
217	5.1	63.14	0.126	0.20	2.8	-	19.0	1.25
242	1.21	64.48	6.98	10.83	3.1	-	2.0	1.28
206	1.22	67.659	0.1	0.15	3.8	-	26.0	1.34
240	5.1	78.89*	1.21	1.53	6.3	-	20.7	1.56
182	5.1	87.17*	8.76	10.05	8.2	-	4.2	1.73
Cl [mg/kg]								
197	5.1	24.46	4.07	16.64	-	-	-	-
126	1.23	73	0.7	0.96	-	-	-	-
237	5.1	84	20	23.81	-	-	-	-
183	5.4	85	2	2.35	-	-	-	-
105	1.32	87	20	22.99	-	-	-	-
215	5.1	107	26	24.30	-	-	-	-
176	5.2	108	14	12.96	-	-	-	-
204	1.21	108	38	35.19	-	-	-	-
192	5.2	110	9	8.18	-	-	-	-
248	5.2	111	20	18.02	-	-	-	-

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
182	5.1	153	15	9.80	-	-	-	-
161	2	163	57	34.97	-	-	-	-
44	4.2	185.6	14.6	7.87	-	-	-	-
202	5.1	277.8	25.7	9.25	-	-	-	-
Co ($x_{pt} = 9.07$, $\sigma_{pt} = 1.0$, $u(x_{pt}) = 0.2$) [mg/kg]								
233	1.23	1.9	0.007	0.37	-6.9	-	-34.4	0.21
235	7.2	4.11	0.94	22.87	-4.8	-	-5.2	0.45
137	1.22	7.4	1	13.51	-1.6	-	-1.6	0.82
85	7.2	7.97	3	37.64	-1.1	-	-0.4	0.88
217	5.1	8.071	0.024	0.30	-1.0	-	-4.8	0.89
99	5.2	8.085	0.956	11.82	-0.9	-	-1.0	0.89
215	5.1	8.3	0.5	6.02	-0.7	-	-1.4	0.92
126	1.23	8.4	0.8	9.52	-0.6	-	-0.8	0.93
237	5.1	8.41	0.19	2.26	-0.6	-	-2.3	0.93
192	5.2	8.47	0.45	5.31	-0.6	-	-1.2	0.93
195	5.2	8.62	0.4	4.64	-0.4	-	-1.0	0.95
172	5.2	8.64	0.35	4.05	-0.4	-	-1.1	0.95
171	5.1	8.64	0.11	1.27	-0.4	-	-1.8	0.95
183	5.1	8.7	0.18	2.07	-0.4	-	-1.3	0.96
169	5.1	8.76	0.38	4.34	-0.3	-	-0.7	0.97
170	5.2	8.773	0.393	4.48	-0.3	-	-0.7	0.97
232	5.1	8.8	0.5	5.68	-0.3	-	-0.5	0.97
204	1.21	8.9	0.92	10.34	-0.2	-	-0.2	0.98
181	5.2	8.92	0.197	2.21	-0.1	-	-0.5	0.98
176	5.2	8.94	0.22	2.46	-0.1	-	-0.4	0.99
61	5.2	8.98	0.46	5.12	-0.1	-	-0.2	0.99
248	5.2	9	0.2	2.22	-0.1	-	-0.2	0.99
199	5.1	9.037	0.442	4.89	0.0	-	-0.1	1.00
151	7.2	9.081	0.001	0.01	0.0	-	0.1	1.00
161	2	9.1	0.53	5.82	0.0	-	0.1	1.00
202	5.1	9.12	0.07	0.77	0.0	-	0.2	1.01
55	5.2	9.2	0.46	5.00	0.1	-	0.3	1.01
219	5.2	9.2	0.265	2.88	0.1	-	0.4	1.01
166	5.2	9.204	0.088	0.96	0.1	-	0.6	1.01
205	5.2	9.233	0.067	0.73	0.2	-	0.7	1.02
152	5.2	9.32	0.12	1.29	0.2	-	1.0	1.03
247	5.2	9.447	0.337	3.57	0.4	-	1.0	1.04
221	5.2	9.6	0.82	8.54	0.5	-	0.6	1.06
242	1.21	9.7	0.58	5.98	0.6	-	1.0	1.07
194	5.1	9.905	0.687	6.94	0.8	-	1.2	1.09
203	5.2	10.2	0.3	2.94	1.1	-	3.1	1.12
245	5.2	10.6	0.311	2.93	1.5	-	4.1	1.17
182	5.1	11.06	0.34	3.07	1.9	-	5.0	1.22
240	5.1	15.72	0.16	1.02	6.4	-	25.3	1.73
149	5.2	16.996*	0.166	0.98	7.6	-	29.8	1.87
167	5.2	141.552**	5.805	4.10	127.2	-	22.8	15.61

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
Cr ($x_{pt} = 52.8$, $\sigma_{pt} = 5$, $u(x_{pt}) = 0.7$) [mg/kg]								
194	5.1	33.166	2.177	6.56	-4.2	-	-8.5	0.63
233	1.23	39	3	7.69	-3.0	-	-4.5	0.74
108	1.32	40	10	25.00	-2.8	-	-1.3	0.76
130	2	40.66	3.18	7.82	-2.6	-	-3.7	0.77
246	1.22	40.7	6.2	15.23	-2.6	-	-1.9	0.77
229	6.2	40.99	2.2	5.37	-2.5	-	-5.1	0.78
124	1.23	42.34	0.56	1.32	-2.2	-	-11.3	0.80
126	1.23	44	3	6.82	-1.9	-	-2.8	0.83
151	7.2	44.234	0.231	0.52	-1.8	-	-11.1	0.84
238	1.13	47	7	14.89	-1.2	-	-0.8	0.89
65	1.23	47.563	4.836	10.17	-1.1	-	-1.1	0.90
137	1.22	48	5.3	11.04	-1.0	-	-0.9	0.91
192	5.2	49.8	2.6	5.22	-0.6	-	-1.1	0.94
85	7.2	51.9	6	11.56	-0.2	-	-0.1	0.98
78	1.16	52.9	6.1	11.53	0.0	-	0.0	1.00
161	2	53.1	2.75	5.18	0.1	-	0.1	1.01
205	5.2	53.438	4.711	8.82	0.1	-	0.1	1.01
237	5.1	54	1.25	2.31	0.3	-	0.8	1.02
105	1.32	54	16	29.63	0.3	-	0.1	1.02
61	5.2	54.1	5.2	9.61	0.3	-	0.2	1.02
215	5.1	54.6	3.3	6.04	0.4	-	0.5	1.03
204	1.21	54.7	2.3	4.20	0.4	-	0.8	1.04
199	5.1	54.916	3.113	5.67	0.5	-	0.7	1.04
172	5.2	55.2	2.2	3.99	0.5	-	1.0	1.05
169	5.1	56.5	2.2	3.89	0.8	-	1.6	1.07
219	5.2	57.5	3.08	5.36	1.0	-	1.5	1.09
248	5.2	57.5	2	3.48	1.0	-	2.2	1.09
152	5.2	57.6	3	5.21	1.0	-	1.6	1.09
176	5.2	57.6	0.9	1.56	1.0	-	4.1	1.09
183	5.1	58	1.3	2.24	1.1	-	3.5	1.10
170	5.2	58.055	4.942	8.51	1.1	-	1.1	1.10
171	5.1	58.5	1.1	1.88	1.2	-	4.3	1.11
166	5.2	58.52	0.97	1.66	1.2	-	4.7	1.11
202	5.1	59.14	2.13	3.60	1.4	-	2.8	1.12
242	1.21	59.82	0.7	1.17	1.5	-	6.9	1.13
247	5.2	60.185	2.464	4.09	1.6	-	2.9	1.14
55	5.2	60.5	2.8	4.63	1.7	-	2.7	1.15
181	5.2	60.9	2.991	4.91	1.7	-	2.6	1.15
182	5.1	61.58	6.7	10.88	1.9	-	1.3	1.17
232	5.1	62	3.2	5.16	2.0	-	2.8	1.17
221	5.2	62.3	7.8	12.52	2.0	-	1.2	1.18
53	1.32	63.491	6.349	10.00	2.3	-	1.7	1.20
225	1.21	63.55	5.3	8.34	2.3	-	2.0	1.20
245	5.2	64.4	1.237	1.92	2.5	-	8.1	1.22
197	5.1	64.8	0.58	0.90	2.6	-	12.8	1.23
167	5.2	64.935	1.298	2.00	2.6	-	8.1	1.23
203	5.2	65.1	2.2	3.38	2.6	-	5.3	1.23

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
244	2	66.5	12.201	18.35	2.9	-	1.1	1.26
206	1.22	66.93	5.4	8.07	3.0	-	2.6	1.27
149	5.2	69.651	0.895	1.28	3.6	-	14.5	1.32
236	1.22	93.182*	1.452	1.56	8.7	-	24.8	1.76
240	5.1	94.24*	1.57	1.67	8.9	-	23.9	1.78
234	2	106*	5	4.72	11.4	-	10.5	2.01
Cs ($x_{pt} = 7.83$, $\sigma_{pt} = 0.9$, $u(x_{pt}) = 0.2$) [mg/kg]								
65	1.23	5.81	0.681	11.72	-2.2	-	-2.8	0.74
85	7.2	7.01	0.7	9.99	-0.9	-	-1.1	0.90
233	1.23	7.1	0.26	3.66	-0.8	-	-2.1	0.91
215	5.1	7.19	0.44	6.12	-0.7	-	-1.3	0.92
151	7.2	7.21	0.01	0.14	-0.7	-	-2.7	0.92
237	5.1	7.43	0.17	2.29	-0.4	-	-1.4	0.95
217	5.1	7.462	0.015	0.20	-0.4	-	-1.6	0.95
99	5.2	7.488	0.666	8.89	-0.4	-	-0.5	0.96
192	5.2	7.53	0.39	5.18	-0.3	-	-0.7	0.96
202	5.1	7.56	0.1	1.32	-0.3	-	-1.1	0.97
195	5.2	7.65	0.3	3.92	-0.2	-	-0.5	0.98
152	5.2	7.69	0.14	1.82	-0.2	-	-0.5	0.98
172	5.2	7.71	0.31	4.02	-0.1	-	-0.3	0.98
169	5.1	7.77	0.32	4.12	-0.1	-	-0.2	0.99
232	5.1	7.8	0.4	5.13	0.0	-	-0.1	1.00
55	5.2	7.8	0.29	3.72	0.0	-	-0.1	1.00
171	5.1	7.83	0.13	1.66	0.0	-	0.0	1.00
61	5.2	7.84	0.54	6.89	0.0	-	0.0	1.00
199	5.1	7.887	0.518	6.57	0.1	-	0.1	1.01
183	5.1	7.9	0.17	2.15	0.1	-	0.2	1.01
194	5.1	7.903	0.338	4.28	0.1	-	0.2	1.01
166	5.2	7.952	0.052	0.65	0.1	-	0.5	1.02
170	5.2	8.094	1.049	12.96	0.3	-	0.2	1.03
203	5.2	8.15	0.17	2.09	0.3	-	1.1	1.04
245	5.2	8.17	0.287	3.51	0.4	-	0.9	1.04
176	5.2	8.21	0.13	1.58	0.4	-	1.4	1.05
248	5.2	8.3	0.2	2.41	0.5	-	1.5	1.06
205	5.2	8.323	0.45	5.41	0.5	-	1.0	1.06
182	5.1	8.37	0.29	3.46	0.6	-	1.5	1.07
247	5.2	8.415	0.311	3.70	0.6	-	1.5	1.07
221	5.2	8.57	0.37	4.32	0.8	-	1.7	1.09
219	5.2	8.77	0.29	3.31	1.0	-	2.5	1.12
240	5.1	12.02	0.21	1.75	4.6	-	13.4	1.54
242	1.21	13.5*	1.76	13.04	6.2	-	3.2	1.72
Cu ($x_{pt} = 16.5$, $\sigma_{pt} = 1.7$, $u(x_{pt}) = 0.2$) [mg/kg]								
130	2	7.41*	1.3	17.54	-5.3	-	-6.9	0.45
108	1.32	10	2	20.00	-3.8	-	-3.2	0.61
133	4.31	11	3	27.27	-3.2	-	-1.8	0.67
105	1.32	13	1.5	11.54	-2.0	-	-2.3	0.79
225	1.21	13.53	1.95	14.41	-1.7	-	-1.5	0.82

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
235	7.2	13.72	6	43.73	-1.6	-	-0.5	0.83
85	7.2	15.3	1.5	9.80	-0.7	-	-0.8	0.93
53	1.32	15.529	2.329	15.00	-0.6	-	-0.4	0.94
236	1.22	16.181	1.147	7.09	-0.2	-	-0.3	0.98
137	1.22	16.2	2.8	17.28	-0.2	-	-0.1	0.98
206	1.22	16.39	1.1	6.71	-0.1	-	-0.1	0.99
78	1.16	17	1.3	7.65	0.3	-	0.4	1.03
249	1.23	18.49	2.98	16.12	1.1	-	0.7	1.12
242	1.21	19.42	0.5	2.57	1.7	-	5.4	1.18
73	1.21	19.449	0.264	1.36	1.7	-	8.9	1.18
126	1.23	19.6	1	5.10	1.8	-	3.0	1.19
124	1.23	20.2	0.38	1.88	2.1	-	8.6	1.22
65	1.23	21.891	1.935	8.84	3.1	-	2.8	1.33
238	1.13	24.2	2.9	11.98	4.4	-	2.6	1.47
233	1.23	26*	6.4	24.62	5.5	-	1.5	1.58
230	1.24	26*	3	11.54	5.5	-	3.2	1.58
151	7.2	32.736*	0.001	0.00	9.4	-	81.7	1.98
229	6.2	33.26*	3	9.02	9.7	-	5.6	2.02
204	1.21	38.9*	2.2	5.66	12.9	-	10.1	2.36
161	2	40.9*	3.4	8.31	14.1	-	7.2	2.48
Ga ($x_{pt} = 14.8$, $\sigma_{pt} = 1.6$, $u(x_{pt}) = 0.3$) [mg/kg]								
195	5.2	8	1.3	16.25	-4.3	-	-5.1	0.54
79	1.22	10.451	2.019	19.32	-2.8	-	-2.1	0.71
105	1.32	11	0.97	8.82	-2.4	-	-3.8	0.74
206	1.22	11.14	1.6	14.36	-2.3	-	-2.3	0.75
249	1.23	11.216	1.66	14.80	-2.3	-	-2.1	0.76
217	5.1	11.28	0.203	1.80	-2.2	-	-10.6	0.76
152	5.2	12.4	1.2	9.68	-1.5	-	-2.0	0.84
137	1.22	12.5	2.1	16.80	-1.5	-	-1.1	0.84
238	1.13	12.9	1.5	11.63	-1.2	-	-1.2	0.87
230	1.24	13	2	15.38	-1.1	-	-0.9	0.88
215	5.1	13.2	1.3	9.85	-1.0	-	-1.2	0.89
151	7.2	13.282	0.373	2.81	-1.0	-	-3.3	0.90
248	5.2	13.6	1.6	11.76	-0.8	-	-0.7	0.92
237	5.1	14.1	0.45	3.19	-0.4	-	-1.3	0.95
182	5.1	14.38	1.41	9.81	-0.3	-	-0.3	0.97
242	1.21	14.46	0.3	2.07	-0.2	-	-0.9	0.98
221	5.2	14.7	1.84	12.52	-0.1	-	-0.1	0.99
65	1.23	15.52	0.89	5.73	0.5	-	0.8	1.05
124	1.23	15.7	0.92	5.86	0.6	-	0.9	1.06
53	1.32	16.182	2.427	15.00	0.9	-	0.6	1.09
126	1.23	16.7	0.8	4.79	1.2	-	2.3	1.13
172	5.2	16.8	0.8	4.76	1.3	-	2.4	1.14
204	1.21	19.2	2.6	13.54	2.8	-	1.7	1.30
78	1.16	19.5	0.7	3.59	3.0	-	6.3	1.32
194	5.1	19.509	0.427	2.19	3.0	-	9.4	1.32
161	2	22.1	1.8	8.14	4.6	-	4.0	1.49
236	1.22	35.536*	2.569	7.23	13.1	-	8.0	2.40

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
I [mg/kg]								
172	5.2	4.15	0.61	14.70	-	-	-	-
248	5.2	5.5	1	18.18	-	-	-	-
215	5.1	5.5	2	36.36	-	-	-	-
242	1.21	5.6	0.9	16.07	-	-	-	-
La ($x_{pt} = 25.3$, $\sigma_{pt} = 2$, $u(x_{pt}) = 0.4$) [mg/kg]								
126	1.23	3*	1	33.33	-9.0	-	-20.7	0.12
235	7.2	14.35	0.64	4.46	-4.4	-	-14.5	0.57
204	1.21	14.4	1.5	10.42	-4.4	-	-7.0	0.57
161	2	16.7	1.8	10.78	-3.5	-	-4.7	0.66
130	2	21.33	4.62	21.66	-1.6	-	-0.9	0.84
197	5.1	21.42	0.4	1.87	-1.6	-	-6.8	0.85
151	7.2	21.638	0.064	0.30	-1.5	-	-9.0	0.86
85	7.2	21.9	0.2	0.91	-1.4	-	-7.6	0.87
237	5.1	22.8	0.6	2.63	-1.0	-	-3.5	0.90
172	5.2	23	0.9	3.91	-0.9	-	-2.3	0.91
55	5.2	23.2	0.14	0.60	-0.8	-	-4.9	0.92
199	5.1	23.356	0.944	4.04	-0.8	-	-1.9	0.92
205	5.2	23.356	1.03	4.41	-0.8	-	-1.8	0.92
169	5.1	23.6	1	4.24	-0.7	-	-1.6	0.93
215	5.1	23.7	1.5	6.33	-0.6	-	-1.0	0.94
192	5.2	23.8	1.2	5.04	-0.6	-	-1.2	0.94
194	5.1	24.695	1.344	5.44	-0.2	-	-0.4	0.98
232	5.1	24.7	1.3	5.26	-0.2	-	-0.4	0.98
61	5.2	24.71	0.55	2.23	-0.2	-	-0.9	0.98
183	5.1	24.9	0.6	2.41	-0.2	-	-0.6	0.98
233	1.23	25	1.7	6.80	-0.1	-	-0.2	0.99
171	5.1	25.1	0.4	1.59	-0.1	-	-0.4	0.99
182	5.1	25.13	0.93	3.70	-0.1	-	-0.2	0.99
248	5.2	25.2	0.26	1.03	0.0	-	-0.2	1.00
240	5.1	25.53	0.29	1.14	0.1	-	0.5	1.01
238	1.13	25.7	2.6	10.12	0.2	-	0.2	1.02
245	5.2	25.7	0.592	2.30	0.2	-	0.6	1.02
247	5.2	25.897	0.849	3.28	0.2	-	0.6	1.02
202	5.1	26.03	0.64	2.46	0.3	-	1.0	1.03
221	5.2	27.2	1.4	5.15	0.8	-	1.3	1.08
203	5.2	27.3	0.9	3.30	0.8	-	2.0	1.08
166	5.2	27.31	0.49	1.79	0.8	-	3.2	1.08
170	5.2	28.136	0.293	1.04	1.1	-	5.7	1.11
99	5.2	28.268	4.901	17.34	1.2	-	0.6	1.12
206	1.22	29.535	0.52	1.76	1.7	-	6.4	1.17
149	5.2	29.783	0.455	1.53	1.8	-	7.4	1.18
152	5.2	29.9	2.9	9.70	1.8	-	1.6	1.18
167	5.2	30.372	0.261	0.86	2.0	-	10.6	1.20
242	1.21	37.48*	4.42	11.79	4.9	-	2.7	1.48
234	2	41.9*	2	4.77	6.7	-	8.1	1.66

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
Li ($x_{pt} = 61.2$, $\sigma_{pt} = 5$, $u(x_{pt}) = 3$) [mg/kg]								
85	7.2	51	10	19.61	-	-1.7	-1.0	0.83
Mn ($x_{pt} = 315$, $\sigma_{pt} = 20$, $u(x_{pt}) = 3$) [mg/kg]								
36	1.22	1.2**	0.043	3.58	-14.8	-	-98.3	0.00
229	6.2	19.77**	3	15.17	-13.9	-	-67.4	0.06
197	5.1	136.28*	1.32	0.97	-8.4	-	-51.7	0.43
124	1.23	172.61	9.802	5.68	-6.7	-	-13.8	0.55
105	1.32	176	17	9.66	-6.6	-	-8.0	0.56
73	1.21	197.349	6.26	3.17	-5.5	-	-16.7	0.63
108	1.32	200	40	20.00	-5.4	-	-2.9	0.63
145	1.22	230	20	8.70	-4.0	-	-4.2	0.73
235	7.2	240	94.78	39.49	-3.5	-	-0.8	0.76
245	5.2	250	1.336	0.53	-3.1	-	-18.8	0.79
133	4.31	259	10	3.86	-2.6	-	-5.3	0.82
234	2	268	31	11.57	-2.2	-	-1.5	0.85
53	1.32	272.364	40.855	15.00	-2.0	-	-1.0	0.86
65	1.23	276.36	36.6	13.24	-1.8	-	-1.1	0.88
230	1.24	280	31	11.07	-1.7	-	-1.1	0.89
233	1.23	280	8.5	3.04	-1.7	-	-3.9	0.89
85	7.2	292.3	30	10.26	-1.1	-	-0.8	0.93
167	5.2	299.431	15.285	5.10	-0.7	-	-1.0	0.95
244	2	300	14.72	4.91	-0.7	-	-1.0	0.95
84	5.2	300	30	10.00	-0.7	-	-0.5	0.95
79	1.22	300.443	24.245	8.07	-0.7	-	-0.6	0.95
35	1.21	305	5	1.64	-0.5	-	-1.7	0.97
130	2	305.51	2.52	0.82	-0.4	-	-2.3	0.97
161	2	307	17	5.54	-0.4	-	-0.5	0.97
44	4.2	308.6	16.2	5.25	-0.3	-	-0.4	0.98
237	5.1	310	7	2.26	-0.2	-	-0.6	0.98
206	1.22	314.72	4.7	1.49	0.0	-	0.0	1.00
192	5.2	315	17	5.40	0.0	-	0.0	1.00
202	5.1	315	6	1.90	0.0	-	0.0	1.00
194	5.1	316.74	9.503	3.00	0.1	-	0.2	1.01
172	5.2	317	13	4.10	0.1	-	0.1	1.01
183	5.4	320	8.3	2.59	0.2	-	0.6	1.02
204	1.21	322	16	4.97	0.3	-	0.4	1.02
232	5.1	324	25	7.72	0.4	-	0.4	1.03
176	5.2	332	5	1.51	0.8	-	2.9	1.05
203	5.2	332	11	3.31	0.8	-	1.5	1.05
248	5.2	334	6	1.80	0.9	-	2.8	1.06
215	5.1	334	20	5.99	0.9	-	0.9	1.06
247	5.2	334.516	22.993	6.87	0.9	-	0.8	1.06
137	1.22	335	23	6.87	0.9	-	0.9	1.06
182	5.1	338	8.5	2.51	1.1	-	2.5	1.07
55	5.2	339.3	4.9	1.44	1.1	-	4.2	1.08
242	1.21	350.086	0.883	0.25	1.7	-	10.6	1.11
195	5.2	352	55	15.63	1.7	-	0.7	1.12

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
243	2	355.36	71.072	20.00	1.9	-	0.6	1.13
246	1.22	355.555	148.42	41.74	1.9	-	0.3	1.13
225	1.21	366.8	31.26	8.52	2.4	-	1.6	1.16
126	1.23	369	27	7.32	2.5	-	2.0	1.17
240	5.2	369.45	5.35	1.45	2.6	-	8.7	1.17
78	1.16	374	12	3.21	2.8	-	4.8	1.19
152	5.2	378	1	0.26	3.0	-	18.8	1.20
219	5.2	378	16.3	4.31	3.0	-	3.8	1.20
151	7.2	389.702	0.001	0.00	3.5	-	23.4	1.24
249	1.23	472.871*	29.8	6.30	7.4	-	5.3	1.50
236	1.22	680.525*	41.404	6.08	17.2	-	8.8	2.16
54	1.21	5003**	256	5.12	221.1	-	18.3	15.88
Mo ($x_{pt} = 2.59$, $\sigma_{pt} = 0.4$, $u(x_{pt}) = 0.05$) [mg/kg]								
36	1.22	0.7*	0.002	0.29	-5.3	-	-35.2	0.27
65	1.23	1.17	0.11	9.40	-4.0	-	-11.6	0.45
126	1.23	1.9	0.1	5.26	-1.9	-	-6.1	0.73
137	1.22	2.17	0.64	29.49	-1.2	-	-0.7	0.84
192	5.2	2.37	0.17	7.17	-0.6	-	-1.2	0.92
85	7.2	2.53	0.5	19.76	-0.2	-	-0.1	0.98
151	7.2	2.901	0.001	0.03	0.9	-	5.8	1.12
242	1.21	3.52	0.34	9.66	2.6	-	2.7	1.36
203	5.2	3.55	0.15	4.23	2.7	-	6.0	1.37
161	2	3.6	0.32	8.89	2.8	-	3.1	1.39
221	5.2	3.93	0.28	7.12	3.7	-	4.7	1.52
204	1.21	4	0.1	2.50	3.9	-	12.4	1.54
Nb ($x_{pt} = 9.45$, $\sigma_{pt} = 1.1$, $u(x_{pt}) = 0.2$) [mg/kg]								
36	1.22	0.7**	0.005	0.71	-8.1	-	-37.5	0.07
204	1.21	3.3	0.12	3.64	-5.7	-	-23.4	0.35
161	2	3.9	0.14	3.59	-5.1	-	-20.4	0.41
105	1.32	5	2.1	42.00	-4.1	-	-2.1	0.53
137	1.22	7.97	1.83	22.96	-1.4	-	-0.8	0.84
242	1.21	8.14	0.22	2.70	-1.2	-	-4.1	0.86
206	1.22	8.763	0.75	8.56	-0.6	-	-0.9	0.93
85	7.2	9	0.9	10.00	-0.4	-	-0.5	0.95
126	1.23	9.1	0.5	5.49	-0.3	-	-0.6	0.96
65	1.23	11.15	0.821	7.36	1.6	-	2.0	1.18
230	1.24	19*	2	10.53	8.9	-	4.7	2.01
Nd ($x_{pt} = 23.3$, $\sigma_{pt} = 2$, $u(x_{pt}) = 0.4$) [mg/kg]								
235	7.2	9.3*	0.47	5.05	-6.0	-	-22.8	0.40
161	2	14.98	2.9	19.36	-3.6	-	-2.8	0.64
204	1.21	17.9	3.5	19.55	-2.3	-	-1.5	0.77
234	2	18.7	1.9	10.16	-2.0	-	-2.4	0.80
85	7.2	19.42	2	10.30	-1.7	-	-1.9	0.83
192	5.2	19.7	1	5.08	-1.6	-	-3.3	0.85
205	5.2	19.886	6.944	34.92	-1.5	-	-0.5	0.85
166	5.2	20.8	4.2	20.19	-1.1	-	-0.6	0.89

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE zeta -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	zeta -score	R -score
61	5.1	20.9	4	19.14	-1.0	-	-0.6	0.90
247	5.2	20.913	2.861	13.68	-1.0	-	-0.8	0.90
248	5.2	21	3	14.29	-1.0	-	-0.8	0.90
203	5.2	21.1	1.5	7.11	-0.9	-	-1.4	0.91
245	5.2	21.2	1.02	4.81	-0.9	-	-1.9	0.91
237	5.1	21.2	0.85	4.01	-0.9	-	-2.2	0.91
238	1.13	21.9	2.3	10.50	-0.6	-	-0.6	0.94
221	5.2	22	3.1	14.09	-0.6	-	-0.4	0.94
232	5.1	22.6	2.2	9.73	-0.3	-	-0.3	0.97
202	5.1	22.68	1.6	7.05	-0.3	-	-0.4	0.97
233	1.23	22.7	0.5	2.20	-0.3	-	-0.9	0.97
171	5.1	22.7	0.6	2.64	-0.3	-	-0.8	0.97
176	5.2	22.9	1	4.37	-0.2	-	-0.4	0.98
183	5.1	23	2	8.70	-0.1	-	-0.1	0.99
65	1.23	23.45	1.956	8.34	0.1	-	0.1	1.01
199	5.1	23.726	2.778	11.71	0.2	-	0.2	1.02
169	5.1	24.42	1.43	5.86	0.5	-	0.8	1.05
215	5.1	24.7	1.8	7.29	0.6	-	0.8	1.06
152	5.2	29.4	1	3.40	2.6	-	5.7	1.26
206	1.22	29.5	3.7	12.54	2.7	-	1.7	1.27
217	5.1	38.33*	0.268	0.70	6.5	-	31.5	1.65
Ni ($x_{pt} = 22.4$, $\sigma_{pt} = 2$, $u(x_{pt}) = 0.3$) [mg/kg]								
36	1.22	4.23*	0.012	0.28	-8.1	-	-63.5	0.19
105	1.32	5.2*	0.79	15.19	-7.7	-	-20.5	0.23
133	4.31	11	2	18.18	-5.1	-	-5.6	0.49
108	1.32	13	4	30.77	-4.2	-	-2.3	0.58
230	1.24	16	3	18.75	-2.9	-	-2.1	0.71
236	1.22	16.271	4.929	30.29	-2.7	-	-1.2	0.73
233	1.23	17	1.5	8.82	-2.4	-	-3.5	0.76
124	1.23	17.7	1.045	5.90	-2.1	-	-4.3	0.79
229	6.2	17.75	2	11.27	-2.1	-	-2.3	0.79
161	2	18.1	2.1	11.60	-1.9	-	-2.0	0.81
249	1.23	21.118	4.07	19.27	-0.6	-	-0.3	0.94
53	1.32	21.144	3.172	15.00	-0.6	-	-0.4	0.94
85	7.2	21.65	2	9.24	-0.3	-	-0.4	0.97
206	1.22	22.025	0.61	2.77	-0.2	-	-0.6	0.98
166	5.2	22.1	1.5	6.79	-0.1	-	-0.2	0.99
204	1.21	23.4	2.7	11.54	0.4	-	0.4	1.04
242	1.21	24.64	0.64	2.60	1.0	-	3.2	1.10
203	5.2	26.6	1.9	7.14	1.9	-	2.2	1.19
234	2	26.9	3.6	13.38	2.0	-	1.2	1.20
221	5.2	27	5.7	21.11	2.0	-	0.8	1.21
126	1.23	27	0.14	0.52	2.0	-	14.5	1.21
151	7.2	27.121	0.001	0.00	2.1	-	16.5	1.21
130	2	27.56	3.07	11.14	2.3	-	1.7	1.23
78	1.16	29.7	0.7	2.36	3.3	-	9.7	1.33
137	1.22	31.5	9.1	28.89	4.1	-	1.0	1.41
65	1.23	31.86	3.34	10.48	4.2	-	2.8	1.42

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE zeta -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	zeta -score	R -score
244	2	41.667*	9.292	22.30	8.6	-	2.1	1.86
246	1.21	46.07*	14.03	30.45	10.5	-	1.7	2.06
$P(x_{pt} = 649, \sigma_{pt} = 40, u(x_{pt}) = 7)$ [mg/kg]								
36	1.22	1.2**	0.001	0.08	-16.5	-	-93.7	0.00
204	1.21	307*	24	7.82	-8.7	-	-13.7	0.47
161	2	344*	21	6.10	-7.8	-	-13.8	0.53
100	1.21	428	3.1	0.72	-5.6	-	-29.2	0.66
206	1.22	458	4.6	1.00	-4.9	-	-23.0	0.71
35	1.21	540	30	5.56	-2.8	-	-3.5	0.83
130	2	549.08	10.4	1.89	-2.6	-	-8.0	0.85
85	7.2	560	100	17.86	-2.3	-	-0.9	0.86
145	1.22	570	20	3.51	-2.0	-	-3.7	0.88
108	1.32	600	220	36.67	-1.3	-	-0.2	0.92
243	2	640.93	128.186	20.00	-0.2	-	-0.1	0.99
234	2	706	14	1.98	1.5	-	3.7	1.09
65	1.23	760.14	65.93	8.67	2.8	-	1.7	1.17
126	1.23	822	0.82	0.10	4.4	-	24.9	1.27
244	2	833	58	6.96	4.7	-	3.2	1.28
242	1.21	1095.503*	11.87	1.08	11.4	-	32.5	1.69
137	1.22	1341*	268	19.99	17.7	-	2.6	2.07
$Pb(x_{pt} = 20.2, \sigma_{pt} = 2, u(x_{pt}) = 0.3)$ [mg/kg]								
108	1.32	10	2	20.00	-5.0	-	-5.1	0.50
105	1.32	11	1.6	14.55	-4.5	-	-5.7	0.54
235	7.2	13.85	2.84	20.51	-3.1	-	-2.2	0.69
230	1.24	14	2	14.29	-3.0	-	-3.1	0.69
137	1.22	17	2.6	15.29	-1.6	-	-1.2	0.84
151	7.2	17.836	0.001	0.01	-1.2	-	-8.5	0.88
85	7.2	18.84	2	10.62	-0.7	-	-0.7	0.93
65	1.23	19.57	1.68	8.58	-0.3	-	-0.4	0.97
242	1.21	20.24	0.64	3.16	0.0	-	0.1	1.00
161	2	20.27	2.1	10.36	0.0	-	0.0	1.00
100	1.21	21.4	10.5	49.07	0.6	-	0.1	1.06
79	1.22	21.577	2.63	12.19	0.7	-	0.5	1.07
126	1.23	22.2	1	4.50	1.0	-	1.9	1.10
55	1.21	22.4	4.1	18.30	1.1	-	0.5	1.11
204	1.21	22.87	2.4	10.49	1.3	-	1.1	1.13
35	1.21	23	1	4.35	1.4	-	2.7	1.14
124	1.23	23.41	0.487	2.08	1.6	-	5.7	1.16
238	1.13	26	3.1	11.92	2.8	-	1.9	1.29
229	6.2	27.73	0.5	1.80	3.7	-	13.2	1.37
206	1.22	27.9	4.7	16.85	3.7	-	1.6	1.38
233	1.23	28	1	3.57	3.8	-	7.5	1.39
78	1.16	29.1	1.2	4.12	4.3	-	7.2	1.44
246	1.22	35.56*	7.45	20.95	7.5	-	2.1	1.76
249	1.23	46.075*	2.99	6.49	12.6	-	8.6	2.28
130	2	116.15*	1.46	1.26	46.7	-	64.6	5.75

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
Rb ($x_{pt} = 107$, $\sigma_{pt} = 8$, $u(x_{pt}) = 1.0$) [mg/kg]								
246	1.22	22.413*	3.058	13.64	-10.0	-	-26.3	0.21
54	1.21	43.5*	3.1	7.13	-7.5	-	-19.5	0.41
204	1.21	52.4*	12.4	23.66	-6.4	-	-4.4	0.49
161	2	66.7*	9.9	14.84	-4.8	-	-4.1	0.62
108	1.32	80	20	25.00	-3.2	-	-1.3	0.75
105	1.32	87	8.4	9.66	-2.4	-	-2.4	0.81
151	7.2	88.044	0.462	0.52	-2.2	-	-17.4	0.82
85	7.2	93.7	10	10.67	-1.6	-	-1.3	0.88
206	1.22	95.754	0.94	0.98	-1.3	-	-8.3	0.89
79	1.22	96.024	1.536	1.60	-1.3	-	-6.0	0.90
61	5.2	98	18	18.37	-1.1	-	-0.5	0.92
244	2	100	3.19	3.19	-0.8	-	-2.1	0.93
242	1.21	101.08	0.32	0.32	-0.7	-	-5.7	0.94
192	5.2	101.3	5.5	5.43	-0.7	-	-1.0	0.95
245	5.2	102	2.165	2.12	-0.6	-	-2.1	0.95
169	5.1	103	4	3.88	-0.5	-	-1.0	0.96
202	5.1	103	3.65	3.54	-0.5	-	-1.1	0.96
65	1.23	103.58	7.56	7.30	-0.4	-	-0.4	0.97
215	5.1	104	7	6.73	-0.4	-	-0.4	0.97
237	5.1	105	3.5	3.33	-0.2	-	-0.6	0.98
137	1.22	105.5	8.1	7.68	-0.2	-	-0.2	0.99
230	1.24	106	11	10.38	-0.1	-	-0.1	0.99
199	5.1	106.84	8.237	7.71	0.0	-	0.0	1.00
133	4.31	108	10	9.26	0.1	-	0.1	1.01
232	5.1	109	6	5.50	0.2	-	0.3	1.02
182	5.1	109.5	3.82	3.49	0.3	-	0.6	1.02
183	5.1	110	3	2.73	0.4	-	1.0	1.03
248	5.2	110	4	3.64	0.4	-	0.7	1.03
194	5.1	110.353	14.527	13.16	0.4	-	0.2	1.03
233	1.23	111	7	6.31	0.5	-	0.6	1.04
172	5.2	112	5	4.46	0.6	-	1.0	1.05
126	1.23	112	0.5	0.45	0.6	-	4.5	1.05
217	5.1	112.2	0.56	0.50	0.6	-	4.6	1.05
171	5.1	113	2	1.77	0.7	-	2.7	1.06
203	5.2	113	8	7.08	0.7	-	0.7	1.06
166	5.2	113	1.7	1.50	0.7	-	3.1	1.06
100	1.21	113.1	2.1	1.86	0.7	-	2.6	1.06
53	1.32	113.403	17.01	15.00	0.8	-	0.4	1.06
243	2	113.83	22.766	20.00	0.8	-	0.3	1.06
152	5.2	115	1	0.87	0.9	-	5.7	1.07
225	1.21	115.39	26.16	22.67	1.0	-	0.3	1.08
167	5.2	116.716	5.342	4.58	1.1	-	1.8	1.09
221	5.2	117	19.2	16.41	1.2	-	0.5	1.09
176	5.2	117.5	2.2	1.87	1.2	-	4.4	1.10
78	1.16	119	3	2.52	1.4	-	3.8	1.11
238	1.13	121.7	13.3	10.93	1.7	-	1.1	1.14
130	2	122	3	2.46	1.8	-	4.8	1.14

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
249	1.23	122.259	6.49	5.31	1.8	-	2.3	1.14
247	5.2	124.486	3.745	3.01	2.1	-	4.5	1.16
35	1.21	126	3	2.38	2.2	-	6.0	1.18
44	4.2	159.3*	18.7	11.74	6.2	-	2.8	1.49
240	5.1	175.39*	1.98	1.13	8.1	-	30.9	1.64
236	1.22	280.882*	4.075	1.45	20.5	-	41.5	2.63
Sb ($x_{pt} = 1.49$, $\sigma_{pt} = 0.2$, $u(x_{pt}) = 0.04$) [mg/kg]								
151	7.2	0.616	0.013	2.11	-3.9	-	-19.6	0.41
161	2	0.8	0.1	12.50	-3.1	-	-6.3	0.54
204	1.21	0.9	0.15	16.67	-2.6	-	-3.8	0.60
199	5.1	1.114	0.118	10.59	-1.7	-	-3.0	0.75
215	5.1	1.14	0.14	12.28	-1.6	-	-2.4	0.77
237	5.1	1.23	0.035	2.85	-1.2	-	-4.7	0.83
192	5.2	1.231	0.064	5.20	-1.2	-	-3.4	0.83
85	7.2	1.27	0.25	19.69	-1.0	-	-0.9	0.85
202	5.1	1.35	0.06	4.44	-0.6	-	-1.9	0.91
183	5.1	1.43	0.08	5.59	-0.3	-	-0.7	0.96
166	5.2	1.44	0.03	2.08	-0.2	-	-1.0	0.97
169	5.1	1.44	0.074	5.14	-0.2	-	-0.6	0.97
176	5.2	1.45	0.06	4.14	-0.2	-	-0.5	0.97
217	5.1	1.452	0.013	0.90	-0.2	-	-0.9	0.97
232	5.1	1.46	0.05	3.42	-0.1	-	-0.5	0.98
248	5.2	1.47	0.06	4.08	-0.1	-	-0.3	0.99
171	5.1	1.49	0.02	1.34	0.0	-	0.0	1.00
61	5.2	1.5	0.13	8.67	0.0	-	0.1	1.01
233	1.23	1.5	0.2	13.33	0.0	-	0.0	1.01
247	5.2	1.516	0.109	7.19	0.1	-	0.2	1.02
203	5.2	1.53	0.09	5.88	0.2	-	0.4	1.03
182	5.1	1.54	0.06	3.90	0.2	-	0.7	1.03
172	5.2	1.54	0.06	3.90	0.2	-	0.7	1.03
206	1.22	1.6	0.2	12.50	0.5	-	0.5	1.07
221	5.2	1.63	0.099	6.07	0.6	-	1.3	1.09
152	5.2	1.63	0.2	12.27	0.6	-	0.7	1.09
240	5.1	1.79	0.08	4.47	1.3	-	3.3	1.20
245	5.2	1.82	0.059	3.24	1.5	-	4.5	1.22
242	1.21	2.4	0.8	33.33	4.1	-	1.1	1.61
170	5.2	2.817*	0.83	29.46	5.9	-	1.6	1.89
36	1.22	7*	0.002	0.03	24.5	-	128.9	4.70
Sc ($x_{pt} = 9.31$, $\sigma_{pt} = 1.1$, $u(x_{pt}) = 0.4$) [mg/kg]								
204	1.21	3.5	0.4	11.43	-	-5.1	-10.1	0.38
161	2	4.9	0.7	14.29	-	-3.9	-5.4	0.53
197	5.1	7.85	0.48	6.11	-	-1.3	-2.3	0.84
182	5.1	8.1	0.8	9.88	-	-1.1	-1.3	0.87
217	5.1	8.215	0.058	0.71	-	-1.0	-2.6	0.88
237	5.1	8.27	0.19	2.30	-	-0.9	-2.3	0.89
205	5.2	8.306	0.531	6.39	-	-0.9	-1.5	0.89
99	5.2	8.327	1.092	13.11	-	-0.9	-0.8	0.89

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
215	5.1	8.39	0.5	5.96	-	-0.8	-1.4	0.90
192	5.2	8.4	0.42	5.00	-	-0.8	-1.5	0.90
137	1.22	8.4	2.3	27.38	-	-0.8	-0.4	0.90
61	5.2	8.65	0.19	2.20	-	-0.6	-1.4	0.93
171	5.1	8.66	0.13	1.50	-	-0.6	-1.5	0.93
172	5.2	8.66	0.35	4.04	-	-0.6	-1.2	0.93
181	5.2	8.7	0.047	0.54	-	-0.5	-1.5	0.93
169	5.1	8.74	0.36	4.12	-	-0.5	-1.0	0.94
183	5.1	8.78	0.16	1.82	-	-0.5	-1.2	0.94
232	5.1	8.8	0.45	5.11	-	-0.4	-0.8	0.95
152	5.2	8.82	0.24	2.72	-	-0.4	-1.0	0.95
166	5.2	8.83	0.08	0.91	-	-0.4	-1.1	0.95
194	5.1	8.89	0.32	3.60	-	-0.4	-0.8	0.95
85	7.2	8.9	2	22.47	-	-0.4	-0.2	0.96
170	5.2	8.925	0.081	0.91	-	-0.3	-0.9	0.96
199	5.1	8.952	0.447	4.99	-	-0.3	-0.6	0.96
176	5.2	9.03	0.15	1.66	-	-0.2	-0.6	0.97
247	5.2	9.079	0.282	3.11	-	-0.2	-0.5	0.98
248	5.2	9.15	0.1	1.09	-	-0.1	-0.4	0.98
219	5.2	9.24	0.268	2.90	-	-0.1	-0.1	0.99
55	5.2	9.3	0.05	0.54	-	0.0	0.0	1.00
202	5.1	9.32	0.27	2.90	-	0.0	0.0	1.00
245	5.2	9.44	0.073	0.77	-	0.1	0.3	1.01
221	5.2	9.5	0.51	5.37	-	0.2	0.3	1.02
203	5.2	9.57	0.29	3.03	-	0.2	0.5	1.03
167	5.2	10.184	0.059	0.58	-	0.8	2.1	1.09
240	5.1	13.69	0.1	0.73	-	3.8	10.2	1.47
206	1.22	25.237*	2.3	9.11	-	13.9	6.8	2.71
151	7.2	8255.64**	0.001	0.00	-	7215.7	19833.4	886.75
Se [mg/kg]								
126	1.23	0.6	0.3	50.00	-	-	-	-
149	5.2	1.385	0.339	24.48	-	-	-	-
151	7.2	1.732	0.257	14.84	-	-	-	-
233	1.23	1.9	0.3	15.79	-	-	-	-
204	1.21	3.32	0.4	12.05	-	-	-	-
161	2	3.9	0.5	12.82	-	-	-	-
Sn ($x_{pt} = 3.92$, $\sigma_{pt} = 0.5$, $u(x_{pt}) = 0.13$) [mg/kg]								
151	7.2	2.619	0.01	0.38	-2.5	-	-10.2	0.67
242	1.21	3.04	0.74	24.34	-1.7	-	-1.2	0.78
85	7.2	3.85	0.4	10.39	-0.1	-	-0.2	0.98
36	1.22	7.3*	0.004	0.05	6.6	-	26.5	1.86
206	1.22	13*	0.1	0.77	17.8	-	56.0	3.32
126	1.23	17.5*	0.9	5.14	26.6	-	14.9	4.46
Sr ($x_{pt} = 387$, $\sigma_{pt} = 30$, $u(x_{pt}) = 4$) [mg/kg]								
124	1.23	42.65*	2.115	4.96	-13.6	-	-76.8	0.11
205	5.2	227.339*	19.193	8.44	-6.3	-	-8.1	0.59

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
161	2	234*	27	11.54	-6.1	-	-5.6	0.60
204	1.21	275	30	10.91	-4.4	-	-3.7	0.71
105	1.32	284	29	10.21	-4.1	-	-3.5	0.73
108	1.32	300	60	20.00	-3.4	-	-1.4	0.78
246	1.22	310.93	17.08	5.49	-3.0	-	-4.3	0.80
245	5.2	342	20.423	5.97	-1.8	-	-2.2	0.88
166	5.2	345	14	4.06	-1.7	-	-2.9	0.89
85	7.2	353.7	30	8.48	-1.3	-	-1.1	0.91
73	1.21	356.765	4.458	1.25	-1.2	-	-5.1	0.92
79	1.22	360.018	4.649	1.29	-1.1	-	-4.4	0.93
235	7.2	360.36	8.74	2.43	-1.1	-	-2.8	0.93
176	5.2	363	15	4.13	-1.0	-	-1.5	0.94
53	1.32	363.857	36.386	10.00	-0.9	-	-0.6	0.94
221	5.2	370	42	11.35	-0.7	-	-0.4	0.96
192	5.2	370	19	5.14	-0.7	-	-0.9	0.96
233	1.23	372	30	8.06	-0.6	-	-0.5	0.96
232	5.1	373	20	5.36	-0.6	-	-0.7	0.96
137	1.22	379	28	7.39	-0.3	-	-0.3	0.98
133	4.31	383	20	5.22	-0.2	-	-0.2	0.99
237	5.1	386	9	2.33	0.0	-	-0.1	1.00
242	1.21	389.12	0.58	0.15	0.1	-	0.5	1.01
215	5.1	397	57	14.36	0.4	-	0.2	1.03
206	1.22	400	1.9	0.48	0.5	-	3.0	1.03
244	2	400	4.72	1.18	0.5	-	2.1	1.03
61	5.1	401	96	23.94	0.6	-	0.1	1.04
65	1.23	401.7	27.71	6.90	0.6	-	0.5	1.04
199	5.1	413.04	45.177	10.94	1.0	-	0.6	1.07
182	5.1	414	41	9.90	1.1	-	0.7	1.07
151	7.2	414.652	3.241	0.78	1.1	-	5.4	1.07
172	5.2	415	21	5.06	1.1	-	1.3	1.07
230	1.24	416	42	10.10	1.1	-	0.7	1.07
169	5.1	417	15	3.60	1.2	-	1.9	1.08
225	1.21	418.46	47.28	11.30	1.2	-	0.7	1.08
243	2	420.71	84.142	20.00	1.3	-	0.4	1.09
126	1.23	422	21	4.98	1.4	-	1.6	1.09
44	4.2	425.1	26.8	6.30	1.5	-	1.4	1.10
248	5.2	430	33	7.67	1.7	-	1.3	1.11
183	5.1	431	30	6.96	1.7	-	1.5	1.11
35	1.21	435	5	1.15	1.9	-	7.5	1.12
78	1.16	436	8	1.83	1.9	-	5.5	1.13
130	2	437	3	0.69	2.0	-	10.1	1.13
238	1.13	438	48	10.96	2.0	-	1.1	1.13
203	5.2	441	19	4.31	2.1	-	2.8	1.14
249	1.23	459.735	24	5.22	2.9	-	3.0	1.19
234	2	478	6	1.26	3.6	-	12.7	1.24
100	1.21	587.3*	3.3	0.56	7.9	-	38.9	1.52
240	5.1	634.26*	19.66	3.10	9.8	-	12.3	1.64
236	1.22	1104.905*	14.25	1.29	28.4	-	48.5	2.86

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
Th ($x_{pt} = 8.88$, $\sigma_{pt} = 1.0$, $u(x_{pt}) = 0.3$) [mg/kg]								
105	1.32	1*	0.43	43.00	-7.7	-	-15.3	0.11
235	7.2	3.12	0.24	7.69	-5.6	-	-15.5	0.35
206	1.22	5.354	0.5	9.34	-3.4	-	-6.1	0.60
194	5.1	5.494	0.61	11.10	-3.3	-	-5.0	0.62
204	1.21	5.8	0.7	12.07	-3.0	-	-4.1	0.65
161	2	6.55	0.6	9.16	-2.3	-	-3.5	0.74
85	7.2	6.97	0.7	10.04	-1.9	-	-2.5	0.78
151	7.2	7.216	0.053	0.73	-1.6	-	-5.8	0.81
238	1.13	7.4	0.8	10.81	-1.4	-	-1.7	0.83
152	5.2	7.57	0.32	4.23	-1.3	-	-3.1	0.85
215	5.1	8.38	0.52	6.21	-0.5	-	-0.8	0.94
242	1.21	8.42	0.22	2.61	-0.4	-	-1.3	0.95
170	5.2	8.592	0.584	6.80	-0.3	-	-0.4	0.97
192	5.2	8.62	0.44	5.10	-0.3	-	-0.5	0.97
199	5.1	8.656	0.669	7.73	-0.2	-	-0.3	0.97
65	1.23	8.72	0.79	9.06	-0.2	-	-0.2	0.98
169	5.1	8.72	0.35	4.01	-0.2	-	-0.4	0.98
237	5.1	8.74	0.21	2.40	-0.1	-	-0.4	0.98
202	5.1	8.79	0.43	4.89	-0.1	-	-0.2	0.99
205	5.2	8.981	0.119	1.33	0.1	-	0.3	1.01
172	5.2	8.99	0.36	4.00	0.1	-	0.2	1.01
232	5.1	9.1	0.5	5.49	0.2	-	0.4	1.02
99	5.2	9.153	1.603	17.51	0.3	-	0.2	1.03
183	5.1	9.26	0.21	2.27	0.4	-	1.1	1.04
61	5.2	9.39	0.28	2.98	0.5	-	1.3	1.06
166	5.2	9.53	0.11	1.15	0.6	-	2.1	1.07
248	5.2	9.62	0.2	2.08	0.7	-	2.1	1.08
171	5.1	9.64	0.16	1.66	0.7	-	2.3	1.09
203	5.2	9.71	0.25	2.57	0.8	-	2.2	1.09
245	5.2	9.72	0.098	1.01	0.8	-	2.8	1.09
221	5.2	9.97	0.46	4.61	1.1	-	2.0	1.12
233	1.23	10	0.35	3.50	1.1	-	2.5	1.13
182	5.1	10.31	0.51	4.95	1.4	-	2.5	1.16
219	5.2	10.4	0.293	2.82	1.5	-	3.7	1.17
55	5.2	10.4	0.31	2.98	1.5	-	3.6	1.17
167	5.2	10.503	0.142	1.35	1.6	-	5.1	1.18
176	5.2	10.51	0.22	2.09	1.6	-	4.5	1.18
247	5.2	10.542	0.377	3.58	1.6	-	3.5	1.19
126	1.23	10.9	0.6	5.50	2.0	-	3.0	1.23
78	1.16	11.2	0.4	3.57	2.3	-	4.7	1.26
240	5.1	14.24	0.15	1.05	5.2	-	16.7	1.60
U ($x_{pt} = 2.8$, $\sigma_{pt} = 0.4$, $u(x_{pt}) = 0.06$) [mg/kg]								
126	1.23	0.4*	0.2	50.00	-6.3	-	-11.4	0.14
105	1.32	0.64*	0.44	68.75	-5.6	-	-4.9	0.23
151	7.2	1.54	0.014	0.91	-3.3	-	-19.3	0.55
161	2	1.78	0.3	16.85	-2.7	-	-3.3	0.64

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
215	5.1	1.85	0.87	47.03	-2.5	-	-1.1	0.66
204	1.21	1.91	0.4	20.94	-2.3	-	-2.2	0.68
206	1.22	1.981	0.3	15.14	-2.1	-	-2.7	0.71
85	7.2	2.14	0.2	9.35	-1.7	-	-3.1	0.76
192	5.2	2.445	0.13	5.32	-0.9	-	-2.5	0.87
217	5.1	2.458	0.034	1.38	-0.9	-	-4.7	0.88
61	5.1	2.5	0.46	18.40	-0.8	-	-0.6	0.89
237	5.1	2.51	0.09	3.59	-0.8	-	-2.6	0.90
199	5.1	2.527	0.374	14.80	-0.7	-	-0.7	0.90
152	5.2	2.59	0.23	8.88	-0.5	-	-0.9	0.93
169	5.1	2.61	0.1	3.83	-0.5	-	-1.6	0.93
172	5.2	2.65	0.12	4.53	-0.4	-	-1.1	0.95
248	5.2	2.7	0.2	7.41	-0.3	-	-0.5	0.96
202	5.1	2.77	0.48	17.33	-0.1	-	-0.1	0.99
247	5.2	2.776	0.168	6.05	-0.1	-	-0.1	0.99
232	5.1	2.8	0.2	7.14	0.0	-	0.0	1.00
171	5.1	2.81	0.17	6.05	0.0	-	0.1	1.00
221	5.2	2.82	0.18	6.38	0.1	-	0.1	1.01
203	5.2	2.82	0.06	2.13	0.1	-	0.2	1.01
65	1.23	3.02	0.21	6.95	0.6	-	1.0	1.08
245	5.2	3.06	0.114	3.73	0.7	-	2.0	1.09
166	5.2	3.13	0.08	2.56	0.9	-	3.2	1.12
167	5.2	3.152	0.08	2.54	0.9	-	3.4	1.13
176	5.2	3.23	0.19	5.88	1.1	-	2.1	1.15
182	5.1	3.25	0.16	4.92	1.2	-	2.6	1.16
78	1.16	4.3*	0.1	2.33	3.9	-	12.6	1.54
234	2	4.62*	0.05	1.08	4.7	-	22.5	1.65
242	1.21	5.7*	0.5	8.77	7.6	-	5.8	2.04
$V(x_{pt} = 69.7, \sigma_{pt} = 6, u(x_{pt}) = 0.9)$ [mg/kg]								
124	1.23	10*	1.1	11.00	-10.1	-	-42.7	0.14
161	2	35.8	2.5	6.98	-5.8	-	-12.8	0.51
204	1.21	39.2	2.2	5.61	-5.2	-	-12.9	0.56
78	1.16	54.4	2	3.68	-2.6	-	-7.0	0.78
65	1.23	54.46	4.83	8.87	-2.6	-	-3.1	0.78
182	5.1	58.5	0.65	1.11	-1.9	-	-10.4	0.84
234	2	61.9	8.3	13.41	-1.3	-	-0.9	0.89
105	1.32	62	5.9	9.52	-1.3	-	-1.3	0.89
100	1.21	62.2	5.5	8.84	-1.3	-	-1.3	0.89
233	1.23	63	6	9.52	-1.1	-	-1.1	0.90
194	5.1	64.874	3.578	5.52	-0.8	-	-1.3	0.93
85	7.2	67	7	10.45	-0.5	-	-0.4	0.96
176	5.2	69.1	1.3	1.88	-0.1	-	-0.4	0.99
152	5.2	69.3	1.9	2.74	-0.1	-	-0.2	0.99
203	5.2	69.6	2.2	3.16	0.0	-	0.0	1.00
167	5.2	70.058	2.444	3.49	0.1	-	0.1	1.01
192	5.2	70.7	4.2	5.94	0.2	-	0.2	1.01
232	5.1	71	6	8.45	0.2	-	0.2	1.02
237	5.1	71.1	1.7	2.39	0.2	-	0.7	1.02

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
172	5.2	72.1	3.1	4.30	0.4	-	0.7	1.03
202	5.1	72.4	5.5	7.60	0.5	-	0.5	1.04
248	5.2	74	2	2.70	0.7	-	2.0	1.06
247	5.2	75.711	4.822	6.37	1.0	-	1.2	1.09
242	1.21	76.16	1.48	1.94	1.1	-	3.8	1.09
55	5.2	76.3	4.7	6.16	1.1	-	1.4	1.09
215	5.1	76.4	5.7	7.46	1.1	-	1.2	1.10
240	5.2	77.72	2.19	2.82	1.4	-	3.4	1.12
137	1.22	79.7	9.9	12.42	1.7	-	1.0	1.14
151	7.2	83.553	0.001	0.00	2.4	-	16.1	1.20
53	1.32	83.784	8.378	10.00	2.4	-	1.7	1.20
130	2	88.6	4.55	5.14	3.2	-	4.1	1.27
245	5.2	93	3.034	3.26	4.0	-	7.4	1.33
206	1.22	96.61	3.6	3.73	4.6	-	7.3	1.39
126	1.23	97	9	9.28	4.6	-	3.0	1.39
249	1.23	149.54*	35.5	23.74	13.6	-	2.2	2.15
236	1.22	296.495*	1.613	0.54	38.5	-	124.1	4.25
$Y (x_{pt} = 17.8, \sigma_{pt} = 1.8, u(x_{pt}) = 0.3) [\text{mg/kg}]$								
235	7.2	5.14*	0.41	7.98	-6.9	-	-26.0	0.29
105	1.32	8.2*	1.6	19.51	-5.2	-	-5.9	0.46
108	1.32	10	1	10.00	-4.2	-	-7.5	0.56
85	7.2	12.2	1.2	9.84	-3.0	-	-4.6	0.69
206	1.22	12.723	0.98	7.70	-2.8	-	-5.0	0.71
137	1.22	14.8	2.5	16.89	-1.6	-	-1.2	0.83
230	1.24	16	2	12.50	-1.0	-	-0.9	0.90
79	1.22	17.492	1.144	6.54	-0.2	-	-0.3	0.98
65	1.23	17.5	1.66	9.49	-0.2	-	-0.2	0.98
242	1.21	17.54	0.22	1.25	-0.1	-	-0.8	0.99
126	1.23	18.2	2	10.99	0.2	-	0.2	1.02
249	1.23	19.097	1.41	7.38	0.7	-	0.9	1.07
238	1.13	19.9	2.3	11.56	1.1	-	0.9	1.12
233	1.23	20	1	5.00	1.2	-	2.1	1.12
204	1.21	22.6	1.3	5.75	2.6	-	3.6	1.27
161	2	29.7*	1.91	6.43	6.4	-	6.2	1.67
$Zn (x_{pt} = 54.8, \sigma_{pt} = 5, u(x_{pt}) = 0.5) [\text{mg/kg}]$								
235	7.2	35.92	2.53	7.04	-3.9	-	-7.3	0.66
65	1.23	38.06	2.07	5.44	-3.5	-	-7.8	0.69
108	1.32	40	7	17.50	-3.1	-	-2.1	0.73
105	1.32	44	4.3	9.77	-2.3	-	-2.5	0.80
206	1.22	47.153	1.1	2.33	-1.6	-	-6.2	0.86
73	1.21	47.894	5.704	11.91	-1.4	-	-1.2	0.87
133	4.31	48	2	4.17	-1.4	-	-3.3	0.88
230	1.24	49	5	10.20	-1.2	-	-1.2	0.89
85	7.2	50.7	8	15.78	-0.9	-	-0.5	0.93
149	5.2	51.096	1.937	3.79	-0.8	-	-1.8	0.93
161	2	52.7	4.9	9.30	-0.4	-	-0.4	0.96
192	5.2	52.7	2.7	5.12	-0.4	-	-0.8	0.96

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
215	5.1	53.7	3.4	6.33	-0.2	-	-0.3	0.98
203	5.2	54.2	1.5	2.77	-0.1	-	-0.4	0.99
237	5.1	54.9	1.3	2.37	0.0	-	0.1	1.00
182	5.1	55	8	14.55	0.0	-	0.0	1.00
53	1.32	55.4	8.31	15.00	0.1	-	0.1	1.01
183	5.1	55.6	2.2	3.96	0.2	-	0.4	1.01
242	1.21	56.24	0.58	1.03	0.3	-	1.8	1.03
238	1.13	56.3	6.1	10.83	0.3	-	0.2	1.03
202	5.1	56.62	1.57	2.77	0.4	-	1.1	1.03
172	5.2	57.5	2.5	4.35	0.6	-	1.1	1.05
166	5.2	58.2	1.2	2.06	0.7	-	2.6	1.06
204	1.21	58.4	5.2	8.90	0.8	-	0.7	1.07
169	5.1	58.8	2.6	4.42	0.8	-	1.5	1.07
79	1.22	59.428	5.335	8.98	1.0	-	0.9	1.08
232	5.1	59.5	3.1	5.21	1.0	-	1.5	1.09
221	5.2	60	6.9	11.50	1.1	-	0.8	1.09
137	1.22	60.2	4.1	6.81	1.1	-	1.3	1.10
247	5.2	60.768	3.324	5.47	1.2	-	1.8	1.11
244	2	61	2.517	4.13	1.3	-	2.4	1.11
233	1.23	61	5	8.20	1.3	-	1.2	1.11
246	1.22	61.06	8.54	13.99	1.3	-	0.7	1.11
199	5.1	62.128	5.24	8.43	1.5	-	1.4	1.13
126	1.23	62.3	3	4.82	1.6	-	2.5	1.14
205	5.2	62.67	4.633	7.39	1.6	-	1.7	1.14
217	5.1	62.83	0.503	0.80	1.7	-	10.9	1.15
124	1.23	62.9	3.4	5.41	1.7	-	2.4	1.15
176	5.2	63.8	1.9	2.98	1.9	-	4.6	1.16
61	5.2	64.7	9	13.91	2.1	-	1.1	1.18
44	4.2	64.8	7.9	12.19	2.1	-	1.3	1.18
35	1.21	65	2	3.08	2.1	-	4.9	1.19
171	5.1	67.8	1.4	2.06	2.7	-	8.7	1.24
167	5.2	68.152	3.221	4.73	2.8	-	4.1	1.24
130	2	69	2	2.90	3.0	-	6.9	1.26
152	5.2	69.3	0.8	1.15	3.0	-	15.0	1.26
249	1.23	74.669	4.76	6.37	4.1	-	4.1	1.36
225	1.21	76.84	12.88	16.76	4.6	-	1.7	1.40
248	5.2	79*	9	11.39	5.0	-	2.7	1.44
245	5.2	83.2*	6.397	7.69	5.9	-	4.4	1.52
151	7.2	91.703*	0.506	0.55	7.7	-	49.8	1.67
236	1.22	99.823*	1.246	1.25	9.4	-	33.1	1.82
240	5.1	110.58*	4.08	3.69	11.6	-	13.6	2.02
54	1.21	124*	10	8.06	14.4	-	6.9	2.26
99	5.2	173.352*	19.473	11.23	24.7	-	6.1	3.16
Zr ($x_{pt} = 140$, $\sigma_{pt} = 11$, $u(x_{pt}) = 1.9$) [mg/kg]								
85	7.2	65.1*	6.5	9.98	-7.0	-	-11.1	0.47
133	4.31	67*	30	44.78	-6.9	-	-2.4	0.48
105	1.32	84	6.9	8.21	-5.3	-	-7.8	0.60
246	1.21	90.91	7	7.70	-4.6	-	-6.8	0.65

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
182	5.1	102	23	22.55	-3.6	-	-1.6	0.73
166	5.2	103	13	12.62	-3.5	-	-2.8	0.74
152	5.2	117	14	11.97	-2.2	-	-1.6	0.84
65	1.23	117.26	16.6	14.16	-2.1	-	-1.4	0.84
236	1.22	118.885	3.682	3.10	-2.0	-	-5.1	0.85
242	1.21	124.1	0.44	0.35	-1.5	-	-8.4	0.89
206	1.22	128.4	1.7	1.32	-1.1	-	-4.6	0.92
235	1.21	131.33	3.51	2.67	-0.8	-	-2.2	0.94
238	1.13	138.1	15.3	11.08	-0.2	-	-0.1	0.99
204	1.21	139	11	7.91	-0.1	-	-0.1	0.99
248	5.2	140	40	28.57	0.0	-	0.0	1.00
73	1.21	142.148	7.335	5.16	0.2	-	0.3	1.02
192	5.2	143	9	6.29	0.3	-	0.3	1.02
221	5.2	143	17.4	12.17	0.3	-	0.2	1.02
79	1.22	152.25	5.78	3.80	1.2	-	2.0	1.09
35	1.21	154	3	1.95	1.3	-	4.0	1.10
137	1.22	155	31	20.00	1.4	-	0.5	1.11
215	5.1	155	19	12.26	1.4	-	0.8	1.11
237	5.1	155	5	3.23	1.4	-	2.8	1.11
126	1.23	156	8	5.13	1.5	-	1.9	1.11
161	2	157	12	7.64	1.6	-	1.4	1.12
230	1.24	164	80	48.78	2.3	-	0.3	1.17
234	2	166	3	1.81	2.4	-	7.4	1.19
233	1.23	171	5	2.92	2.9	-	5.8	1.22
130	2	174	2	1.15	3.2	-	12.5	1.24
203	5.2	179	7	3.91	3.7	-	5.4	1.28
172	5.2	190	15	7.89	4.7	-	3.3	1.36
100	1.21	192.5	1.6	0.83	4.9	-	21.4	1.38
244	2	200*	3.927	1.96	5.6	-	13.8	1.43
243	2	249.94*	49.988	20.00	10.3	-	2.2	1.79

TABLE 4a. SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE zeta -SCORES AND THE R -SCORES FOR RESULTS IN THE [ug/kg] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction		Standard deviation	Relative std. dev., [%]	z -score	z' -score	zeta -score	R -score
Ag [ug/kg]									
151	7.2	50.125	0.001	0.00	-	-	-	-	-
161	2	2160	140	6.48	-	-	-	-	-
Au [ug/kg]									
203	5.2	1.24	0.19	15.32	-	-	-	-	-
Be [ug/kg]									
85	7.2	2380	400	16.81	-	-	-	-	-
Bi [ug/kg]									
85	7.2	320	32	10.00	-	-	-	-	-
105	1.32	2400	410	17.08	-	-	-	-	-
$Dy (x_{pt} = 3220, \sigma_{pt} = 400, u(x_{pt}) = 140) [\text{ug/kg}]$									
235	7.2	1410	370	26.24	-	-4.0	-4.6	0.44	
85	7.2	2540	254	10.00	-	-1.5	-2.3	0.79	
55	5.2	2777.8	267	9.61	-	-1.0	-1.4	0.86	
237	5.1	2820	70	2.48	-	-0.9	-2.5	0.88	
152	5.2	3030	490	16.17	-	-0.4	-0.4	0.94	
172	5.2	3193	136	4.26	-	0.0	-0.1	0.99	
192	5.2	3240	190	5.86	-	0.1	0.1	1.01	
247	5.2	3360.038	400.639	11.92	-	0.3	0.3	1.05	
234	2	3370	450	13.35	-	0.3	0.3	1.05	
167	5.2	3370.477	258.08	7.66	-	0.3	0.5	1.05	
176	5.2	3430	210	6.12	-	0.5	0.8	1.07	
245	5.2	3483	169	4.85	-	0.6	1.2	1.08	
182	5.1	3600	280	7.78	-	0.8	1.2	1.12	
215	5.1	3660	270	7.38	-	1.0	1.5	1.14	
248	5.2	3770	200	5.31	-	1.2	2.3	1.17	
Er [ug/kg]									
85	7.2	1330	133	10.00	-	-	-	-	-
$Eu (x_{pt} = 870, \sigma_{pt} = 140, u(x_{pt}) = 20) [\text{ug/kg}]$									
197	5.1	330*	0.03	0.01	-3.8	-	-22.2	0.38	
237	5.1	706	17.5	2.48	-1.1	-	-5.4	0.81	
85	7.2	710	70	9.86	-1.1	-	-2.1	0.82	
215	5.1	768	46	5.99	-0.7	-	-1.9	0.88	
199	5.1	777.7	56.036	7.21	-0.6	-	-1.5	0.90	
217	5.1	778	23	2.96	-0.6	-	-2.7	0.90	
202	5.1	813.7	8.4	1.03	-0.4	-	-2.1	0.94	
247	5.2	814.999	41.974	5.15	-0.4	-	-1.1	0.94	
192	5.2	816	41	5.02	-0.4	-	-1.1	0.94	
171	5.1	817	13	1.59	-0.4	-	-1.9	0.94	
176	5.2	826	14	1.69	-0.3	-	-1.5	0.95	

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [ug/kg] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
55	5.2	826	111	13.44	-0.3	-	-0.4	0.95
151	7.2	833.699	24	2.88	-0.2	-	-1.0	0.96
183	5.1	837	20	2.39	-0.2	-	-1.0	0.96
232	5.1	850	50	5.88	-0.1	-	-0.3	0.98
169	5.1	852	59	6.92	-0.1	-	-0.3	0.98
172	5.2	853	37	4.34	-0.1	-	-0.4	0.98
61	5.2	855	67	7.84	-0.1	-	-0.2	0.98
166	5.2	864	16	1.85	0.0	-	-0.2	0.99
248	5.2	880	20	2.27	0.1	-	0.4	1.01
194	5.1	904	50	5.53	0.2	-	0.6	1.04
182	5.1	930	40	4.30	0.4	-	1.3	1.07
219	5.2	946	46.8	4.95	0.5	-	1.5	1.09
167	5.2	947.182	54.828	5.79	0.6	-	1.3	1.09
203	5.2	951	26	2.73	0.6	-	2.3	1.09
170	5.2	955	9.5	0.99	0.6	-	3.3	1.10
152	5.2	992	35	3.53	0.9	-	2.9	1.14
221	5.2	1047	103	9.84	1.3	-	1.7	1.21
245	5.2	1100	63.64	5.79	1.6	-	3.4	1.27
234	2	1170	90	7.69	2.1	-	3.2	1.35
240	5.1	1390*	20	1.44	3.7	-	16.6	1.60
$Gd (x_{pt} = 3800, \sigma_{pt} = 500, u(x_{pt}) = 300) [\mu\text{g/kg}]$								
85	7.2	3300	330	10.00	-	-0.9	-1.1	0.87
183	5.4	3400	200	5.88	-	-0.7	-1.1	0.89
176	5.2	3510	100	2.85	-	-0.5	-0.9	0.92
192	5.2	3940	260	6.60	-	0.2	0.3	1.03
235	7.2	4020	990	24.63	-	0.4	0.2	1.05
237	5.1	5000	140	2.80	-	2.0	3.5	1.31
Ge [μg/kg]								
242	1.21	333.33	180	54.00	-	-	-	-
105	1.32	790	170	21.52	-	-	-	-
$Hf (x_{pt} = 4070, \sigma_{pt} = 500, u(x_{pt}) = 120) [\mu\text{g/kg}]$								
242	1.21	2500	500	20.00	-3.0	-	-3.0	0.61
126	1.23	3100	1000	32.26	-1.8	-	-1.0	0.76
152	5.2	3190	100	3.13	-1.7	-	-5.5	0.78
199	5.1	3349.8	253.452	7.57	-1.4	-	-2.6	0.82
247	5.2	3637.99	642.266	17.65	-0.8	-	-0.7	0.89
166	5.2	3690	240	6.50	-0.7	-	-1.4	0.91
194	5.1	3708.5	376.395	10.15	-0.7	-	-0.9	0.91
61	5.2	3723	594	15.95	-0.7	-	-0.6	0.91
192	5.2	3766	190	5.05	-0.6	-	-1.3	0.93
248	5.2	4010	94	2.34	-0.1	-	-0.4	0.99
215	5.1	4013	272	6.78	-0.1	-	-0.2	0.99
172	5.2	4063	165	4.06	0.0	-	0.0	1.00
232	5.1	4100	200	4.88	0.1	-	0.1	1.01
169	5.1	4120	200	4.85	0.1	-	0.2	1.01
55	5.2	4122.1	280	6.79	0.1	-	0.2	1.01

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE zeta -SCORES AND THE R -SCORES FOR RESULTS IN THE [ug/kg] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	zeta -score	R -score
171	5.1	4130	130	3.15	0.1	-	0.3	1.01
170	5.2	4168	472	11.32	0.2	-	0.2	1.02
202	5.1	4206	149	3.54	0.3	-	0.7	1.03
237	5.1	4240	135	3.18	0.3	-	0.9	1.04
183	5.1	4242	103	2.43	0.3	-	1.1	1.04
221	5.2	4367	437	10.01	0.6	-	0.7	1.07
219	5.2	4370	142	3.25	0.6	-	1.6	1.07
176	5.2	4410	80	1.81	0.6	-	2.3	1.08
245	5.2	4418	166	3.76	0.7	-	1.7	1.09
217	5.1	4737	19	0.40	1.3	-	5.3	1.16
167	5.2	4793.137	130.078	2.71	1.4	-	4.0	1.18
240	5.1	6030	100	1.66	3.7	-	12.3	1.48
203	5.2	6146	232	3.77	3.9	-	7.9	1.51
Hg ($x_{pt} = 20.4$, $\sigma_{pt} = 5$, $u(x_{pt}) = 0.5$) [ug/kg]								
55	6.4	18.5	0.46	2.49	-0.4	-	-2.7	0.91
126	1.23	500	250	50.00	106.9	-	1.9	24.51
Ho [ug/kg]								
235	7.2	140	20	14.29	-	-	-	-
85	7.2	450	45	10.00	-	-	-	-
192	5.2	600	40	6.67	-	-	-	-
215	5.1	689	138	20.03	-	-	-	-
In [ug/kg]								
248	5.2	64	30	46.88	-	-	-	-
Lu ($x_{pt} = 288$, $\sigma_{pt} = 60$, $u(x_{pt}) = 14$) [ug/kg]								
85	7.2	180	18	10.00	-1.9	-	-4.8	0.62
202	5.1	243	21	8.64	-0.8	-	-1.8	0.84
192	5.2	254	13	5.12	-0.6	-	-1.8	0.88
247	5.2	261.236	29.55	11.31	-0.5	-	-0.8	0.91
61	5.2	269	36	13.38	-0.3	-	-0.5	0.93
245	5.2	275	2.45	0.89	-0.2	-	-1.0	0.95
176	5.2	278	13	4.68	-0.2	-	-0.6	0.96
215	5.1	279	24	8.60	-0.2	-	-0.3	0.97
203	5.2	282	8	2.84	-0.1	-	-0.4	0.98
248	5.2	290	20	6.90	0.0	-	0.1	1.01
55	5.2	291	29	9.97	0.0	-	0.1	1.01
199	5.1	292.46	54.662	18.69	0.1	-	0.1	1.01
232	5.1	330	20	6.06	0.7	-	1.7	1.14
166	5.2	340	47	13.82	0.9	-	1.1	1.18
237	5.1	520*	45	8.65	4.2	-	4.9	1.80
152	5.2	700*	68	9.71	7.4	-	5.9	2.43
Pr [ug/kg]								
235	7.2	3580	650	18.16	-	-	-	-
85	7.2	5150	600	11.65	-	-	-	-
237	5.1	7300	2000	27.40	-	-	-	-

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [ug/kg] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
233	1.23	8500	530	6.24	-	-	-	-
$Sm (x_{pt} = 4280, \sigma_{pt} = 600, u(x_{pt}) = 150) [\mu\text{g}/\text{kg}]$								
235	7.2	1940	60	3.09	-4.3	-	-14.4	0.45
202	5.1	2232	46	2.06	-3.7	-	-12.9	0.52
161	2	3570	1400	39.22	-1.3	-	-0.5	0.83
199	5.1	3619.4	274.85	7.59	-1.2	-	-2.1	0.84
204	1.21	3700	1400	37.84	-1.1	-	-0.4	0.86
151	7.2	3705.902	76	2.05	-1.0	-	-3.4	0.87
247	5.2	3777.407	148.406	3.93	-0.9	-	-2.4	0.88
85	7.2	3800	380	10.00	-0.9	-	-1.2	0.89
215	5.1	4004	385	9.62	-0.5	-	-0.7	0.93
169	5.1	4017	180	4.48	-0.5	-	-1.1	0.94
237	5.1	4050	95	2.35	-0.4	-	-1.3	0.95
245	5.2	4087	114.81	2.81	-0.4	-	-1.0	0.95
233	1.23	4100	680	16.59	-0.3	-	-0.3	0.96
192	5.2	4240	220	5.19	-0.1	-	-0.2	0.99
240	5.1	4240	80	1.89	-0.1	-	-0.3	0.99
182	5.1	4270	680	15.93	0.0	-	0.0	1.00
248	5.2	4290	120	2.80	0.0	-	0.0	1.00
183	5.1	4332	161	3.72	0.1	-	0.2	1.01
61	5.2	4507	312	6.92	0.4	-	0.6	1.05
203	5.2	4562	232	5.09	0.5	-	1.0	1.07
217	5.1	4574	91	1.99	0.5	-	1.6	1.07
171	5.1	4630	90	1.94	0.6	-	2.0	1.08
55	5.2	4703.4	9.4	0.20	0.8	-	2.8	1.10
149	5.2	4973.61	41.69	0.84	1.3	-	4.4	1.16
166	5.2	5050	108	2.14	1.4	-	4.1	1.18
176	5.2	5120	140	2.73	1.5	-	4.1	1.20
221	5.2	5167	365	7.06	1.6	-	2.2	1.21
152	5.2	5330	550	10.32	1.9	-	1.8	1.24
167	5.2	5694.488	18.614	0.33	2.6	-	9.2	1.33
$Ta (x_{pt} = 880, \sigma_{pt} = 140, u(x_{pt}) = 30) [\mu\text{g}/\text{kg}]$								
232	5.1	750	50	6.67	-0.9	-	-2.2	0.85
85	7.2	750	75	10.00	-0.9	-	-1.6	0.85
182	5.1	770	40	5.19	-0.8	-	-2.2	0.88
215	5.1	777	51	6.56	-0.7	-	-1.7	0.89
192	5.2	799	42	5.26	-0.5	-	-1.6	0.91
217	5.1	799	6	0.75	-0.5	-	-2.8	0.91
202	5.1	820	42	5.12	-0.4	-	-1.1	0.93
248	5.2	820	50	6.10	-0.4	-	-1.0	0.93
203	5.2	830	15	1.81	-0.3	-	-1.5	0.95
169	5.1	835	35	4.19	-0.3	-	-1.0	0.95
176	5.2	842	18	2.14	-0.2	-	-1.1	0.96
199	5.1	853.54	58.27	6.83	-0.2	-	-0.4	0.97
172	5.2	860	37	4.30	-0.1	-	-0.4	0.98
166	5.2	870	23	2.64	-0.1	-	-0.2	0.99
183	5.1	876	26	2.97	0.0	-	0.0	1.00

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [ug/kg] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
237	5.1	890	22	2.47	0.1	-	0.4	1.01
171	5.1	895	40	4.47	0.1	-	0.4	1.02
247	5.2	916.782	177.459	19.36	0.3	-	0.2	1.04
61	5.2	970	221	22.78	0.6	-	0.4	1.11
194	5.1	995.766	432.383	43.42	0.8	-	0.3	1.13
221	5.2	1030	90	8.74	1.1	-	1.6	1.17
152	5.2	1070	80	7.48	1.3	-	2.3	1.22
240	5.1	1560*	40	2.56	4.8	-	14.1	1.78
105	1.32	2200*	680	30.91	9.2	-	1.9	2.51
Tb ($x_{pt} = 550$, $\sigma_{pt} = 100$, $u(x_{pt}) = 15$) [ug/kg]								
235	7.2	180*	40	22.22	-3.8	-	-8.7	0.33
85	7.2	420	42	10.00	-1.3	-	-2.9	0.76
232	5.1	450	30	6.67	-1.0	-	-3.0	0.82
202	5.1	471	44	9.34	-0.8	-	-1.7	0.86
176	5.2	529	10	1.89	-0.2	-	-1.2	0.96
237	5.1	531	16	3.01	-0.2	-	-0.9	0.97
61	5.1	538	98	18.22	-0.1	-	-0.1	0.98
192	5.2	540	28	5.19	-0.1	-	-0.3	0.98
169	5.1	544	26	4.78	-0.1	-	-0.2	0.99
248	5.2	550	34	6.18	0.0	-	0.0	1.00
152	5.2	557	32	5.75	0.1	-	0.2	1.01
183	5.1	559	27	4.83	0.1	-	0.3	1.02
182	5.1	560	30	5.36	0.1	-	0.3	1.02
199	5.1	561.64	56.834	10.12	0.1	-	0.2	1.02
203	5.2	562	10	1.78	0.1	-	0.7	1.02
217	5.1	563	4	0.71	0.1	-	0.9	1.02
215	5.1	564	35	6.21	0.1	-	0.4	1.03
166	5.2	595	20	3.36	0.5	-	1.8	1.08
171	5.1	596	16	2.68	0.5	-	2.1	1.08
221	5.2	610	30	4.92	0.6	-	1.8	1.11
167	5.2	671.908	52.42	7.80	1.3	-	2.2	1.22
240	5.1	1000*	30	3.00	4.7	-	13.4	1.82
Te [ug/kg]								
242	1.21	4066.67	1533.33	37.70	-	-	-	-
Tl [ug/kg]								
204	1.21	120	30	25.00	-	-	-	-
161	2	170	20	11.76	-	-	-	-
85	7.2	520	52	10.00	-	-	-	-
126	1.23	800	400	50.00	-	-	-	-
Tm [ug/kg]								
85	7.2	170	17	10.00	-	-	-	-
192	5.2	305	18	5.90	-	-	-	-
215	5.1	353	37	10.48	-	-	-	-

TABLE 4a (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [ug/kg] RANGE (CLAY SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
$W (x_{pt} = 2410, \sigma_{pt} = 300, u(x_{pt}) = 100) [\mu\text{g}/\text{kg}]$								
36	1.22	0.52**	0.032	6.15	-7.1	-	-24.5	0.00
105	1.32	980*	380	38.78	-4.2	-	-3.6	0.41
192	5.2	2000	140	7.00	-1.2	-	-2.4	0.83
166	5.2	2070	230	11.11	-1.0	-	-1.4	0.86
85	7.2	2250	225	10.00	-0.5	-	-0.7	0.93
217	5.1	2258	51.9	2.30	-0.5	-	-1.4	0.94
172	5.2	2314	110	4.75	-0.3	-	-0.7	0.96
248	5.2	2320	200	8.62	-0.3	-	-0.4	0.96
176	5.2	2340	210	8.97	-0.2	-	-0.3	0.97
221	5.2	2400	320	13.33	0.0	-	0.0	1.00
237	5.1	2520	190	7.54	0.3	-	0.5	1.05
215	5.1	2544	234	9.20	0.4	-	0.5	1.05
169	5.1	2580	310	12.02	0.5	-	0.5	1.07
203	5.2	2664	118	4.43	0.7	-	1.6	1.10
242	1.21	2700	840	31.11	0.9	-	0.3	1.12
182	5.1	2800	250	8.93	1.2	-	1.4	1.16
126	1.23	3000	1000	33.33	1.7	-	0.6	1.24
$Yb (x_{pt} = 1740, \sigma_{pt} = 300, u(x_{pt}) = 80) [\mu\text{g}/\text{kg}]$								
235	7.2	280*	40	14.29	-	-5.5	-16.8	0.16
85	7.2	1310	131	10.00	-	-1.6	-2.8	0.75
203	5.2	1346	66	4.90	-	-1.5	-3.9	0.77
240	5.1	1350	30	2.22	-	-1.5	-4.7	0.77
182	5.1	1370	10	0.73	-	-1.4	-4.8	0.79
217	5.1	1472	11.8	0.80	-	-1.0	-3.5	0.85
215	5.1	1593	103	6.47	-	-0.6	-1.2	0.91
152	5.2	1640	110	6.71	-	-0.4	-0.8	0.94
237	5.1	1680	45	2.68	-	-0.2	-0.7	0.96
61	5.1	1691	313	18.51	-	-0.2	-0.2	0.97
192	5.2	1730	90	5.20	-	0.0	-0.1	0.99
169	5.1	1750	70	4.00	-	0.0	0.1	1.00
202	5.1	1761	52	2.95	-	0.1	0.2	1.01
183	5.1	1783	96	5.38	-	0.2	0.3	1.02
176	5.2	1800	50	2.78	-	0.2	0.6	1.03
166	5.2	1820	160	8.79	-	0.3	0.4	1.04
234	2	1840	10	0.54	-	0.4	1.3	1.06
221	5.2	1900	315	16.58	-	0.6	0.5	1.09
171	5.1	1950	30	1.54	-	0.8	2.5	1.12
248	5.2	1980	60	3.03	-	0.9	2.4	1.14
199	5.1	2010.2	154.76	7.70	-	1.0	1.6	1.15
232	5.1	2040	110	5.39	-	1.1	2.2	1.17
167	5.2	2077.018	96.446	4.64	-	1.3	2.7	1.19
247	5.2	2171.394	334.199	15.39	-	1.6	1.3	1.25
205	5.2	3350*	2.9	0.09	-	6.0	20.8	1.92

TABLE 4b. SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [%] RANGE (PLANT SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
$C (x_{pt} = 48, \sigma_{pt} = 0.7, u(x_{pt}) = 0.10) [%]$								
183	5.4	20	0.8	4.00	-40.4	-	-34.8	0.42
$Ca (x_{pt} = 1.56, \sigma_{pt} = 0.06, u(x_{pt}) = 0.004) [%]$								
78	1.32	0.864*	0.032	3.70	-11.9	-	-21.6	0.55
54	1.21	0.952*	0.041	4.31	-10.4	-	-14.8	0.61
244	2	0.982*	0.016	1.63	-9.9	-	-35.0	0.63
217	5.1	1.224	0.007	0.57	-5.8	-	-41.3	0.78
206	1.22	1.312	0.07	5.34	-4.2	-	-3.5	0.84
44	4.2	1.359	0.16	11.77	-3.4	-	-1.3	0.87
35	1.21	1.379	0.003	0.22	-3.1	-	-35.4	0.88
238	1.13	1.38	0.13	9.42	-3.1	-	-1.4	0.88
233	1.23	1.39	0.02	1.44	-2.9	-	-8.3	0.89
230	1.24	1.39	0.139	10.00	-2.9	-	-1.2	0.89
236	1.22	1.402	0.187	13.34	-2.7	-	-0.8	0.90
137	1.22	1.42	0.055	3.87	-2.4	-	-2.5	0.91
169	5.1	1.422	0.05	3.52	-2.4	-	-2.8	0.91
245	5.2	1.423	0.001	0.07	-2.3	-	-32.1	0.91
242	1.22	1.44	0.001	0.07	-2.1	-	-28.1	0.92
240	5.2	1.45	0.014	0.97	-1.9	-	-7.5	0.93
172	5.2	1.46	0.06	4.11	-1.7	-	-1.7	0.94
249	1.23	1.468	0.088	5.99	-1.6	-	-1.0	0.94
183	5.1	1.475	0.029	1.97	-1.5	-	-2.9	0.95
53	1.32	1.488	0.219	14.72	-1.2	-	-0.3	0.95
247	5.2	1.52	0.095	6.25	-0.7	-	-0.4	0.97
192	5.2	1.53	0.08	5.23	-0.5	-	-0.4	0.98
85	7.2	1.54	0.01	0.65	-0.3	-	-1.8	0.99
176	5.2	1.54	0.03	1.95	-0.3	-	-0.7	0.99
55	5.2	1.56	0.03	1.92	0.0	-	0.0	1.00
171	5.1	1.56	0.03	1.92	0.0	-	0.0	1.00
235	1.21	1.59	0.03	1.89	0.5	-	1.0	1.02
219	5.2	1.59	0.145	9.12	0.5	-	0.2	1.02
108	1.32	1.6	0.37	23.13	0.7	-	0.1	1.03
215	5.1	1.609	0.1	6.22	0.8	-	0.5	1.03
105	1.32	1.612	0.014	0.87	0.9	-	3.6	1.03
248	5.2	1.63	0.027	1.66	1.2	-	2.6	1.04
237	5.1	1.64	0.04	2.44	1.4	-	2.0	1.05
61	5.1	1.67	0.12	7.19	1.9	-	0.9	1.07
225	1.21	1.684	0.022	1.31	2.1	-	5.5	1.08
234	2	1.72	0.12	6.98	2.7	-	1.3	1.10
65	1.23	1.734	0.221	12.75	3.0	-	0.8	1.11
151	7.2	1.743	0.001	0.06	3.1	-	42.9	1.12
202	5.1	1.975	0.039	1.97	7.1	-	10.6	1.27
161	2	1.998*	0.061	3.05	7.5	-	7.2	1.28
73	1.21	2*	0.046	2.30	7.5	-	9.5	1.28

TABLE 4b (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [%] RANGE (PLANT SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
204	1.21	2.053*	0.063	3.07	8.4	-	7.8	1.32
203	5.2	2.06*	0.15	7.28	8.6	-	3.3	1.32
130	2	2.11*	97	4597.16	9.4	-	0.0	1.35
194	5.1	2.205*	0.012	0.54	11.1	-	50.8	1.41
79	1.22	2.295*	0.179	7.80	12.6	-	4.1	1.47
126	1.23	2.34*	0.12	5.13	13.4	-	6.5	1.50
100	1.21	2.349*	0.903	38.44	13.5	-	0.9	1.51
133	4.31	2.47*	0.2	8.10	15.6	-	4.5	1.58
221	5.2	4.8*	0.76	15.83	55.5	-	4.3	3.08
145	1.22	45.478**	0.037	0.08	752.6	-	1179.6	29.15
$K (x_{pt} = 1.12, \sigma_{pt} = 0.04, u(x_{pt}) = 0.003) [\%]$								
108	1.32	0.7*	0.12	17.14	-9.5	-	-3.5	0.63
244	2	0.731*	0.017	2.33	-8.8	-	-22.6	0.65
78	1.32	0.751*	0.071	9.45	-8.4	-	-5.2	0.67
54	1.21	0.827*	0.061	7.38	-6.7	-	-4.8	0.74
152	5.2	0.874	0.017	1.95	-5.6	-	-14.3	0.78
130	2	0.96	0.004	0.42	-3.6	-	-33.1	0.86
249	1.23	0.988	0.062	6.28	-3.0	-	-2.1	0.88
236	1.22	1.002	0.019	1.90	-2.7	-	-6.1	0.89
230	1.24	1.017	0.102	10.03	-2.3	-	-1.0	0.91
206	1.22	1.027	0.043	4.19	-2.1	-	-2.2	0.92
170	5.2	1.036	0.109	10.52	-1.9	-	-0.8	0.93
35	1.21	1.039	0.004	0.38	-1.8	-	-16.8	0.93
197	5.1	1.05	0.01	0.95	-1.6	-	-6.8	0.94
172	5.2	1.051	0.042	4.00	-1.6	-	-1.6	0.94
245	5.2	1.052	0.01	0.95	-1.5	-	-6.6	0.94
217	5.1	1.056	0.008	0.76	-1.5	-	-7.6	0.94
195	5.2	1.056	0.072	6.82	-1.5	-	-0.9	0.94
137	1.22	1.06	0.01	0.94	-1.4	-	-5.8	0.95
232	5.1	1.066	0.055	5.16	-1.2	-	-1.0	0.95
53	1.32	1.07	0.165	15.42	-1.1	-	-0.3	0.96
199	5.1	1.076	0.065	6.04	-1.0	-	-0.7	0.96
44	4.2	1.076	0.09	8.36	-1.0	-	-0.5	0.96
182	5.1	1.076	0.04	3.72	-1.0	-	-1.1	0.96
202	5.1	1.085	0.024	2.21	-0.8	-	-1.4	0.97
247	5.2	1.09	0.078	7.16	-0.7	-	-0.4	0.97
234	2	1.09	0.01	0.92	-0.7	-	-2.9	0.97
183	5.1	1.099	0.02	1.82	-0.5	-	-1.0	0.98
219	5.2	1.1	0.063	5.73	-0.5	-	-0.3	0.98
215	5.1	1.1	0.067	6.09	-0.5	-	-0.3	0.98
171	5.1	1.11	0.04	3.60	-0.2	-	-0.2	0.99
238	1.13	1.11	0.11	9.91	-0.2	-	-0.1	0.99
99	5.2	1.115	0.074	6.64	-0.1	-	-0.1	1.00
85	7.2	1.117	0.015	1.34	-0.1	-	-0.2	1.00
55	5.2	1.118	0.004	0.36	0.0	-	-0.4	1.00
176	5.2	1.118	0.018	1.61	0.0	-	-0.1	1.00
169	5.1	1.125	0.04	3.56	0.1	-	0.1	1.00

TABLE 4b (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [%] RANGE (PLANT SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
240	5.1	1.131	0.005	0.44	0.2	-	1.9	1.01
84	5.2	1.14	0.04	3.51	0.5	-	0.5	1.02
242	1.22	1.146	0.001	0.09	0.6	-	9.0	1.02
167	5.2	1.157	0.013	1.12	0.8	-	2.8	1.03
79	1.22	1.159	0.036	3.11	0.9	-	1.1	1.03
65	1.23	1.161	0.095	8.18	0.9	-	0.4	1.04
100	1.21	1.189	0.126	10.60	1.6	-	0.5	1.06
237	5.1	1.19	0.03	2.52	1.6	-	2.3	1.06
166	5.2	1.19	0.02	1.68	1.6	-	3.5	1.06
151	7.2	1.193	0.008	0.67	1.7	-	8.6	1.07
192	5.2	1.2	0.065	5.42	1.8	-	1.2	1.07
36	6.2	1.2	0.053	4.42	1.8	-	1.5	1.07
248	5.2	1.2	0.019	1.58	1.8	-	4.2	1.07
233	1.23	1.21	0.01	0.83	2.0	-	8.7	1.08
225	1.21	1.215	0.019	1.56	2.2	-	4.9	1.08
203	5.2	1.29	0.06	4.65	3.9	-	2.8	1.15
61	5.2	1.37	0.37	27.01	5.7	-	0.7	1.22
221	5.2	1.41*	0.13	9.22	6.6	-	2.2	1.26
235	1.21	1.42*	0.01	0.70	6.8	-	29.0	1.27
105	1.32	1.492*	0.025	1.68	8.4	-	14.8	1.33
194	5.1	1.51*	0.092	6.09	8.9	-	4.2	1.35
126	1.23	1.53*	0.08	5.23	9.3	-	5.1	1.37
149	5.2	1.542*	0.01	0.65	9.6	-	40.7	1.38
73	1.21	1.896*	0.038	2.00	17.6	-	20.4	1.69
133	4.31	2.07*	0.2	9.66	21.6	-	4.7	1.85
161	2	2.201*	0.07	3.18	24.5	-	15.4	1.97
204	1.21	2.244*	0.077	3.43	25.5	-	14.6	2.00
145	1.22	18.919**	0.018	0.10	404.2	-	977.8	16.89
Mg ($x_{pt} = 0.236$, $\sigma_{pt} = 0.012$, $u(x_{pt}) = 0.0006$) [%]								
242	1.22	0.06*	0.002	3.33	-15.0	-	-84.5	0.25
206	1.22	0.104*	0.006	5.77	-11.3	-	-21.9	0.44
235	7.1	0.12*	0.001	0.83	-9.9	-	-100.2	0.51
240	5.2	0.146*	0.004	2.74	-7.7	-	-22.3	0.62
130	2	0.149*	0.003	2.01	-7.4	-	-28.5	0.63
137	1.22	0.176*	0.006	3.41	-5.1	-	-10.0	0.75
234	2	0.191	0.01	5.24	-3.8	-	-4.5	0.81
182	5.1	0.198	0.023	11.62	-3.2	-	-1.7	0.84
245	5.2	0.21	0.008	3.81	-2.2	-	-3.2	0.89
202	5.1	0.211	0.008	3.79	-2.1	-	-3.1	0.89
192	5.2	0.215	0.016	7.44	-1.8	-	-1.3	0.91
161	2	0.225	0.012	5.33	-0.9	-	-0.9	0.95
232	5.1	0.231	0.021	9.09	-0.4	-	-0.2	0.98
248	5.2	0.232	0.004	1.72	-0.3	-	-1.0	0.98
85	7.2	0.233	0.001	0.43	-0.3	-	-2.6	0.99
203	5.2	0.233	0.021	9.01	-0.3	-	-0.1	0.99
55	5.2	0.235	0.013	5.53	-0.1	-	-0.1	1.00
172	5.2	0.242	0.02	8.26	0.5	-	0.3	1.03

TABLE 4b (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [%] RANGE (PLANT SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
176	5.2	0.246	0.005	2.03	0.9	-	2.0	1.04
152	5.2	0.248	0.007	2.82	1.0	-	1.7	1.05
219	5.2	0.25	0.025	10.00	1.2	-	0.6	1.06
65	1.23	0.25	0.023	9.20	1.2	-	0.6	1.06
44	4.2	0.251	0.025	9.96	1.3	-	0.6	1.06
237	5.1	0.254	0.006	2.36	1.5	-	3.0	1.08
215	5.1	0.254	0.016	6.30	1.5	-	1.1	1.08
133	4.4	0.28	0.03	10.71	3.8	-	1.5	1.19
151	7.2	0.283	0.001	0.35	4.0	-	40.6	1.20
194	5.1	0.317*	0.021	6.62	6.9	-	3.9	1.34
126	1.23	0.334*	0.111	33.23	8.4	-	0.9	1.42
204	1.21	0.338*	0.021	6.21	8.7	-	4.9	1.43
145	1.22	1.578*	0.01	0.63	114.4	-	134.0	6.69
$P(x_{pt} = 0.242, \sigma_{pt} = 0.012, u(x_{pt}) = 0.0006) [\%]$								
244	2	0.146*	0.003	2.05	-8.0	-	-31.5	0.60
108	1.32	0.18*	0.03	16.67	-5.2	-	-2.1	0.74
130	2	0.216	0.001	0.46	-2.2	-	-22.9	0.89
65	1.23	0.229	0.017	7.42	-1.1	-	-0.8	0.95
161	2	0.232	0.019	8.19	-0.8	-	-0.5	0.96
234	2	0.238	0.021	8.82	-0.3	-	-0.2	0.98
35	1.21	0.241	0.003	1.24	-0.1	-	-0.3	1.00
85	7.2	0.245	0.002	0.82	0.3	-	1.4	1.01
238	1.13	0.246	0.029	11.79	0.3	-	0.1	1.02
105	1.32	0.259	0.008	3.09	1.4	-	2.1	1.07
53	1.32	0.26	0.012	4.62	1.5	-	1.5	1.07
44	4.2	0.272	0.024	8.82	2.5	-	1.2	1.12
204	1.21	0.28	0.023	8.21	3.2	-	1.7	1.16
233	1.23	0.29	0.011	3.79	4.0	-	4.4	1.20
126	1.23	0.31*	0.03	9.68	5.7	-	2.3	1.28
206	1.22	0.334*	0.019	5.69	7.7	-	4.8	1.38
242	1.22	0.384*	0.001	0.26	11.8	-	124.8	1.59
145	1.22	2.71**	0.004	0.15	206.0	-	611.4	11.20

TABLE 4b. SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE zeta -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (PLANT SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	zeta -score	R -score
Al ($x_{pt} = 53.2$, $\sigma_{pt} = 5$, $u(x_{pt}) = 1.4$) [mg/kg]								
235	7.1	0.01**	0.001	10.00	-11.4	-	-38.0	0.00
65	1.23	33.66	2.569	7.63	-4.2	-	-6.7	0.63
85	7.2	38.1	4	10.50	-3.2	-	-3.6	0.72
36	6.2	41.81	0.025	0.06	-2.4	-	-8.1	0.79
248	5.2	49	8	16.33	-0.9	-	-0.5	0.92
172	5.2	54.1	3.5	6.47	0.2	-	0.2	1.02
215	5.1	54.3	5.7	10.50	0.2	-	0.2	1.02
176	5.2	55.2	1.9	3.44	0.4	-	0.8	1.04
237	5.1	55.6	1.5	2.70	0.5	-	1.2	1.05
152	5.2	65.5	2.9	4.43	2.6	-	3.8	1.23
240	5.2	72.79	1.05	1.44	4.2	-	11.2	1.37
194	5.1	72.81	4.14	5.69	4.2	-	4.5	1.37
167	5.2	76.562	4.937	6.45	5.0	-	4.6	1.44
245	5.2	83.7	1.485	1.77	6.5	-	14.9	1.57
151	7.2	92.133*	6	6.51	8.3	-	6.3	1.73
244	2	96.477*	14.574	15.11	9.2	-	3.0	1.81
55	5.2	99.81*	0.998	1.00	10.0	-	27.1	1.88
202	5.1	129*	8	6.20	16.2	-	9.3	2.42
133	4.4	187*	20	10.70	28.6	-	6.7	3.52
219	5.2	241*	15.3	6.35	40.1	-	12.2	4.53
206	1.22	276.176*	25.052	9.07	47.7	-	8.9	5.19
182	5.1	385.5*	11.57	3.00	71.0	-	28.5	7.25
204	1.21	524*	55	10.50	100.6	-	8.6	9.85
161	2	557*	46	8.26	107.7	-	10.9	10.47
203	5.2	751*	36	4.79	149.1	-	19.4	14.12
183	5.4	1800**	72	4.00	373.3	-	24.3	33.83
145	1.22	2434**	41	1.68	508.8	-	58.0	45.75
B ($x_{pt} = 18.1$, $\sigma_{pt} = 1.9$, $u(x_{pt}) = 0.09$) [mg/kg]								
183	5.4	8	0.26	3.25	-5.4	-	-36.8	0.44
Ba ($x_{pt} = 14$, $\sigma_{pt} = 1.5$, $u(x_{pt}) = 0.15$) [mg/kg]								
161	2	1.72*	0.19	11.05	-8.2	-	-50.4	0.12
204	1.21	1.83*	0.47	25.68	-8.1	-	-24.6	0.13
206	1.22	4.215*	1.598	37.91	-6.5	-	-6.1	0.30
217	5.1	11.02	0.44	3.99	-2.0	-	-6.4	0.79
152	5.2	11.6	1	8.62	-1.6	-	-2.4	0.83
247	5.2	12.272	2.362	19.25	-1.1	-	-0.7	0.88
169	5.1	13	0.6	4.62	-0.7	-	-1.6	0.93
199	5.1	13.094	1.875	14.32	-0.6	-	-0.5	0.94
238	1.13	13.3	1.4	10.53	-0.5	-	-0.5	0.95
232	5.1	13.4	1.9	14.18	-0.4	-	-0.3	0.96
215	5.1	13.8	1.1	7.97	-0.1	-	-0.2	0.99
176	5.2	13.8	0.6	4.35	-0.1	-	-0.3	0.99
183	5.1	13.9	0.8	5.76	-0.1	-	-0.1	0.99

TABLE 4b (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (PLANT SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
85	7.2	14	2	14.29	0.0	-	0.0	1.00
237	5.1	14	0.5	3.57	0.0	-	0.0	1.00
61	5.1	14.3	1.7	11.89	0.2	-	0.2	1.02
166	5.2	15.2	2.11	13.88	0.8	-	0.6	1.09
171	5.1	15.2	0.6	3.95	0.8	-	1.9	1.09
151	7.2	15.401	0.09	0.58	0.9	-	7.9	1.10
192	5.2	15.5	0.8	5.16	1.0	-	1.8	1.11
126	1.23	16	1.6	10.00	1.3	-	1.2	1.14
248	5.2	16	2	12.50	1.3	-	1.0	1.14
203	5.2	16.1	0.8	4.97	1.4	-	2.6	1.15
172	5.2	17	3.6	21.18	2.0	-	0.8	1.21
221	5.2	20*	3.45	17.25	4.0	-	1.7	1.43
$\text{Br} (x_{pt} = 1.27, \sigma_{pt} = 0.2, u(x_{pt}) = 0.04) [\text{mg/kg}]$								
78	1.32	0.389*	0.043	11.05	-4.5	-	-15.5	0.31
152	5.2	0.798	0.031	3.88	-2.4	-	-9.7	0.63
242	1.22	0.93	0.03	3.23	-1.7	-	-7.1	0.73
232	5.1	0.96	0.05	5.21	-1.6	-	-5.0	0.76
197	5.1	0.96	0.1	10.42	-1.6	-	-2.9	0.76
233	1.23	0.96	0.14	14.58	-1.6	-	-2.1	0.76
79	1.22	1.036	0.027	2.61	-1.2	-	-5.1	0.82
206	1.22	1.1	0.1	9.09	-0.9	-	-1.6	0.87
230	1.24	1.17	0.16	13.68	-0.5	-	-0.6	0.92
176	5.2	1.2	0.02	1.67	-0.4	-	-1.7	0.94
238	1.13	1.2	0.2	16.67	-0.4	-	-0.3	0.94
183	5.1	1.21	0.03	2.48	-0.3	-	-1.3	0.95
195	5.2	1.22	0.24	19.67	-0.3	-	-0.2	0.96
219	5.2	1.24	0.048	3.87	-0.2	-	-0.5	0.98
169	5.1	1.24	0.04	3.23	-0.2	-	-0.5	0.98
215	5.1	1.24	0.08	6.45	-0.2	-	-0.3	0.98
202	5.1	1.242	0.04	3.22	-0.1	-	-0.5	0.98
237	5.1	1.26	0.03	2.38	-0.1	-	-0.2	0.99
240	5.1	1.263	0.013	1.03	0.0	-	-0.2	0.99
172	5.2	1.28	0.27	21.09	0.1	-	0.0	1.01
199	5.1	1.288	0.09	6.99	0.1	-	0.2	1.01
247	5.2	1.289	0.066	5.12	0.1	-	0.3	1.01
55	5.2	1.3	0.015	1.15	0.2	-	0.7	1.02
248	5.2	1.36	0.022	1.62	0.5	-	2.1	1.07
61	5.1	1.36	0.11	8.09	0.5	-	0.8	1.07
171	5.1	1.38	0.02	1.45	0.6	-	2.6	1.09
217	5.1	1.406	0.008	0.57	0.7	-	3.6	1.11
182	5.1	1.46	0.04	2.74	1.0	-	3.5	1.15
194	5.1	1.478	0.252	17.05	1.1	-	0.8	1.16
192	5.2	1.559	0.08	5.13	1.5	-	3.3	1.23
105	1.32	1.6	0.084	5.25	1.7	-	3.6	1.26
203	5.2	1.6	0.08	5.00	1.7	-	3.7	1.26
126	1.23	1.8	0.18	10.00	2.7	-	2.9	1.42
221	5.2	2.44*	0.208	8.52	6.0	-	5.5	1.92

TABLE 4b (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (PLANT SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
65	1.23	6.24*	0.59	9.46	25.4	-	8.4	4.91
35	1.21	7.6*	0.2	2.63	32.3	-	31.1	5.98
204	1.21	46.04**	2.88	6.26	228.4	-	15.5	36.25
161	2	48.9**	0.74	1.51	243.0	-	64.3	38.50
$Cl (x_{pt} = 214, \sigma_{pt} = 15, u(x_{pt}) = 9) [\text{mg/kg}]$								
183	5.4	85	3	3.53	-	-7.2	-13.3	0.40
242	1.22	119.86	0.64	0.53	-	-5.3	-10.2	0.56
233	1.23	121	4.1	3.39	-	-5.2	-9.2	0.56
206	1.22	175.937	12.827	7.29	-	-2.1	-2.4	0.82
221	5.2	176	22	12.50	-	-2.1	-1.6	0.82
197	5.1	184.5	5.73	3.11	-	-1.7	-2.7	0.86
244	2	185.133	28.812	15.56	-	-1.6	-1.0	0.86
172	5.2	186	8	4.30	-	-1.6	-2.3	0.87
176	5.2	194	4	2.06	-	-1.1	-2.0	0.91
232	5.1	194	20	10.31	-	-1.1	-0.9	0.91
44	4.2	195.6	28.6	14.62	-	-1.0	-0.6	0.91
55	5.2	205.1	2.1	1.02	-	-0.5	-1.0	0.96
248	5.2	211	6.8	3.22	-	-0.2	-0.3	0.98
225	1.21	212.065	41.709	19.67	-	-0.1	-0.1	0.99
152	5.2	213	10	4.69	-	-0.1	-0.1	0.99
204	1.21	215	21	9.77	-	0.0	0.0	1.00
237	5.1	215	5	2.33	-	0.0	0.1	1.00
245	5.2	215	4.745	2.21	-	0.0	0.1	1.00
182	5.1	218.8	25.17	11.50	-	0.3	0.2	1.02
215	5.1	222	17	7.66	-	0.4	0.4	1.04
126	1.23	234	24	10.26	-	1.1	0.8	1.09
247	5.2	234.472	36.503	15.57	-	1.1	0.5	1.09
161	2	243	21	8.64	-	1.6	1.3	1.13
192	5.2	244	15	6.15	-	1.7	1.7	1.14
202	5.1	248	18	7.26	-	1.9	1.7	1.16
65	1.23	252.04	27.06	10.74	-	2.1	1.3	1.18
105	1.32	268	30	11.19	-	3.0	1.7	1.25
194	5.1	309.92	7.3	2.36	-	5.4	8.1	1.45
137	1.22	367	12	3.27	-	8.6	10.1	1.71
219	5.2	440*	27.9	6.34	-	12.6	7.7	2.05
Cr [mg/kg]								
242	1.22	0.2	0.074	37.00	-	-	-	-
170	5.2	0.226	0.024	10.62	-	-	-	-
152	5.2	0.245	0.021	8.57	-	-	-	-
149	5.2	0.261	0.045	17.24	-	-	-	-
206	1.22	0.302	0.808	267.55	-	-	-	-
215	5.1	0.313	0.027	8.63	-	-	-	-
176	5.2	0.37	0.03	8.11	-	-	-	-
232	5.1	0.372	0.004	1.08	-	-	-	-
199	5.1	0.377	0.068	18.04	-	-	-	-
192	5.2	0.405	0.025	6.17	-	-	-	-

TABLE 4b (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (PLANT SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
61	5.2	0.43	0.12	27.91	-	-	-	-
247	5.2	0.434	0.031	7.14	-	-	-	-
169	5.1	0.437	0.017	3.89	-	-	-	-
202	5.1	0.448	0.055	12.28	-	-	-	-
248	5.2	0.47	0.08	17.02	-	-	-	-
55	5.2	0.578	0.144	24.91	-	-	-	-
219	5.2	0.787	0.079	10.04	-	-	-	-
182	5.1	1.015	0.304	29.95	-	-	-	-
225	1.21	1.233	0.074	6.00	-	-	-	-
194	5.1	1.358	0.033	2.43	-	-	-	-
166	5.2	1.4	0.5	35.71	-	-	-	-
105	1.32	1.4	0.86	61.43	-	-	-	-
137	1.22	1.42	0.35	24.65	-	-	-	-
229	6.2	1.46	0.01	0.68	-	-	-	-
151	7.2	1.837	0.048	2.61	-	-	-	-
130	2	2	0.009	0.45	-	-	-	-
204	1.21	2.78	0.16	5.76	-	-	-	-
161	2	3.34	0.16	4.79	-	-	-	-
240	5.1	4.08	0.4	9.80	-	-	-	-
217	5.1	29.25**	0.117	0.40	-	-	-	-
$Cu (x_{pt} = 6.61, \sigma_{pt} = 0.8, u(x_{pt}) = 0.03) [\text{mg/kg}]$								
234	2	3.58*	0.73	20.39	-3.8	-	-4.1	0.54
85	7.2	5.67	1.1	19.40	-1.2	-	-0.9	0.86
137	1.22	5.98	0.8	13.38	-0.8	-	-0.8	0.90
65	1.23	6.15	0.608	9.89	-0.6	-	-0.8	0.93
206	1.22	6.236	0.807	12.94	-0.5	-	-0.5	0.94
105	1.32	6.43	0.021	0.33	-0.2	-	-5.1	0.97
78	1.32	6.642	0.132	1.99	0.0	-	0.2	1.00
236	1.22	6.659	0.488	7.33	0.1	-	0.1	1.01
248	5.2	6.7	0.6	8.96	0.1	-	0.1	1.01
53	1.32	6.706	0.374	5.58	0.1	-	0.3	1.01
215	5.1	6.85	1.75	25.55	0.3	-	0.1	1.04
108	1.32	7	1	14.29	0.5	-	0.4	1.06
44	4.2	7.1	0.8	11.27	0.6	-	0.6	1.07
35	1.21	7.2	0.3	4.17	0.7	-	2.0	1.09
237	5.1	7.37	0.17	2.31	1.0	-	4.4	1.11
242	1.22	7.54	0.14	1.86	1.2	-	6.5	1.14
151	7.2	8.754	0.001	0.01	2.7	-	76.4	1.32
249	1.23	8.946	1.3	14.53	2.9	-	1.8	1.35
233	1.23	9.4*	1.59	16.91	3.5	-	1.8	1.42
133	4.31	10*	2	20.00	4.3	-	1.7	1.51
130	2	10*	0.82	8.20	4.3	-	4.1	1.51
229	6.2	10.36*	0.4	3.86	4.7	-	9.4	1.57
230	1.24	10.68*	1.14	10.67	5.1	-	3.6	1.62
126	1.23	10.8*	1	9.26	5.3	-	4.2	1.63
244	2	11.173*	0.523	4.68	5.7	-	8.7	1.69
182	5.1	12.33*	4.19	33.98	7.2	-	1.4	1.87

TABLE 4b (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (PLANT SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
225	1.21	14.248*	1.192	8.37	9.6	-	6.4	2.16
204	1.21	17.8*	1.55	8.71	14.1	-	7.2	2.69
161	2	20.5*	1.58	7.71	17.5	-	8.8	3.10
Fe ($x_{pt} = 75.9$, $\sigma_{pt} = 6$, $u(x_{pt}) = 0.4$) [mg/kg]								
235	7.1	0.01**	0.001	10.00	-12.0	-	-194.5	0.00
130	2	17.3*	0.5	2.89	-9.3	-	-92.4	0.23
217	5.1	57.83	1.388	2.40	-2.9	-	-12.5	0.76
152	5.2	63.1	1.4	2.22	-2.0	-	-8.8	0.83
244	2	65.623	5.471	8.34	-1.6	-	-1.9	0.86
199	5.1	70.506	4.521	6.41	-0.9	-	-1.2	0.93
242	1.22	71.216	0.602	0.85	-0.7	-	-6.5	0.94
170	5.2	71.898	3.166	4.40	-0.6	-	-1.3	0.95
232	5.1	72.1	5.4	7.49	-0.6	-	-0.7	0.95
219	5.2	73.1	7.18	9.82	-0.4	-	-0.4	0.96
53	1.32	76.587	10.503	13.71	0.1	-	0.1	1.01
78	1.32	76.594	2.13	2.78	0.1	-	0.3	1.01
85	7.2	78	4	5.13	0.3	-	0.5	1.03
238	1.13	78.3	8	10.22	0.4	-	0.3	1.03
206	1.22	78.657	6.833	8.69	0.4	-	0.4	1.04
230	1.24	78.98	8.1	10.26	0.5	-	0.4	1.04
237	5.1	79.5	2.2	2.77	0.6	-	1.6	1.05
233	1.23	79.9	4	5.01	0.6	-	1.0	1.05
176	5.2	79.9	1.9	2.38	0.6	-	2.1	1.05
183	5.1	80.22	2.33	2.90	0.7	-	1.8	1.06
126	1.23	82	8	9.76	1.0	-	0.8	1.08
61	5.2	82.4	8.7	10.56	1.0	-	0.7	1.09
171	5.1	82.6	1.6	1.94	1.1	-	4.1	1.09
215	5.1	82.9	5.2	6.27	1.1	-	1.3	1.09
55	5.2	83.45	15.4	18.45	1.2	-	0.5	1.10
240	5.1	83.65	1.26	1.51	1.2	-	5.9	1.10
105	1.32	84	6.7	7.98	1.3	-	1.2	1.11
192	5.2	84.1	4.5	5.35	1.3	-	1.8	1.11
137	1.22	84.3	7	8.30	1.3	-	1.2	1.11
236	1.22	84.38	9.017	10.69	1.3	-	0.9	1.11
167	5.2	84.6	7.836	9.26	1.4	-	1.1	1.11
202	5.1	84.85	2.89	3.41	1.4	-	3.1	1.12
149	5.2	84.894	6.767	7.97	1.4	-	1.3	1.12
35	1.21	85	2	2.35	1.4	-	4.5	1.12
166	5.2	85.7	8.9	10.39	1.5	-	1.1	1.13
248	5.2	87	5	5.75	1.8	-	2.2	1.15
203	5.2	87.9	4.4	5.01	1.9	-	2.7	1.16
169	5.1	88.7	5.1	5.75	2.0	-	2.5	1.17
36	6.2	88.79	0.006	0.01	2.0	-	33.0	1.17
234	2	89	3.5	3.93	2.1	-	3.7	1.17
195	5.2	89.7	6.8	7.58	2.2	-	2.0	1.18
44	4.2	94.2	19.2	20.38	2.9	-	1.0	1.24
181	5.2	95.25	1.626	1.71	3.1	-	11.6	1.25

TABLE 4b (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (PLANT SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
249	1.23	107.5	7.46	6.94	5.0	-	4.2	1.42
108	1.32	110	13	11.82	5.4	-	2.6	1.45
65	1.23	115.51*	10.453	9.05	6.3	-	3.8	1.52
79	1.22	125.208*	3.446	2.75	7.8	-	14.2	1.65
182	5.1	131.2*	6.56	5.00	8.7	-	8.4	1.73
151	7.2	136.36*	5.187	3.80	9.6	-	11.6	1.80
225	1.21	161.159*	3.703	2.30	13.5	-	22.9	2.12
133	4.31	167*	30	17.96	14.4	-	3.0	2.20
221	5.2	190*	43	22.63	18.0	-	2.7	2.50
204	1.21	235*	26	11.06	25.1	-	6.1	3.10
161	2	256*	23	8.98	28.5	-	7.8	3.37
54	1.21	515*	24	4.66	69.4	-	18.3	6.79
99	5.2	724.867*	114.776	15.83	102.5	-	5.7	9.55
145	1.22	7063**	65	0.92	1104.1	-	107.5	93.06
I [mg/kg]								
182	5.1	1.94	0.08	4.12	-	-	-	-
Mn ($x_{pt} = 101$, $\sigma_{pt} = 8$, $u(x_{pt}) = 0.3$) [mg/kg]								
197	5.1	3.29**	0.04	1.22	-12.1	-	-344.9	0.03
244	2	65.4*	4.013	6.14	-4.4	-	-8.8	0.65
230	1.24	69.67*	7.2	10.33	-3.9	-	-4.3	0.69
206	1.22	85.716	6.696	7.81	-1.9	-	-2.3	0.85
242	1.22	87.777	0.155	0.18	-1.6	-	-41.3	0.87
167	5.2	90.141	7.448	8.26	-1.3	-	-1.5	0.89
152	5.2	90.9	1.1	1.21	-1.3	-	-8.9	0.90
229	6.2	91.1	9.97	10.94	-1.2	-	-1.0	0.90
78	1.32	91.158	6.976	7.65	-1.2	-	-1.4	0.90
202	5.1	92.57	1.574	1.70	-1.0	-	-5.3	0.92
192	5.2	92.7	5.6	6.04	-1.0	-	-1.5	0.92
240	5.2	94.65	0.79	0.83	-0.8	-	-7.6	0.94
137	1.22	95.4	3.2	3.35	-0.7	-	-1.7	0.94
238	1.13	95.8	10	10.44	-0.6	-	-0.5	0.95
172	5.2	96.3	4.6	4.78	-0.6	-	-1.0	0.95
245	5.2	96.7	0.631	0.65	-0.5	-	-6.2	0.96
219	5.2	97.5	4.11	4.22	-0.4	-	-0.8	0.97
35	1.21	98	2	2.04	-0.4	-	-1.5	0.97
53	1.32	98.746	6.022	6.10	-0.3	-	-0.4	0.98
234	2	98.9	1.2	1.21	-0.3	-	-1.7	0.98
233	1.23	99.26	5	5.04	-0.2	-	-0.3	0.98
108	1.32	100	13	13.00	-0.1	-	-0.1	0.99
203	5.2	101	3	2.97	0.0	-	0.0	1.00
247	5.2	101.55	3.929	3.87	0.1	-	0.1	1.01
195	5.2	102	4	3.92	0.1	-	0.2	1.01
182	5.1	102.3	3.17	3.10	0.2	-	0.4	1.01
232	5.1	102.5	10	9.76	0.2	-	0.1	1.01
183	5.1	103.2	1.9	1.84	0.3	-	1.1	1.02
181	5.2	103.43	3.299	3.19	0.3	-	0.7	1.02

TABLE 4b (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (PLANT SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
36	6.2	103.52	0.087	0.08	0.3	-	8.6	1.02
99	5.2	103.705	3.438	3.32	0.3	-	0.8	1.03
85	7.2	104	4	3.85	0.4	-	0.7	1.03
176	5.2	105.9	1.7	1.61	0.6	-	2.8	1.05
65	1.23	106.12	9.17	8.64	0.6	-	0.6	1.05
44	4.2	106.8	10.4	9.74	0.7	-	0.6	1.06
215	5.1	107.6	6.5	6.04	0.8	-	1.0	1.07
55	5.2	107.7	1.1	1.02	0.8	-	5.9	1.07
237	5.1	109	3	2.75	1.0	-	2.7	1.08
236	1.22	110.359	12.303	11.15	1.2	-	0.8	1.09
248	5.2	110.9	1.3	1.17	1.2	-	7.4	1.10
54	1.21	113	9.8	8.67	1.5	-	1.2	1.12
225	1.21	117.906	9.524	8.08	2.1	-	1.8	1.17
249	1.23	123.4	9.32	7.55	2.8	-	2.4	1.22
235	1.21	124.67	1.15	0.92	2.9	-	20.0	1.23
151	7.2	124.916	0.001	0.00	3.0	-	85.3	1.24
79	1.22	125.054	5.419	4.33	3.0	-	4.4	1.24
105	1.32	127	0.95	0.75	3.2	-	26.2	1.26
217	5.1	131.6*	3.553	2.70	3.8	-	8.6	1.30
194	5.1	143.65*	4.55	3.17	5.3	-	9.4	1.42
126	1.23	159*	16	10.06	7.2	-	3.6	1.57
204	1.21	186*	27.9	15.00	10.5	-	3.0	1.84
161	2	197*	15.4	7.82	11.9	-	6.2	1.95
133	4.31	198*	40	20.20	12.0	-	2.4	1.96
130	2	200*	2.16	1.08	12.3	-	45.5	1.98
221	5.2	311*	25	8.04	26.0	-	8.4	3.08
84	5.2	510*	50	9.80	50.7	-	8.2	5.05
145	1.22	2788**	28	1.00	333.1	-	96.0	27.60
Na [mg/kg]								
194	5.1	19.13	1.41	7.37	-	-	-	-
195	5.2	27.3	5.9	21.61	-	-	-	-
152	5.2	28.2	0.8	2.84	-	-	-	-
55	5.2	31.9	0.32	1.00	-	-	-	-
197	5.1	31.94	0.55	1.72	-	-	-	-
232	5.1	32.2	2.7	8.39	-	-	-	-
245	5.2	33	0.603	1.83	-	-	-	-
176	5.2	33.1	2.2	6.65	-	-	-	-
172	5.2	33.2	1.4	4.22	-	-	-	-
237	5.1	33.4	0.9	2.69	-	-	-	-
215	5.1	33.4	2	5.99	-	-	-	-
170	5.2	33.534	1.189	3.55	-	-	-	-
183	5.1	33.6	0.7	2.08	-	-	-	-
199	5.1	33.924	3.18	9.37	-	-	-	-
171	5.1	34	0.9	2.65	-	-	-	-
169	5.1	34.1	1.2	3.52	-	-	-	-
167	5.2	34.365	0.379	1.10	-	-	-	-
248	5.2	34.7	0.5	1.44	-	-	-	-

TABLE 4b (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (PLANT SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
240	5.1	35.5	0.25	0.70	-	-	-	-
61	5.2	35.8	2.9	8.10	-	-	-	-
166	5.2	38	1	2.63	-	-	-	-
65	1.23	39.25	2.956	7.53	-	-	-	-
247	5.2	44.326	5.388	12.16	-	-	-	-
203	5.2	46	2	4.35	-	-	-	-
149	5.2	47.756	0.841	1.76	-	-	-	-
192	5.2	49.9	2.5	5.01	-	-	-	-
84	5.2	52	3	5.77	-	-	-	-
217	5.1	58.4	0.117	0.20	-	-	-	-
182	5.1	86.33	2.5	2.90	-	-	-	-
221	5.2	87.7	8.1	9.24	-	-	-	-
206	1.22	89.873	7.94	8.83	-	-	-	-
219	5.2	99.9	15.9	15.92	-	-	-	-
202	5.1	127	4	3.15	-	-	-	-
235	7.1	171.91	49.14	28.58	-	-	-	-
161	2	242	18	7.44	-	-	-	-
204	1.21	284	23	8.10	-	-	-	-
133	4.4	294	30	10.20	-	-	-	-
130	2	342.3	24.5	7.16	-	-	-	-
126	1.23	6330**	2000	31.60	-	-	-	-
$Rb (x_{pt} = 11.4, \sigma_{pt} = 1.3, u(x_{pt}) = 0.15) [\text{mg/kg}]$								
217	5.1	6.565*	0.092	1.40	-3.8	-	-27.6	0.58
152	5.2	7.68	0.28	3.65	-2.9	-	-11.7	0.67
244	2	7.99	0.824	10.31	-2.7	-	-4.1	0.70
108	1.32	8	2	25.00	-2.7	-	-1.7	0.70
167	5.2	9.179	0.643	7.01	-1.8	-	-3.4	0.81
65	1.23	9.21	0.785	8.52	-1.7	-	-2.7	0.81
242	1.22	9.42	0.1	1.06	-1.6	-	-11.0	0.83
54	1.21	9.57	0.97	10.14	-1.4	-	-1.9	0.84
55	5.2	9.77	0.34	3.48	-1.3	-	-4.4	0.86
170	5.2	9.991	0.567	5.68	-1.1	-	-2.4	0.88
230	1.24	10.1	1.04	10.30	-1.0	-	-1.2	0.89
247	5.2	10.352	0.496	4.79	-0.8	-	-2.0	0.91
199	5.1	10.382	0.675	6.50	-0.8	-	-1.5	0.91
232	5.1	10.5	0.55	5.24	-0.7	-	-1.6	0.92
137	1.22	10.88	1.3	11.95	-0.4	-	-0.4	0.95
79	1.22	10.887	1.127	10.35	-0.4	-	-0.5	0.96
126	1.23	10.9	1.1	10.09	-0.4	-	-0.5	0.96
233	1.23	11.02	1.76	15.97	-0.3	-	-0.2	0.97
206	1.22	11.072	1.824	16.47	-0.3	-	-0.2	0.97
169	5.1	11.1	0.4	3.60	-0.2	-	-0.7	0.97
183	5.1	11.1	0.25	2.25	-0.2	-	-1.0	0.97
215	5.1	11.1	0.7	6.31	-0.2	-	-0.4	0.97
53	1.32	11.12	0.591	5.31	-0.2	-	-0.5	0.98
85	7.2	11.14	2	17.95	-0.2	-	-0.1	0.98
202	5.1	11.24	0.42	3.74	-0.1	-	-0.4	0.99

TABLE 4b (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (PLANT SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
234	2	11.3	0.2	1.77	-0.1	-	-0.4	0.99
240	5.1	11.39	0.12	1.05	0.0	-	-0.1	1.00
151	7.2	11.445	0.171	1.49	0.0	-	0.2	1.00
235	1.21	11.67	0.58	4.97	0.2	-	0.5	1.02
166	5.2	11.7	0.3	2.56	0.2	-	0.9	1.03
237	5.1	11.7	0.3	2.56	0.2	-	0.9	1.03
195	5.2	11.7	1.8	15.38	0.2	-	0.2	1.03
176	5.2	11.76	0.21	1.79	0.3	-	1.4	1.03
171	5.1	11.82	0.19	1.61	0.3	-	1.7	1.04
249	1.23	11.972	0.94	7.85	0.5	-	0.6	1.05
105	1.32	12	0.24	2.00	0.5	-	2.1	1.05
192	5.2	12	0.7	5.83	0.5	-	0.8	1.05
44	4.2	12	1.8	15.00	0.5	-	0.3	1.05
78	1.32	12.091	0.385	3.18	0.5	-	1.7	1.06
203	5.2	12.2	0.8	6.56	0.6	-	1.0	1.07
61	5.1	12.3	1.1	8.94	0.7	-	0.8	1.08
238	1.13	12.3	1.4	11.38	0.7	-	0.6	1.08
248	5.2	12.3	0.8	6.50	0.7	-	1.1	1.08
236	1.22	13.007	0.022	0.17	1.3	-	10.7	1.14
35	1.21	14.1	0.4	2.84	2.1	-	6.3	1.24
221	5.2	14.47	2.4	16.59	2.4	-	1.3	1.27
100	1.21	16.2*	3.1	19.14	3.8	-	1.5	1.42
204	1.21	16.68*	1.64	9.83	4.2	-	3.2	1.46
194	5.1	16.905*	0.077	0.46	4.4	-	32.8	1.48
161	2	17.4*	1.8	10.34	4.7	-	3.3	1.53
133	4.31	18*	5	27.78	5.2	-	1.3	1.58
$S (x_{pt} = 761, \sigma_{pt} = 40, u(x_{pt}) = 5) [\text{mg/kg}]$								
53	1.32	503.704	26.658	5.29	-5.7	-	-9.5	0.66
244	2	504.667	22.516	4.46	-5.7	-	-11.1	0.66
108	1.32	620	40	6.45	-3.1	-	-3.5	0.81
238	1.13	670	90	13.43	-2.0	-	-1.0	0.88
233	1.23	762	20	2.62	0.0	-	0.0	1.00
44	4.2	776.2	61.5	7.92	0.3	-	0.2	1.02
105	1.32	782	9.7	1.24	0.5	-	1.9	1.03
234	2	787	36	4.57	0.6	-	0.7	1.03
204	1.21	787	36	4.57	0.6	-	0.7	1.03
65	1.23	797.38	84.17	10.56	0.8	-	0.4	1.05
161	2	798	37	4.64	0.8	-	1.0	1.05
206	1.22	813.381	71.711	8.82	1.2	-	0.7	1.07
73	1.21	970.177	18.282	1.88	4.7	-	11.0	1.27
126	1.23	1097	110	10.03	7.5	-	3.1	1.44
242	1.22	1184.162*	4.406	0.37	9.4	-	62.2	1.56
133	4.31	1322*	130	9.83	12.5	-	4.3	1.74
145	1.22	7463*	54	0.72	149.4	-	123.5	9.81
Se [mg/kg]								
192	5.2	0.064	0.01	15.63	-	-	-	-

TABLE 4b (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (PLANT SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
206	1.22	0.084	0.03	35.71	-	-	-	-
204	1.21	0.15	0.25	166.67	-	-	-	-
161	2	0.16	0.05	31.25	-	-	-	-
221	5.2	0.34	0.06	17.65	-	-	-	-
126	1.23	0.4	0.2	50.00	-	-	-	-
151	7.2	0.744	0.096	12.90	-	-	-	-
Si [mg/kg]								
235	1.21	0.2**	0.01	5.00	-	-	-	-
65	1.23	226.93	15.53	6.84	-	-	-	-
133	4.31	346	35	10.12	-	-	-	-
244	2	361.933	38.843	10.73	-	-	-	-
126	1.23	473	120	25.37	-	-	-	-
161	2	520	75	14.42	-	-	-	-
204	1.21	559	107	19.14	-	-	-	-
242	1.22	1356.203	16.921	1.25	-	-	-	-
145	1.22	8880**	39	0.44	-	-	-	-
Sr ($x_{pt} = 36.9$, $\sigma_{pt} = 3$, $u(x_{pt}) = 0.4$) [mg/kg]								
65	1.23	10.53*	1.02	9.69	-7.7	-	-24.4	0.29
217	5.1	23.35*	0.747	3.20	-4.0	-	-16.4	0.63
244	2	25.337	1.06	4.18	-3.4	-	-10.3	0.69
242	1.22	31.06	0.1	0.32	-1.7	-	-15.9	0.84
166	5.2	31.2	1.5	4.81	-1.7	-	-3.7	0.85
35	1.21	31.5	0.5	1.59	-1.6	-	-8.8	0.85
105	1.32	32	0.18	0.56	-1.4	-	-12.3	0.87
238	1.13	33.3	3.7	11.11	-1.0	-	-1.0	0.90
247	5.2	33.346	1.993	5.98	-1.0	-	-1.8	0.90
230	1.24	33.5	3.37	10.06	-1.0	-	-1.0	0.91
126	1.23	34.1	3.4	9.97	-0.8	-	-0.8	0.92
232	5.1	34.4	1.8	5.23	-0.7	-	-1.4	0.93
195	5.2	34.5	4	11.59	-0.7	-	-0.6	0.93
249	1.23	35.02	2.35	6.71	-0.5	-	-0.8	0.95
44	4.2	35.2	5.1	14.49	-0.5	-	-0.3	0.95
54	1.21	35.9	1.3	3.62	-0.3	-	-0.7	0.97
85	7.2	36.61	4	10.93	-0.1	-	-0.1	0.99
215	5.1	36.7	2.5	6.81	-0.1	-	-0.1	0.99
53	1.32	37.019	4.411	11.92	0.0	-	0.0	1.00
176	5.2	37.5	0.9	2.40	0.2	-	0.6	1.02
183	5.1	37.9	1.6	4.22	0.3	-	0.6	1.03
237	5.1	38.2	1.3	3.40	0.4	-	1.0	1.04
169	5.1	38.2	1.6	4.19	0.4	-	0.8	1.04
61	5.1	39.1	4.1	10.49	0.6	-	0.5	1.06
192	5.2	39.7	2.5	6.30	0.8	-	1.1	1.08
233	1.23	39.7	6.74	16.98	0.8	-	0.4	1.08
199	5.1	39.71	4.809	12.11	0.8	-	0.6	1.08
151	7.2	39.914	0.234	0.59	0.9	-	7.1	1.08
108	1.32	40	9	22.50	0.9	-	0.3	1.08

TABLE 4b (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (PLANT SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
221	5.2	41	4.9	11.95	1.2	-	0.8	1.11
248	5.2	41	4.1	10.00	1.2	-	1.0	1.11
133	4.31	42	20	47.62	1.5	-	0.3	1.14
236	1.22	42.025	2.102	5.00	1.5	-	2.4	1.14
203	5.2	42.6	1.8	4.23	1.7	-	3.1	1.15
79	1.22	43.088	2.727	6.33	1.8	-	2.3	1.17
240	5.1	43.09	1.14	2.65	1.8	-	5.2	1.17
206	1.22	44.613	6.341	14.21	2.2	-	1.2	1.21
78	1.32	45.213	1.025	2.27	2.4	-	7.7	1.23
137	1.22	45.4	3.8	8.37	2.5	-	2.2	1.23
172	5.2	53*	3.8	7.17	4.7	-	4.2	1.44
204	1.21	85.4*	4.9	5.74	14.1	-	9.9	2.31
161	2	86.3*	6.7	7.76	14.4	-	7.4	2.34
100	1.21	119.6*	12.3	10.28	24.1	-	6.7	3.24
Ti [mg/kg]								
85	7.2	1.62	0.4	24.69	-	-	-	-
242	1.22	3.58	0.2	5.59	-	-	-	-
206	1.22	3.6	0.7	19.44	-	-	-	-
65	1.23	4.757	0.341	7.17	-	-	-	-
248	5.2	6	2	33.33	-	-	-	-
78	1.32	8.045	0.548	6.81	-	-	-	-
105	1.32	9	0.89	9.89	-	-	-	-
204	1.21	10.1	1.7	16.83	-	-	-	-
161	2	12.2	2.1	17.21	-	-	-	-
126	1.23	22	5	22.73	-	-	-	-
133	4.31	71	30	42.25	-	-	-	-
145	1.22	599**	182	30.38	-	-	-	-
166	5.2	650**	26	4.00	-	-	-	-
Y [mg/kg]								
126	1.23	0.5	0.2	40.00	-	-	-	-
242	1.22	0.96	0.1	10.42	-	-	-	-
161	2	1.71	0.18	10.53	-	-	-	-
204	1.21	2.19	0.5	22.83	-	-	-	-
Zn ($x_{pt} = 31.6$, $\sigma_{pt} = 3$, $u(x_{pt}) = 0.09$) [mg/kg]								
149	5.2	19.282*	0.228	1.18	-4.1	-	-50.0	0.61
152	5.2	20.4*	0.5	2.45	-3.7	-	-22.0	0.65
217	5.1	22.11*	0.19	0.86	-3.2	-	-44.8	0.70
99	5.2	22.639	1.287	5.68	-3.0	-	-6.9	0.72
244	2	25.277	1.662	6.58	-2.1	-	-3.8	0.80
170	5.2	25.477	2.31	9.07	-2.0	-	-2.6	0.81
54	1.21	25.9	1.9	7.34	-1.9	-	-3.0	0.82
194	5.1	25.965	3.642	14.03	-1.9	-	-1.5	0.82
130	2	26.2	1.3	4.96	-1.8	-	-4.1	0.83
167	5.2	26.512	1.131	4.27	-1.7	-	-4.5	0.84
242	1.22	27.56	0.2	0.73	-1.3	-	-18.3	0.87

TABLE 4b (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (PLANT SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
36	6.2	28.69	0.094	0.33	-1.0	-	-21.9	0.91
85	7.2	28.84	3	10.40	-0.9	-	-0.9	0.91
236	1.22	28.971	1.287	4.44	-0.9	-	-2.0	0.92
105	1.32	29	0.47	1.62	-0.9	-	-5.4	0.92
238	1.13	29.1	3.2	11.00	-0.8	-	-0.8	0.92
199	5.1	29.716	2.207	7.43	-0.6	-	-0.9	0.94
232	5.1	29.8	1.6	5.37	-0.6	-	-1.1	0.94
230	1.24	29.8	3.02	10.13	-0.6	-	-0.6	0.94
53	1.32	30.054	1.364	4.54	-0.5	-	-1.1	0.95
137	1.22	30.18	3	9.94	-0.5	-	-0.5	0.96
195	5.2	30.7	1.6	5.21	-0.3	-	-0.6	0.97
247	5.2	30.78	0.985	3.20	-0.3	-	-0.8	0.97
183	5.1	30.9	0.6	1.94	-0.2	-	-1.2	0.98
78	1.32	30.988	0.706	2.28	-0.2	-	-0.9	0.98
166	5.2	31	0.82	2.65	-0.2	-	-0.7	0.98
181	5.2	31.2	0.141	0.45	-0.1	-	-2.4	0.99
172	5.2	31.4	1.5	4.78	-0.1	-	-0.1	0.99
203	5.2	31.4	0.8	2.55	-0.1	-	-0.2	0.99
215	5.1	31.5	1.9	6.03	0.0	-	-0.1	1.00
176	5.2	31.5	0.7	2.22	0.0	-	-0.1	1.00
171	5.1	32.7	0.4	1.22	0.4	-	2.7	1.03
237	5.1	32.9	0.9	2.74	0.4	-	1.4	1.04
55	5.2	33.2	0.899	2.71	0.5	-	1.8	1.05
192	5.2	33.3	1.8	5.41	0.6	-	0.9	1.05
248	5.2	33.7	0.98	2.91	0.7	-	2.1	1.07
240	5.1	33.961	0.272	0.80	0.8	-	8.2	1.07
206	1.22	33.975	3.073	9.04	0.8	-	0.8	1.08
61	5.2	34.3	2.1	6.12	0.9	-	1.3	1.09
44	4.2	34.4	2.4	6.98	0.9	-	1.2	1.09
35	1.21	34.7	0.6	1.73	1.0	-	5.1	1.10
219	5.2	35	1.27	3.63	1.1	-	2.7	1.11
65	1.23	35.35	6.15	17.40	1.2	-	0.6	1.12
233	1.23	36.3	6.53	17.99	1.6	-	0.7	1.15
225	1.21	38.407	6.544	17.04	2.3	-	1.0	1.22
108	1.32	40	7	17.50	2.8	-	1.2	1.27
221	5.2	41.2*	2.03	4.93	3.2	-	4.7	1.30
234	2	42*	2.3	5.48	3.5	-	4.5	1.33
249	1.23	42.66*	2.83	6.63	3.7	-	3.9	1.35
126	1.23	43*	4	9.30	3.8	-	2.8	1.36
202	5.1	44.8*	0.63	1.41	4.4	-	20.7	1.42
151	7.2	55.431*	0.103	0.19	7.9	-	171.0	1.75
204	1.21	65.8*	3.8	5.78	11.4	-	9.0	2.08
182	5.1	66*	2.31	3.50	11.4	-	14.9	2.09
161	2	73.6*	4.15	5.64	14.0	-	10.1	2.33
133	4.31	76*	15	19.74	14.8	-	3.0	2.41
235	7.2	53105.17**	1022.52	1.93	17654.9	-	51.9	1680.54

TABLE 4b (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [mg/kg] RANGE (PLANT SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
					Zr [mg/kg]			
166	5.2	0.61	0.79	129.51	-	-	-	-
242	1.22	1.058	0.064	6.05	-	-	-	-
204	1.21	9.3	1.23	13.23	-	-	-	-
161	2	9.5	0.45	4.74	-	-	-	-

TABLE 4b. SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE zeta -SCORES AND THE R -SCORES FOR RESULTS IN THE [ug/kg] RANGE (PLANT SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	zeta -score	R -score
As ($x_{pt} = 58.5$, $\sigma_{pt} = 13$, $u(x_{pt}) = 0.8$) [ug/kg]								
152	5.2	43	5	11.63	-1.2	-	-3.1	0.74
170	5.2	52.478	30.449	58.02	-0.5	-	-0.2	0.90
199	5.1	54.18	10.81	19.95	-0.3	-	-0.4	0.93
172	5.2	54.8	5.7	10.40	-0.3	-	-0.6	0.94
232	5.1	55	10	18.18	-0.3	-	-0.3	0.94
215	5.1	55	8	14.55	-0.3	-	-0.4	0.94
166	5.2	57.4	6.7	11.67	-0.1	-	-0.2	0.98
169	5.1	59	4	6.78	0.0	-	0.1	1.01
55	5.2	60.3	12	19.90	0.1	-	0.1	1.03
237	5.1	61	5	8.20	0.2	-	0.5	1.04
61	5.2	63	20	31.75	0.3	-	0.2	1.08
203	5.2	68.9	7.2	10.45	0.8	-	1.4	1.18
217	5.1	69.37	4.5	6.49	0.8	-	2.4	1.19
194	5.1	76.78	28.61	37.26	1.4	-	0.6	1.31
248	5.2	81	10.8	13.33	1.7	-	2.1	1.38
167	5.2	91.944*	5.077	5.52	2.6	-	6.5	1.57
151	7.2	138.227*	25.323	18.32	6.2	-	3.1	2.36
221	5.2	158*	17.2	10.89	7.7	-	5.8	2.70
206	1.22	178.51*	5.479	3.07	9.3	-	21.7	3.05
105	1.32	340*	120	35.29	21.9	-	2.3	5.81
229	6.2	1270**	24.66	1.94	94.1	-	49.1	21.71
161	2	3700**	300	8.11	282.9	-	12.1	63.25
130	2	5500**	6300	114.55	422.8	-	0.9	94.02
Au [ug/kg]								
203	5.2	1.28	0.24	18.75	-	-	-	-
197	5.1	10.25	1.3	12.68	-	-	-	-
Cd ($x_{pt} = 75.1$, $\sigma_{pt} = 17$, $u(x_{pt}) = 0.6$) [ug/kg]								
151	7.2	33.62**	1	2.97	-2.5	-	-35.6	0.45
192	5.2	78	8	10.26	0.2	-	0.4	1.04
206	1.22	192.354*	0.8	0.42	7.1	-	117.2	2.56
229	6.2	360*	16.33	4.54	17.2	-	17.4	4.79
204	1.21	530*	40	7.55	27.5	-	11.4	7.06
161	2	650*	70	10.77	34.8	-	8.2	8.66
234	2	3200*	50	1.56	189.1	-	62.5	42.61
183	5.1	7610**	160	2.10	456.1	-	47.1	101.33
130	2	15000**	2580	17.20	903.3	-	5.8	199.73
Ce [ug/kg]								
151	7.2	42.493	1.211	2.85	-	-	-	-
232	5.1	90	20	22.22	-	-	-	-
152	5.2	97	14	14.43	-	-	-	-
192	5.2	105	8	7.62	-	-	-	-
215	5.1	108	18	16.67	-	-	-	-

TABLE 4b (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [ug/kg] RANGE (PLANT SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
217	5.1	264	27	10.23	-	-	-	-
204	1.21	1630**	70	4.29	-	-	-	-
161	2	2300**	240	10.43	-	-	-	-
Co ($x_{pt} = 119$, $\sigma_{pt} = 30$, $u(x_{pt}) = 2$) [ug/kg]								
195	5.2	0.068**	0.021	30.88	-4.5	-	-60.8	0.00
206	1.22	27.943	15.802	56.55	-3.5	-	-5.7	0.23
217	5.1	73.23	1.97	2.69	-1.7	-	-16.5	0.62
234	2	90	10	11.11	-1.1	-	-2.8	0.76
215	5.1	104	8	7.69	-0.6	-	-1.8	0.87
232	5.1	110	6	5.45	-0.3	-	-1.4	0.92
237	5.1	111	4	3.60	-0.3	-	-1.8	0.93
171	5.1	113	2	1.77	-0.2	-	-2.1	0.95
152	5.2	113	4	3.54	-0.2	-	-1.3	0.95
235	7.2	114.86	4.81	4.19	-0.2	-	-0.8	0.97
176	5.2	117	3	2.56	-0.1	-	-0.6	0.98
247	5.2	118.574	9.522	8.03	0.0	-	0.0	1.00
169	5.1	122	5	4.10	0.1	-	0.6	1.03
192	5.2	130.5	8	6.13	0.4	-	1.4	1.10
248	5.2	134	9.6	7.16	0.6	-	1.5	1.13
61	5.2	134.7	9.3	6.90	0.6	-	1.7	1.13
203	5.2	135	7	5.19	0.6	-	2.2	1.13
166	5.2	139	11	7.91	0.8	-	1.8	1.17
55	5.2	143.91	20.4	14.18	1.0	-	1.2	1.21
172	5.2	149	18	12.08	1.1	-	1.7	1.25
219	5.2	158	12.2	7.72	1.5	-	3.2	1.33
202	5.1	159	6	3.77	1.5	-	6.3	1.34
151	7.2	199.014	1	0.50	3.1	-	36.4	1.67
221	5.2	208	25	12.02	3.4	-	3.5	1.75
183	5.1	260*	10	3.85	5.4	-	13.8	2.18
149	5.2	273.987*	5.682	2.07	5.9	-	25.8	2.30
233	1.23	280*	20	7.14	6.1	-	8.0	2.35
240	5.1	284.3*	6.8	2.39	6.3	-	23.4	2.39
161	2	410*	50	12.20	11.1	-	5.8	3.45
242	1.22	500*	120	24.00	14.6	-	3.2	4.20
204	1.21	510*	120	23.53	14.9	-	3.3	4.29
167	5.2	1626.771**	181.53	11.16	57.6	-	8.3	13.67
182	5.1	1869**	56	3.00	66.8	-	31.2	15.71
Cs ($x_{pt} = 17.3$, $\sigma_{pt} = 4$, $u(x_{pt}) = 0.5$) [ug/kg]								
195	5.2	0.032**	0.004	12.50	-4.5	-	-33.1	0.00
176	5.2	14.6	2	13.70	-0.7	-	-1.3	0.84
166	5.2	15.2	2.8	18.42	-0.6	-	-0.7	0.88
215	5.1	15.8	1.6	10.13	-0.4	-	-0.9	0.91
169	5.1	17	1	5.88	-0.1	-	-0.3	0.98
237	5.1	17.8	3	16.85	0.1	-	0.2	1.03
192	5.2	19.1	1	5.24	0.5	-	1.6	1.10
171	5.1	20.5	1.8	8.78	0.8	-	1.7	1.18

TABLE 4b (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [ug/kg] RANGE (PLANT SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
151	7.2	22.381	1	4.47	1.3	-	4.5	1.29
61	5.2	23.3	8.5	36.48	1.6	-	0.7	1.35
221	5.2	31.85*	3.1	9.73	3.8	-	4.6	1.84
202	5.1	54.11*	3.73	6.89	9.7	-	9.8	3.13
Eu [ug/kg]								
192	5.2	1.53	0.23	15.03	-	-	-	-
215	5.1	1.63	0.25	15.34	-	-	-	-
Ga [ug/kg]								
248	5.2	110	50	45.45	-	-	-	-
161	2	460	50	10.87	-	-	-	-
204	1.21	770	80	10.39	-	-	-	-
Hf [ug/kg]								
215	5.1	5.64	0.95	16.84	-	-	-	-
192	5.2	8.2	0.6	7.32	-	-	-	-
126	1.23	500	250	50.00	-	-	-	-
242	1.22	730	200	27.40	-	-	-	-
Hg ($x_{pt} = 29.5$, $\sigma_{pt} = 6$, $u(x_{pt}) = 0.16$) [ug/kg]								
206	1.22	11.79	5.06	42.92	-2.7	-	-3.5	0.40
192	5.2	25.7	1.6	6.23	-0.6	-	-2.4	0.87
55	6.4	29.3	1.5	5.12	0.0	-	-0.1	0.99
215	5.1	31.3	4.8	15.34	0.3	-	0.4	1.06
In [ug/kg]								
242	1.22	1400	400	28.57	-	-	-	-
La [ug/kg]								
176	5.2	37.7	2.3	6.10	-	-	-	-
232	5.1	48	5	10.42	-	-	-	-
172	5.2	52.7	4	7.59	-	-	-	-
152	5.2	54	5	9.26	-	-	-	-
199	5.1	55.412	6.432	11.61	-	-	-	-
248	5.2	57	4	7.02	-	-	-	-
194	5.1	59.417	7.775	13.09	-	-	-	-
237	5.1	63.9	1.7	2.66	-	-	-	-
215	5.1	65.7	9.4	14.31	-	-	-	-
192	5.2	65.8	3.5	5.32	-	-	-	-
169	5.1	67	4	5.97	-	-	-	-
203	5.2	67.2	2.7	4.02	-	-	-	-
183	5.1	70	3	4.29	-	-	-	-
61	5.1	72.2	5.6	7.76	-	-	-	-
149	5.2	80.49	12.11	15.05	-	-	-	-
167	5.2	80.759	4.805	5.95	-	-	-	-
55	5.2	84.3	7.2	8.54	-	-	-	-
240	5.1	94	2	2.13	-	-	-	-

TABLE 4b (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [ug/kg] RANGE (PLANT SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
202	5.1	113	12	10.62	-	-	-	-
217	5.1	116	3	2.59	-	-	-	-
221	5.2	130	30	23.08	-	-	-	-
161	2	140	20	14.29	-	-	-	-
204	1.21	170	15	8.82	-	-	-	-
235	7.2	1530.06**	450.18	29.42	-	-	-	-
242	1.22	18300**	3600	19.67	-	-	-	-
Lu [ug/kg]								
166	5.2	3.49	0.87	24.93	-	-	-	-
Mo ($x_{pt} = 524$, $\sigma_{pt} = 90$, $u(x_{pt}) = 5$) [ug/kg]								
126	1.23	400	200	50.00	-1.3	-	-0.6	0.76
247	5.2	466.252	34.155	7.33	-0.6	-	-1.7	0.89
169	5.1	514	27	5.25	-0.1	-	-0.4	0.98
192	5.2	531	28	5.27	0.1	-	0.2	1.01
203	5.2	607	30	4.94	0.9	-	2.7	1.16
172	5.2	635	146	22.99	1.2	-	0.8	1.21
151	7.2	659.852	1	0.15	1.5	-	26.3	1.26
206	1.22	700.549	253.046	36.12	1.9	-	0.7	1.34
221	5.2	845*	48	5.68	3.5	-	6.7	1.61
242	1.22	1480*	280	18.92	10.3	-	3.4	2.82
204	1.21	3500*	330	9.43	32.2	-	9.0	6.68
161	2	4670*	240	5.14	44.9	-	17.3	8.91
Nb [ug/kg]								
242	1.22	980	180	18.37	-	-	-	-
204	1.21	7800	400	5.13	-	-	-	-
161	2	10900	150	1.38	-	-	-	-
Nd [ug/kg]								
166	5.2	150	7	4.67	-	-	-	-
204	1.21	220	16	7.27	-	-	-	-
161	2	280	50	17.86	-	-	-	-
235	7.2	1069.77	372.76	34.84	-	-	-	-
Ni ($x_{pt} = 990$, $\sigma_{pt} = 160$, $u(x_{pt}) = 11$) [ug/kg]								
151	7.2	22.661**	1	4.41	-6.1	-	-87.7	0.02
105	1.32	760	152	20.00	-1.5	-	-1.5	0.77
206	1.22	779.104	20.861	2.68	-1.3	-	-8.9	0.79
53	1.32	906.297	205.923	22.72	-0.5	-	-0.4	0.92
108	1.32	990	400	40.40	0.0	-	0.0	1.00
85	7.2	1000	200	20.00	0.1	-	0.0	1.01
229	6.2	1100	60	5.45	0.7	-	1.8	1.11
133	4.31	1200	400	33.33	1.3	-	0.5	1.21
166	5.2	1330	210	15.79	2.1	-	1.6	1.34
204	1.21	1370	300	21.90	2.4	-	1.3	1.38
126	1.23	3300*	330	10.00	14.6	-	7.0	3.33

TABLE 4b (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [ug/kg] RANGE (PLANT SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
242	1.22	5680*	100	1.76	29.6	-	46.6	5.74
161	2	12100**	1600	13.22	70.0	-	6.9	12.22
130	2	40250**	500	1.24	247.5	-	78.5	40.66
$Pb (x_{pt} = 740, \sigma_{pt} = 120, u(x_{pt}) = 6)$ [ug/kg]								
65	1.23	0.905**	0.078	8.62	-6.0	-	-133.0	0.00
78	1.32	385.152*	71.812	18.65	-2.9	-	-4.9	0.52
206	1.22	604.406	40.747	6.74	-1.1	-	-3.3	0.82
233	1.23	620	150	24.19	-1.0	-	-0.8	0.84
85	7.2	640	60	9.38	-0.8	-	-1.7	0.86
242	1.22	640	100	15.63	-0.8	-	-1.0	0.86
229	6.2	700	25.39	3.63	-0.3	-	-1.5	0.95
105	1.32	790	360	45.57	0.4	-	0.1	1.07
235	7.2	1182.51*	93.22	7.88	3.6	-	4.7	1.60
137	1.22	1210*	340	28.10	3.8	-	1.4	1.64
126	1.23	1600*	400	25.00	6.9	-	2.1	2.16
108	1.32	2800*	400	14.29	16.6	-	5.1	3.78
204	1.21	7700*	900	11.69	56.2	-	7.7	10.41
161	2	12200**	800	6.56	92.5	-	14.3	16.49
130	2	180250**	2220	1.23	1449.3	-	80.9	243.58
$Sb (x_{pt} = 58.4, \sigma_{pt} = 13, u(x_{pt}) = 1.1)$ [ug/kg]								
152	5.2	40	1	2.50	-1.4	-	-12.1	0.68
232	5.1	48	4	8.33	-0.8	-	-2.5	0.82
217	5.1	49	2.07	4.22	-0.7	-	-4.0	0.84
199	5.1	49.116	4.68	9.53	-0.7	-	-1.9	0.84
169	5.1	53	4	7.55	-0.4	-	-1.3	0.91
170	5.2	54.694	9.303	17.01	-0.3	-	-0.4	0.94
240	5.1	55	1	1.82	-0.3	-	-2.2	0.94
203	5.2	58.6	5.5	9.39	0.0	-	0.0	1.00
215	5.1	59.9	4.5	7.51	0.1	-	0.3	1.03
194	5.1	61.026	7.907	12.96	0.2	-	0.3	1.04
172	5.2	62.7	4.8	7.66	0.3	-	0.9	1.07
171	5.1	68	3	4.41	0.7	-	3.0	1.16
61	5.2	68.7	7.8	11.35	0.8	-	1.3	1.18
176	5.2	69	4	5.80	0.8	-	2.5	1.18
248	5.2	70	7.5	10.71	0.9	-	1.5	1.20
183	5.1	70	4	5.71	0.9	-	2.8	1.20
167	5.2	74.705	2.872	3.84	1.3	-	5.3	1.28
192	5.2	84.6	4.5	5.32	2.0	-	5.6	1.45
221	5.2	102*	10	9.80	3.4	-	4.3	1.75
151	7.2	108.81*	2.561	2.35	3.9	-	18.0	1.86
242	1.22	2250**	1250	55.56	170.6	-	1.8	38.53
Sc [ug/kg]								
199	5.1	7.388	0.736	9.96	-	-	-	-
169	5.1	8.14	0.3	3.69	-	-	-	-
240	5.1	8.28	0.13	1.57	-	-	-	-

TABLE 4b (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [ug/kg] RANGE (PLANT SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
237	5.1	8.45	0.24	2.84	-	-	-	-
176	5.2	8.61	0.23	2.67	-	-	-	-
192	5.2	8.77	0.46	5.25	-	-	-	-
215	5.1	8.8	0.6	6.82	-	-	-	-
219	5.2	9.09	1.6	17.60	-	-	-	-
61	5.1	9.46	0.72	7.61	-	-	-	-
203	5.2	9.56	0.46	4.81	-	-	-	-
248	5.2	9.7	0.9	9.28	-	-	-	-
183	5.1	10	1	10.00	-	-	-	-
55	5.2	12.04	0.81	6.73	-	-	-	-
202	5.1	14.5	1.4	9.66	-	-	-	-
166	5.2	15.3	0.6	3.92	-	-	-	-
167	5.2	27.172	1.46	5.37	-	-	-	-
221	5.2	35	6	17.14	-	-	-	-
217	5.1	39.1	2.5	6.39	-	-	-	-
206	1.22	137.203**	40.51	29.53	-	-	-	-
151	7.2	174.844**	1	0.57	-	-	-	-
Sm [ug/kg]								
199	5.1	0.007**	0.001	14.29	-	-	-	-
61	5.1	5.1	1.2	23.53	-	-	-	-
176	5.2	5.5	1.6	29.09	-	-	-	-
55	5.2	6.2	0.6	9.68	-	-	-	-
167	5.2	6.276	0.233	3.71	-	-	-	-
192	5.2	6.38	0.33	5.17	-	-	-	-
248	5.2	7.2	1.1	15.28	-	-	-	-
215	5.1	7.5	3.2	42.67	-	-	-	-
151	7.2	9.476	0.5	5.28	-	-	-	-
217	5.1	9.634	0.85	8.82	-	-	-	-
152	5.2	10	2	20.00	-	-	-	-
166	5.2	15	3	20.00	-	-	-	-
221	5.2	16.2	2.05	12.65	-	-	-	-
194	5.1	87.65	2.932	3.35	-	-	-	-
206	1.22	482**	50.484	10.47	-	-	-	-
204	1.21	1350**	110	8.15	-	-	-	-
161	2	1610**	190	11.80	-	-	-	-
149	5.2	6380.86**	29.06	0.46	-	-	-	-
Sn [ug/kg]								
151	7.2	37.911	1	2.64	-	-	-	-
Te [ug/kg]								
242	1.22	6900	2400	34.78	-	-	-	-
Th [ug/kg]								
192	5.2	9.3**	0.9	9.68	-	-	-	-
199	5.1	9.677**	2.41	24.90	-	-	-	-
215	5.1	17.9**	3.5	19.55	-	-	-	-

TABLE 4b (cont.). SUMMARY OF THE REPORTED RESULTS, THE CALCULATED z - or z' -SCORES, THE ζ -SCORES AND THE R -SCORES FOR RESULTS IN THE [ug/kg] RANGE (PLANT SAMPLE).

Participant code	Technique code	Measurand mass fraction	Standard deviation	Relative std. dev., [%]	z -score	z' -score	ζ -score	R -score
221	5.2	36	4.3	11.94	-	-	-	-
242	1.22	200	23	11.50	-	-	-	-
126	1.23	1000	500	50.00	-	-	-	-
235	7.2	1166.52	164.83	14.13	-	-	-	-
204	1.21	3880**	400	10.31	-	-	-	-
161	2	4770**	230	4.82	-	-	-	-
T1 [ug/kg]								
242	1.22	120	60	50.00	-	-	-	-
204	1.21	710	200	28.17	-	-	-	-
161	2	790	60	7.59	-	-	-	-
Tm [ug/kg]								
217	5.1	9422	329.7	3.50	-	-	-	-
U [ug/kg]								
166	5.2	2.68**	0.18	6.72	-	-	-	-
152	5.2	20**	4	20.00	-	-	-	-
242	1.22	1740	100	5.75	-	-	-	-
204	1.21	2780	280	10.07	-	-	-	-
161	2	3270	350	10.70	-	-	-	-
V ($x_{pt} = 111$, $\sigma_{pt} = 20$, $u(x_{pt}) = 3$) [ug/kg]								
248	5.2	103	9.8	9.51	-0.3	-	-0.8	0.93
65	1.23	111.43	15	13.46	0.0	-	0.0	1.00
215	5.1	119.7	37	30.91	0.4	-	0.2	1.08
237	5.1	139	10	7.19	1.1	-	2.7	1.25
151	7.2	168.323	1	0.59	2.3	-	18.4	1.52
152	5.2	173	30	17.34	2.5	-	2.1	1.56
242	1.22	200*	40	20.00	3.6	-	2.2	1.80
194	5.1	260*	50	19.23	6.1	-	3.0	2.34
182	5.1	271*	29	10.70	6.6	-	5.5	2.44
206	1.22	282.888*	3.929	1.39	7.0	-	34.9	2.55
221	5.2	440*	69	15.68	13.5	-	4.8	3.96
161	2	560*	150	26.79	18.4	-	3.0	5.05
204	1.21	690*	120	17.39	23.7	-	4.8	6.22
105	1.32	1200*	76	6.33	44.6	-	14.3	10.81
137	1.22	1337*	430	32.16	50.2	-	2.9	12.05
W [ug/kg]								
242	1.22	525	200	38.10	-	-	-	-

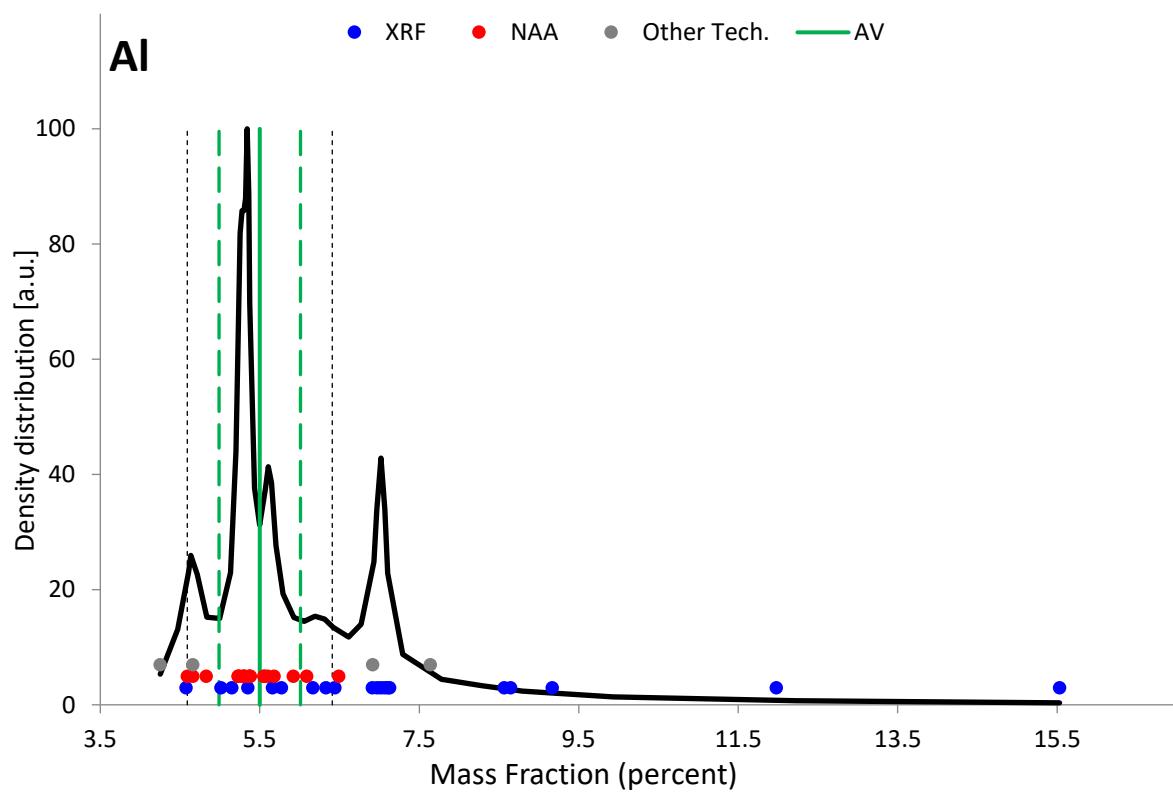


FIG. 10. Density distribution function for the measurand Al (Clay sample).

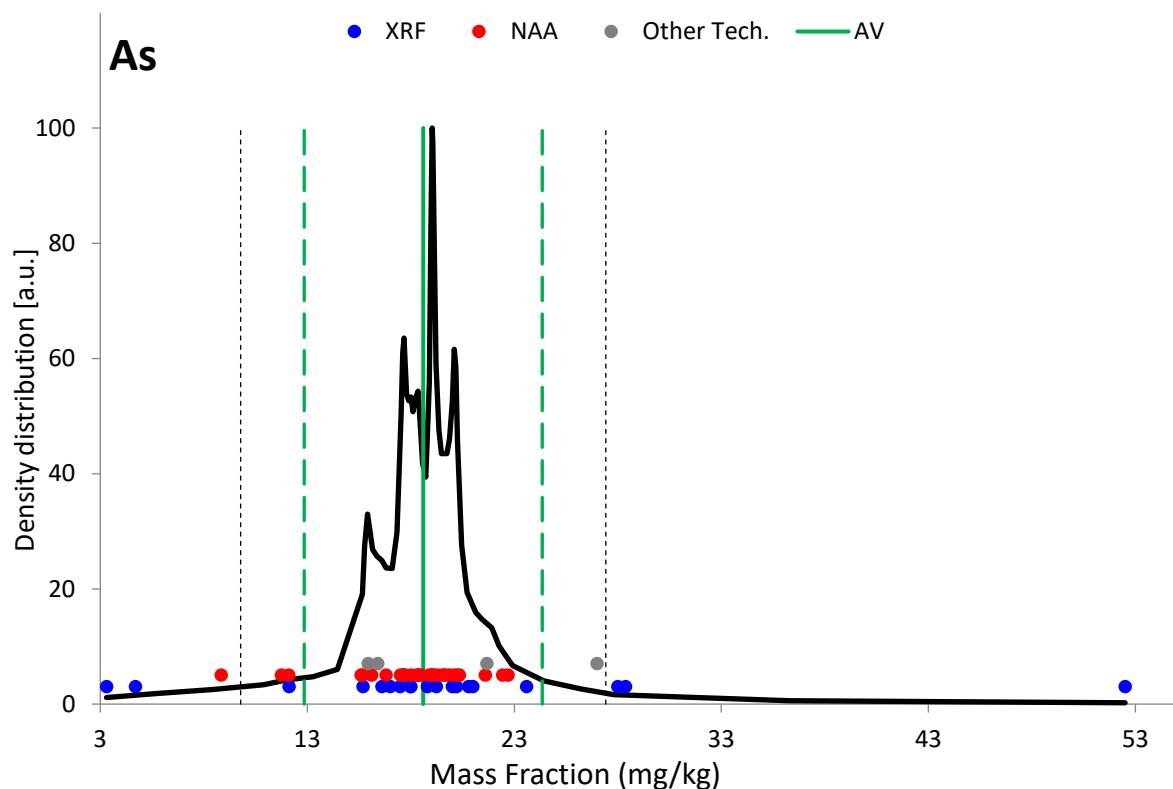


FIG. 11. Density distribution function for the measurand As (Clay sample).

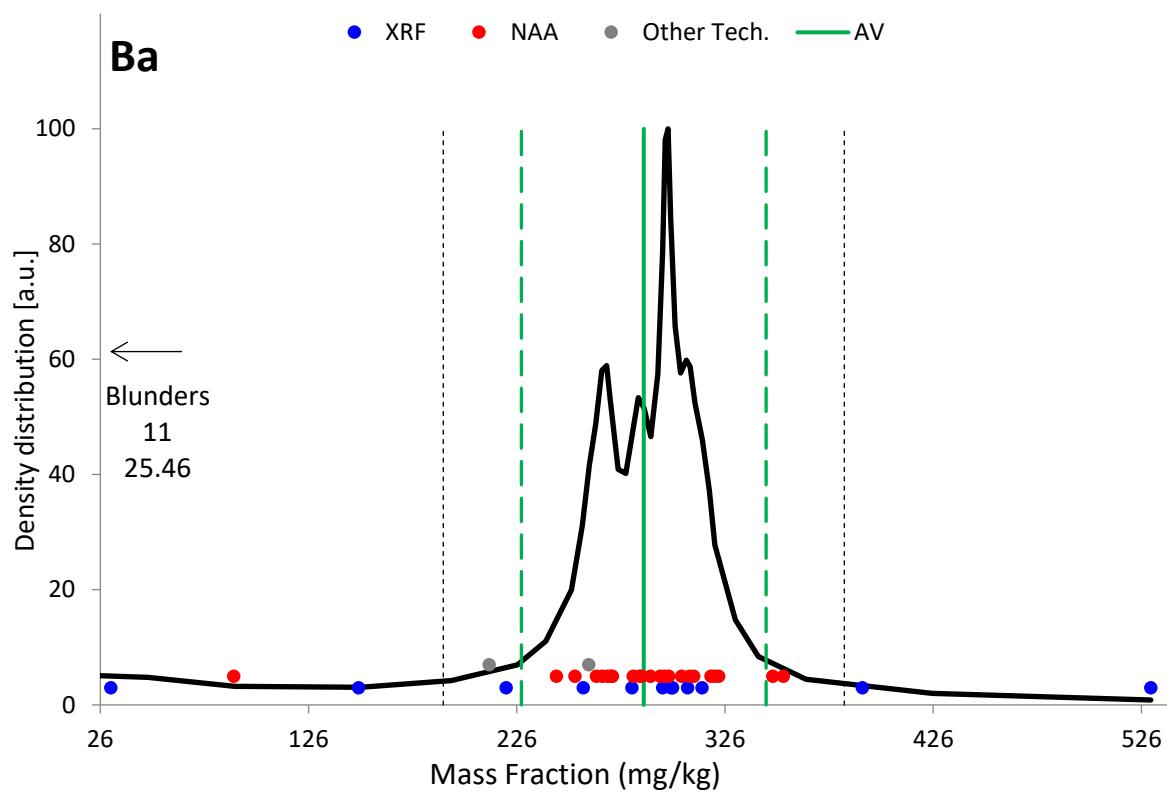


FIG. 12. Density distribution function for the measurand Ba (Clay sample).

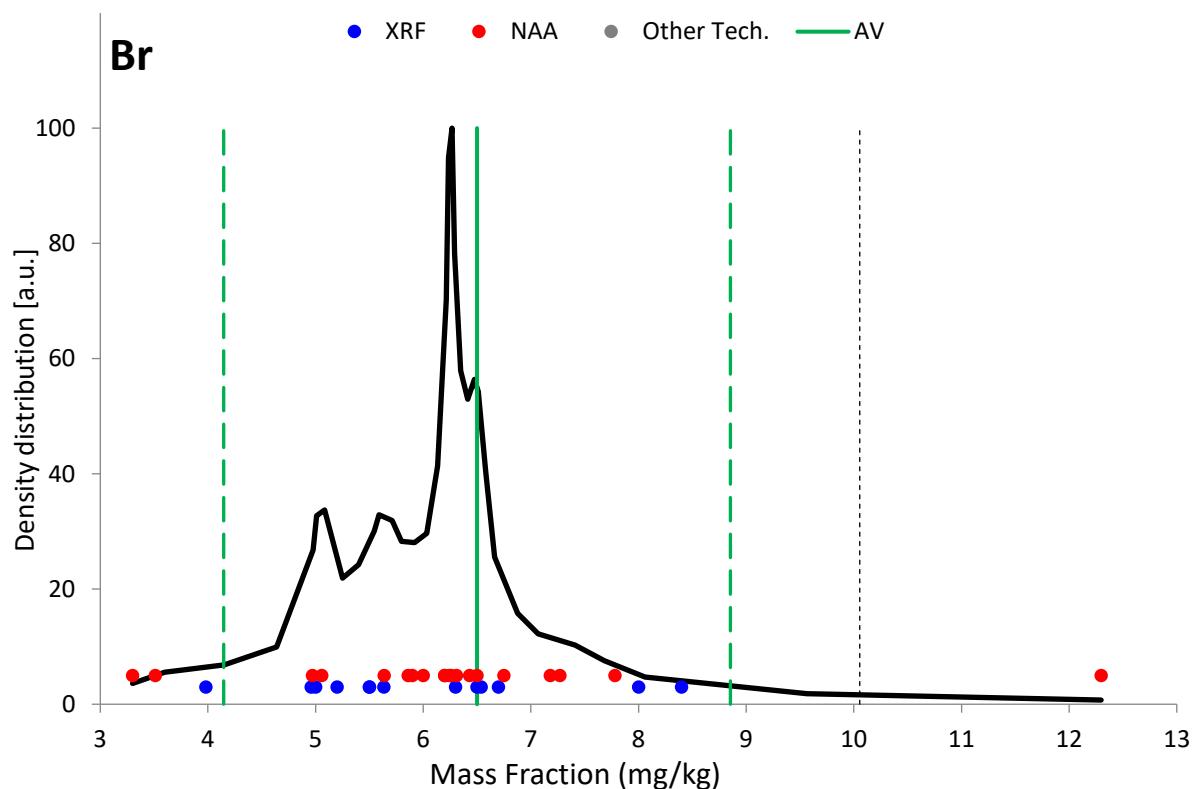


FIG. 13. Density distribution function for the measurand Br (Clay sample).

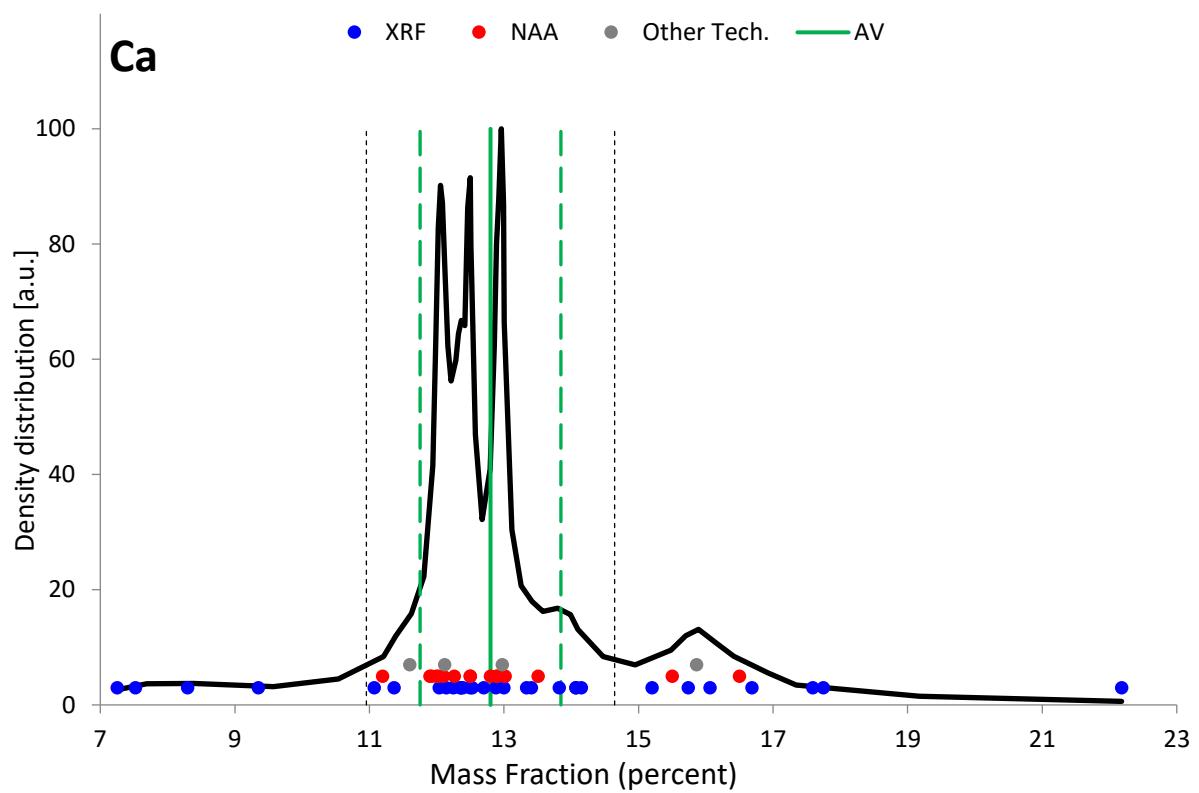


FIG. 14. Density distribution function for the measurand Ca (Clay sample).

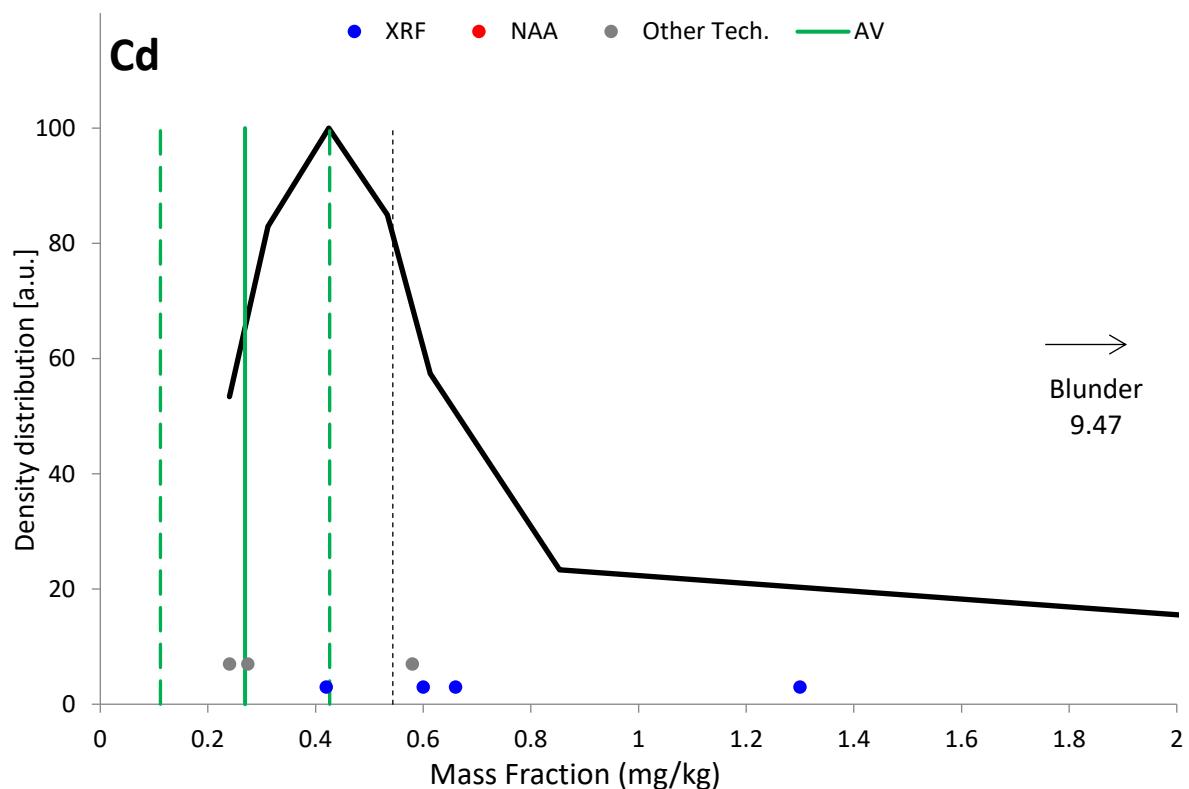


FIG. 15. Density distribution function for the measurand Cd (Clay sample).

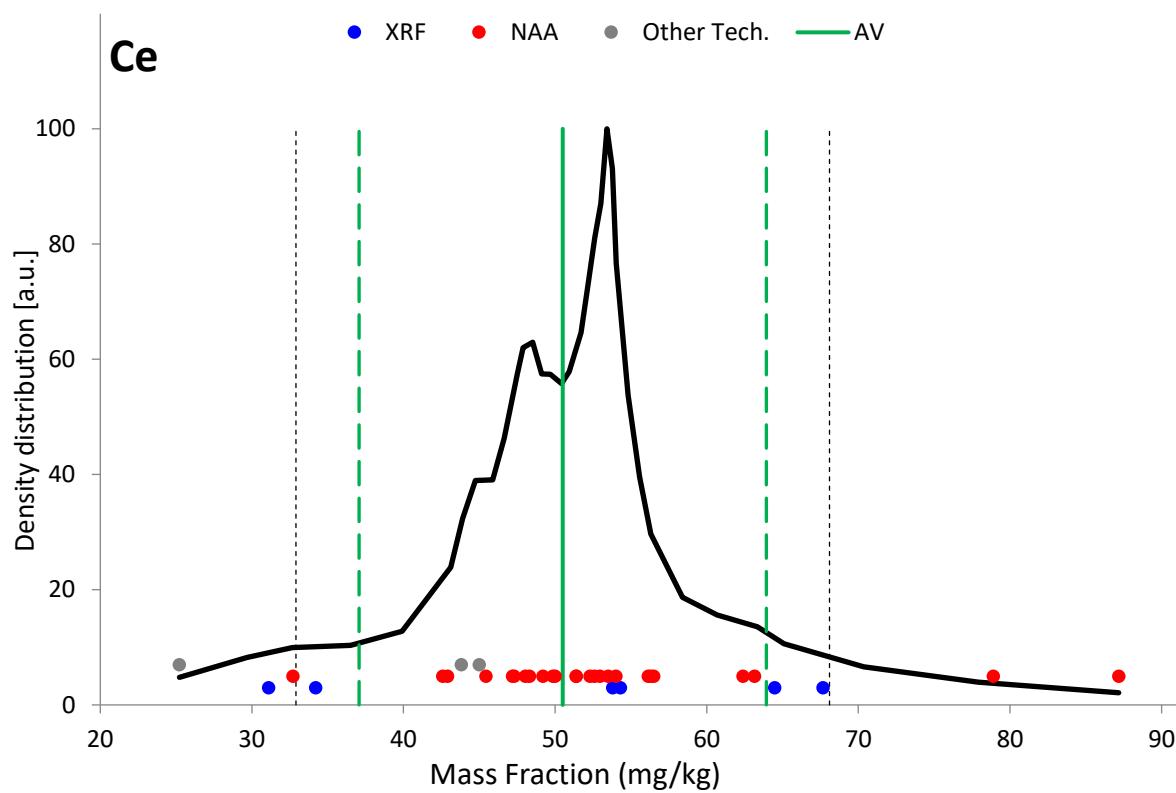


FIG. 16. Density distribution function for the measurand Ce (Clay sample).

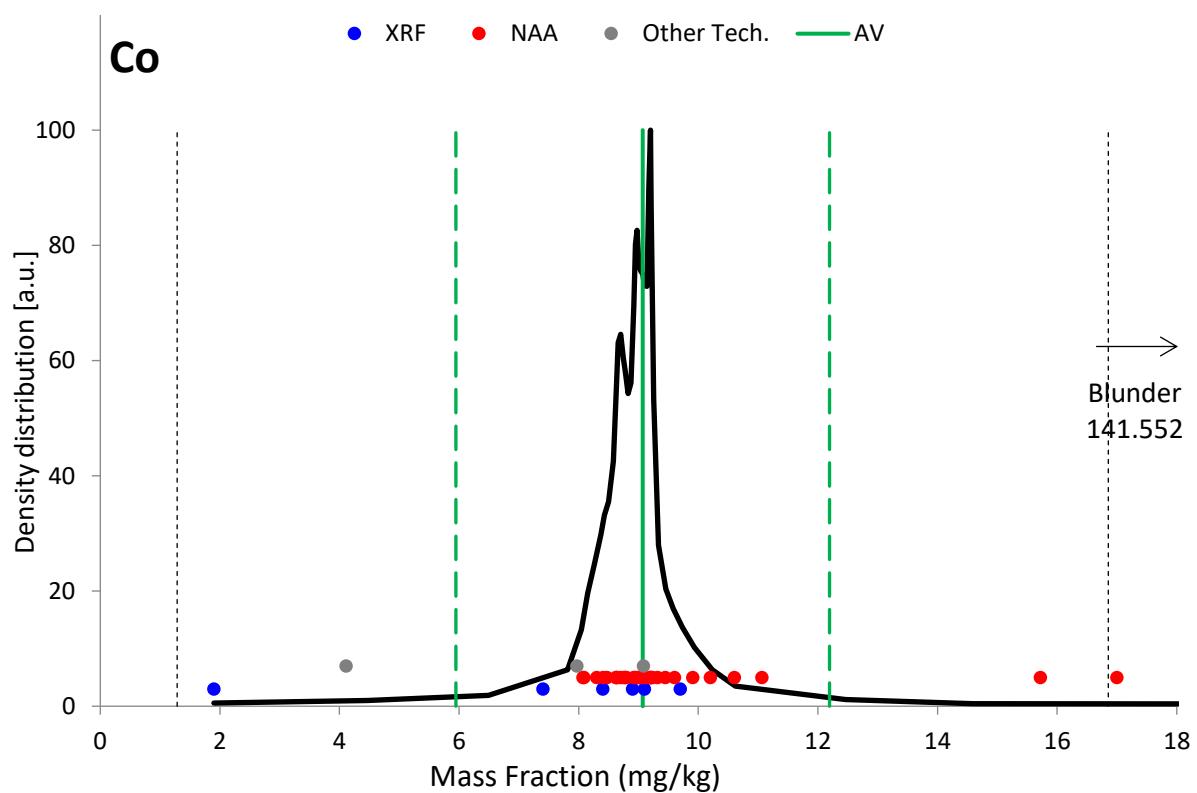


FIG. 17. Density distribution function for the measurand Co (Clay sample).

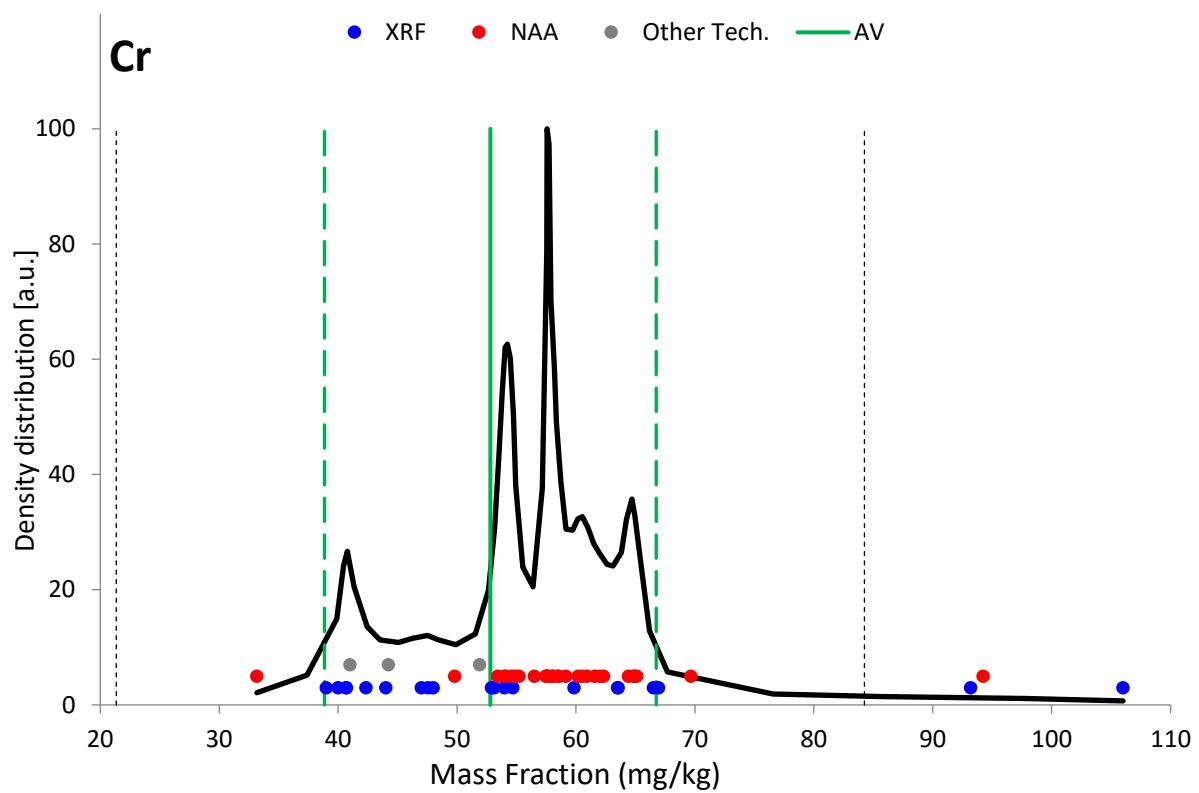


FIG. 18. Density distribution function for the measurand Cr (Clay sample).

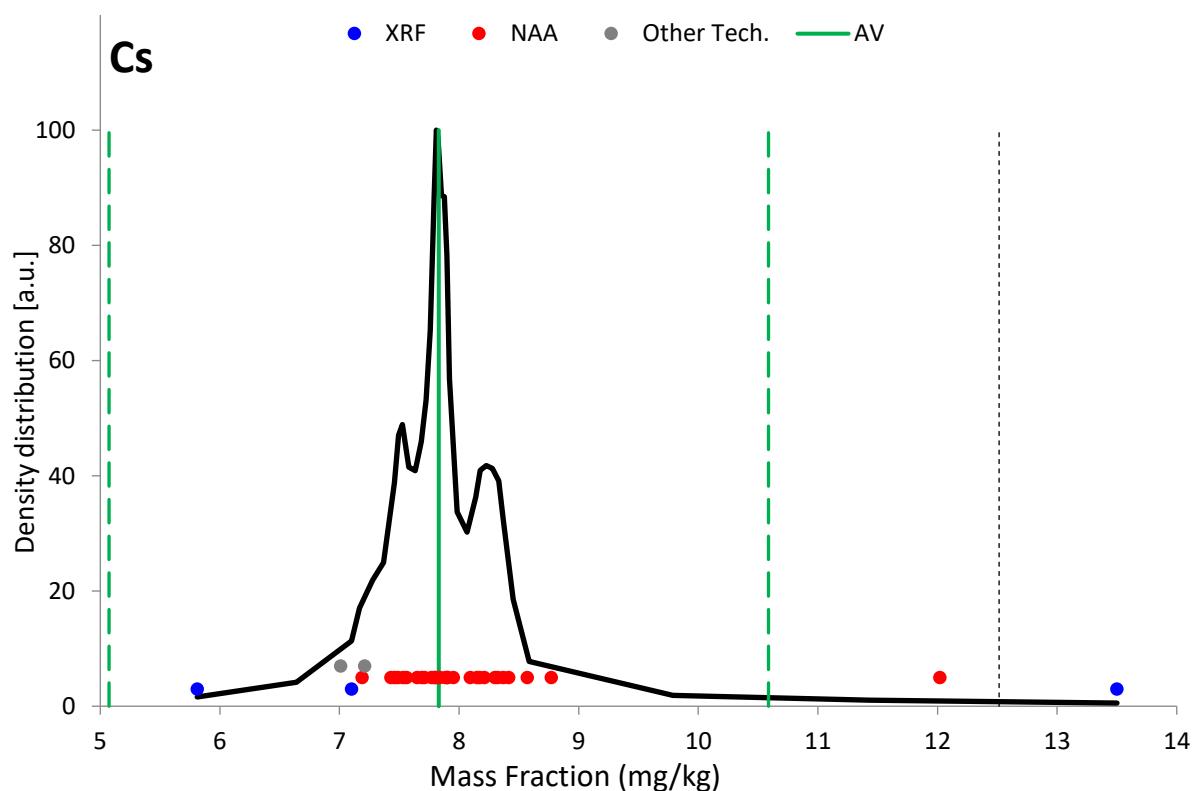


FIG. 19. Density distribution function for the measurand Cs (Clay sample).

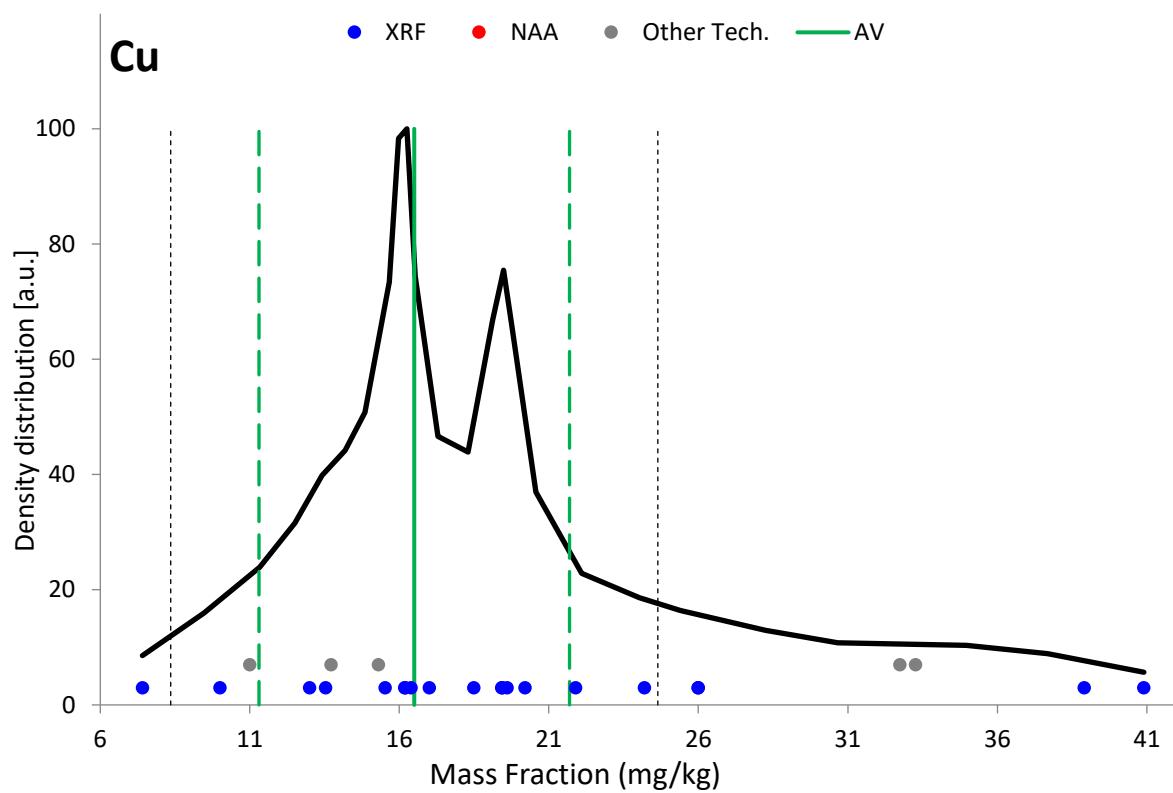


FIG. 20. Density distribution function for the measurand Cu (Clay sample).

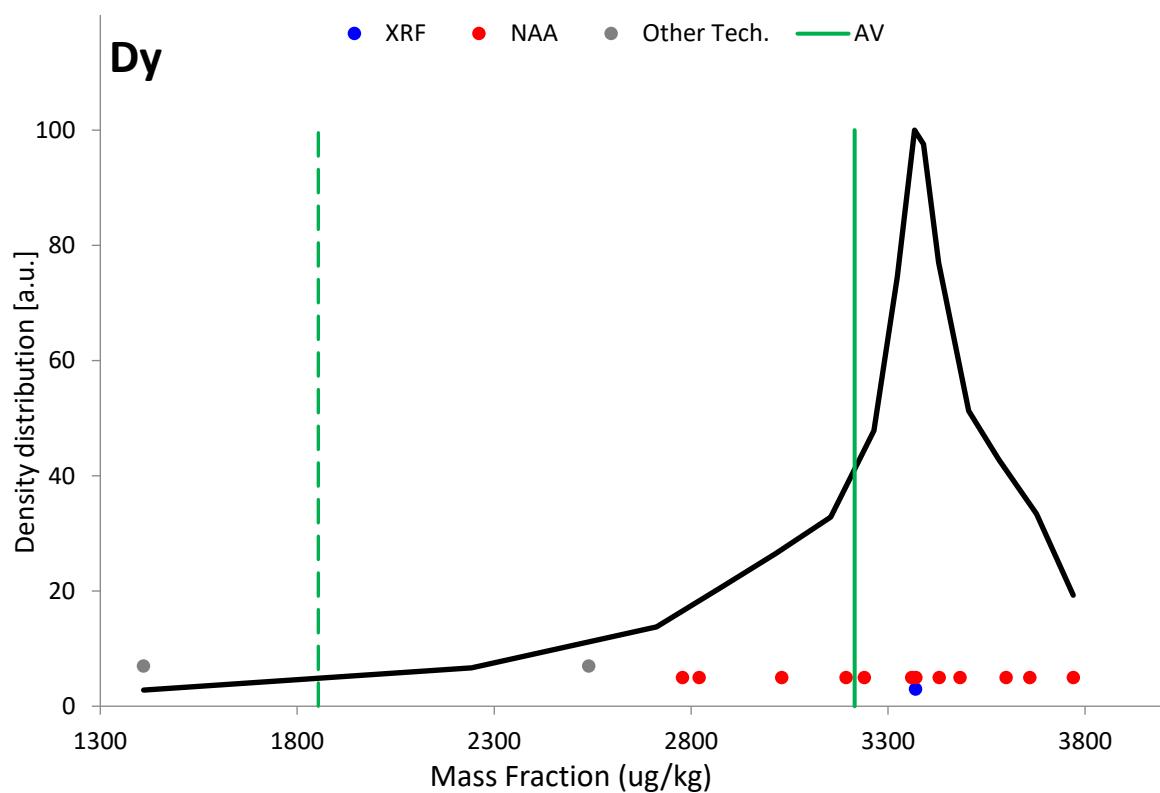


FIG. 21. Density distribution function for the measurand Dy (Clay sample).

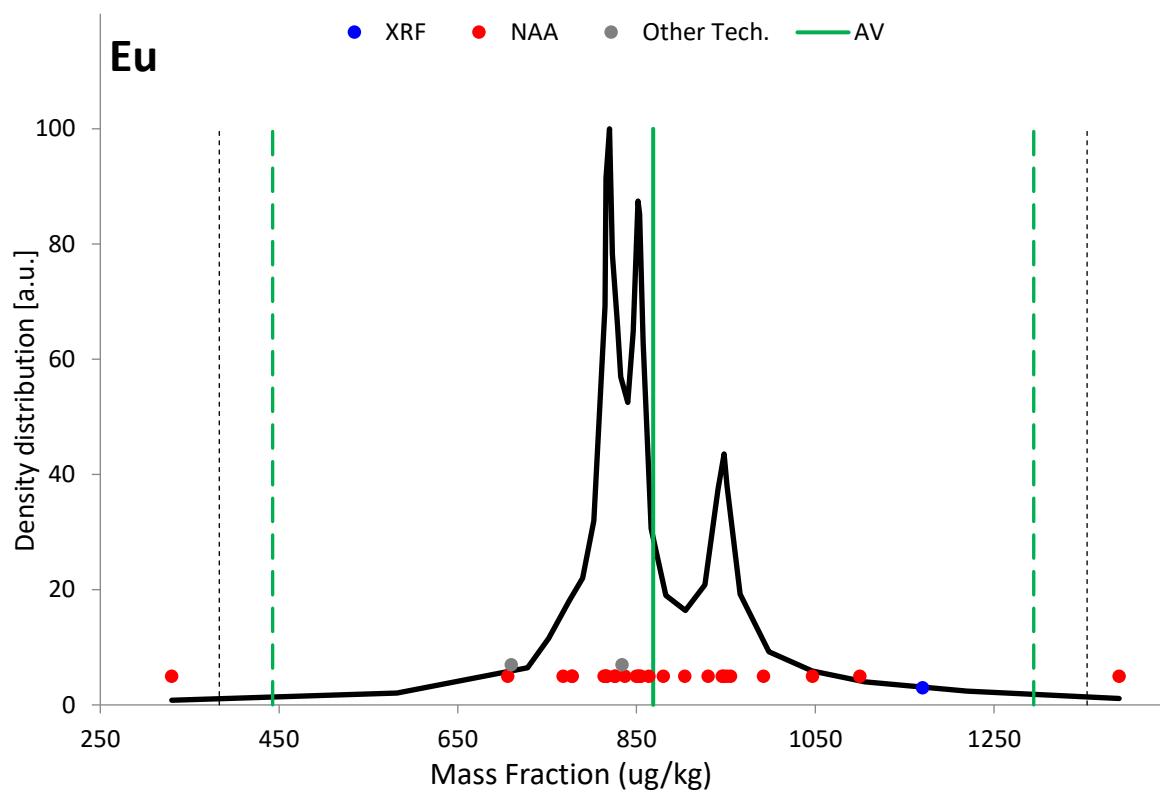


FIG. 22. Density distribution function for the measurand Eu (Clay sample).

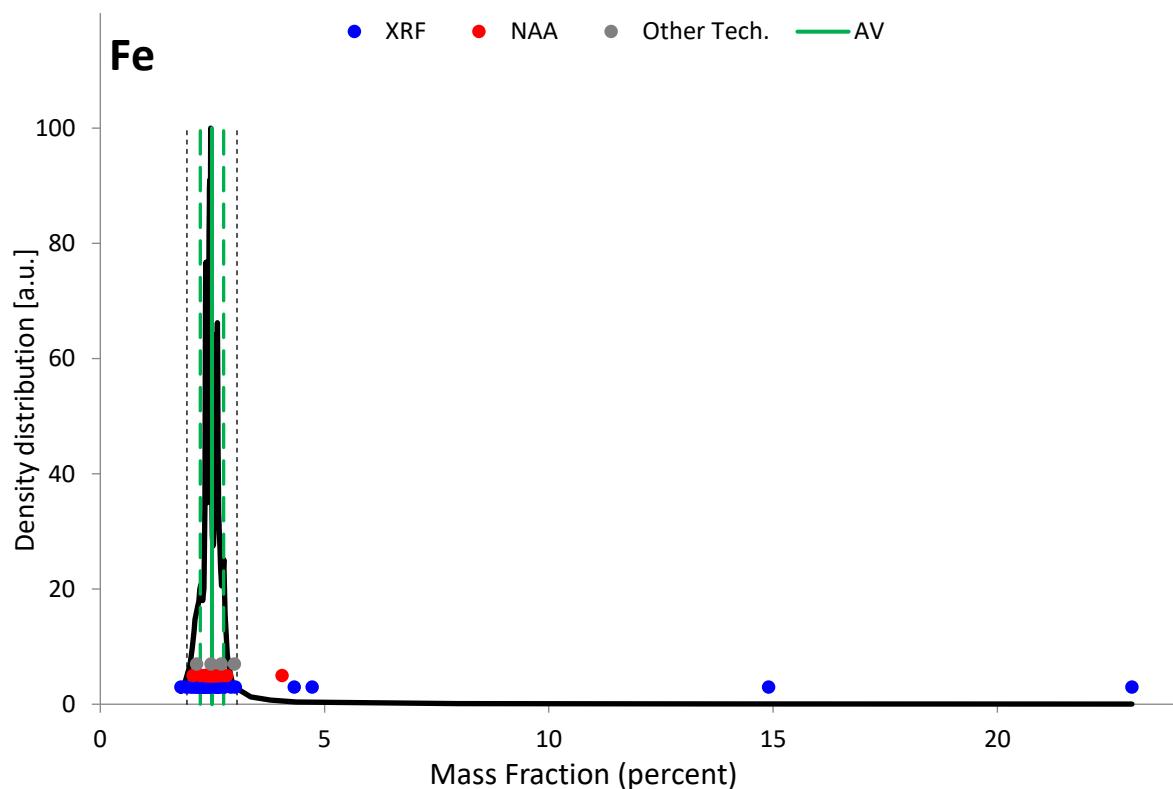


FIG. 23. Density distribution function for the measurand Fe (Clay sample).

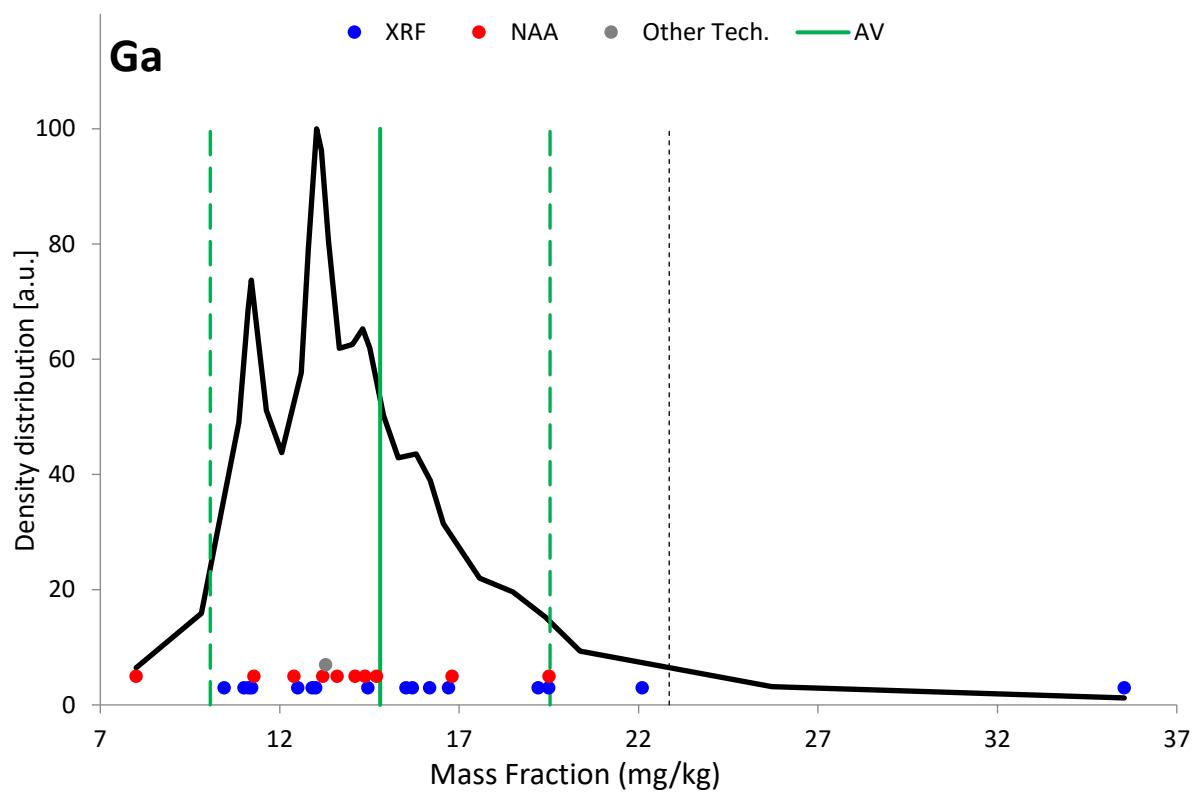


FIG. 24. Density distribution function for the measurand Ga (Clay sample).

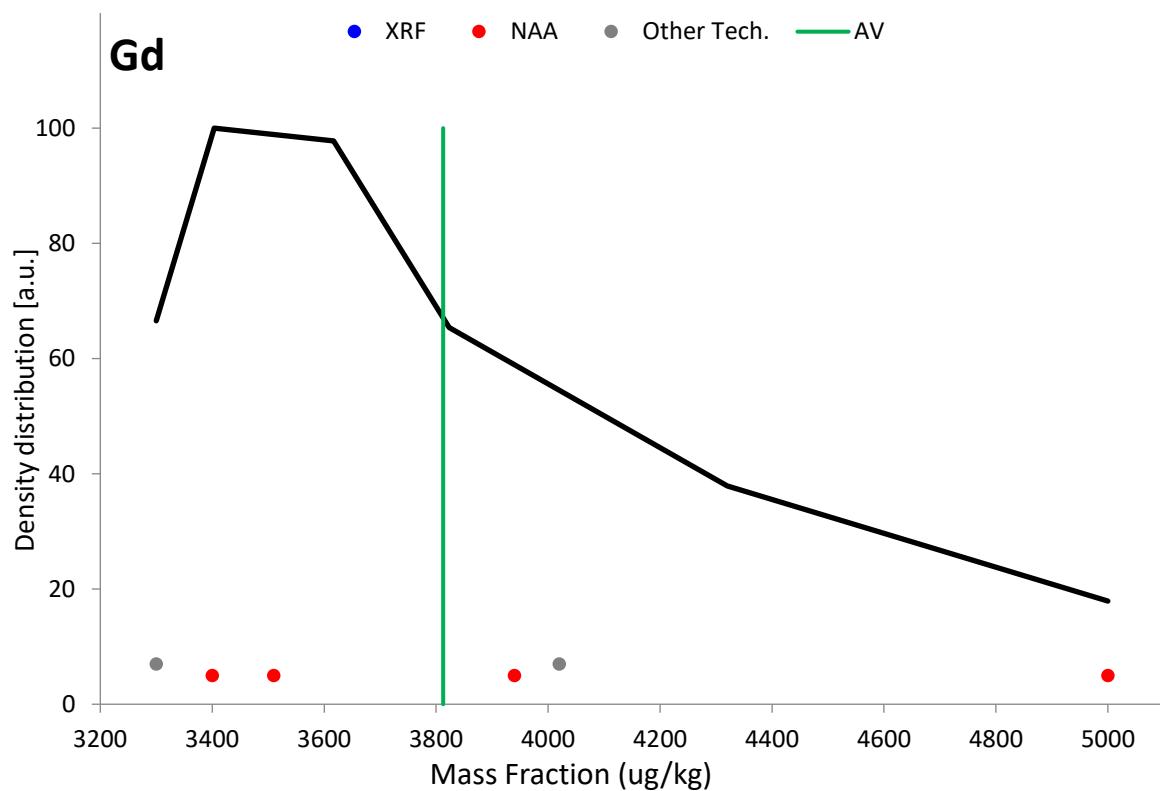


FIG. 25. Density distribution function for the measurand Gd (Clay sample).

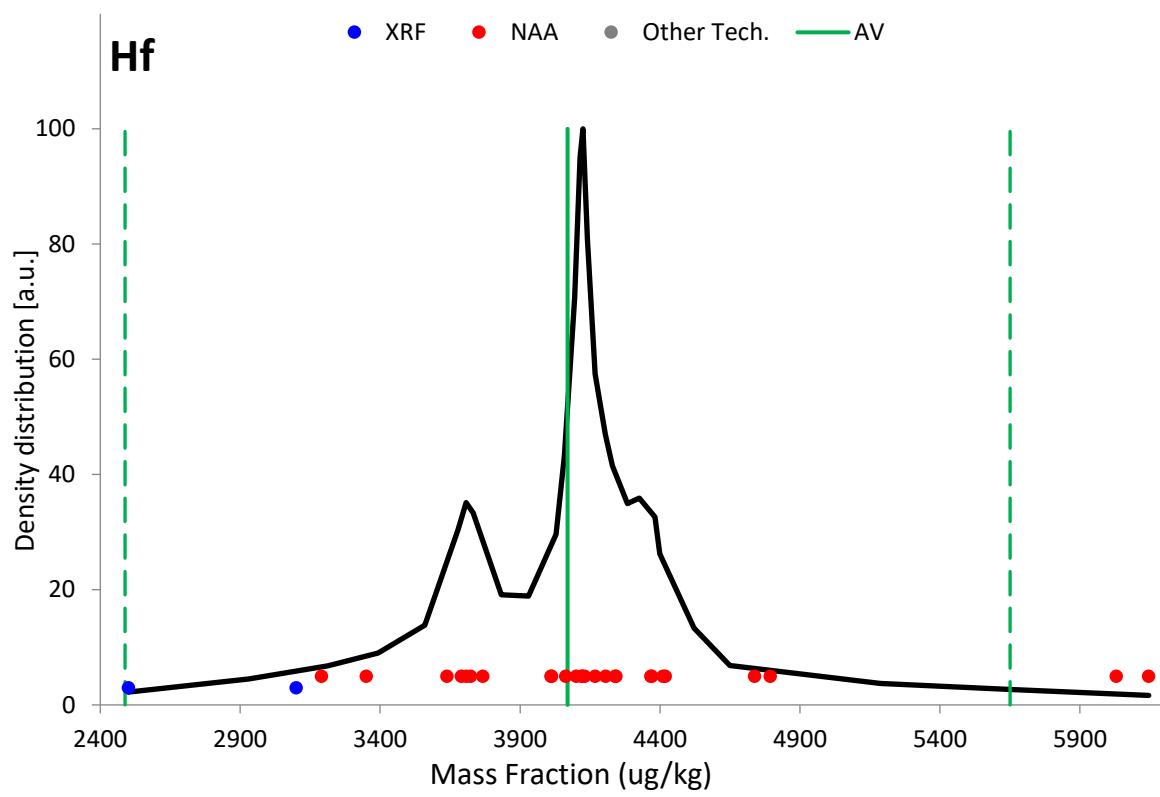


FIG. 26. Density distribution function for the measurand Hf (Clay sample).

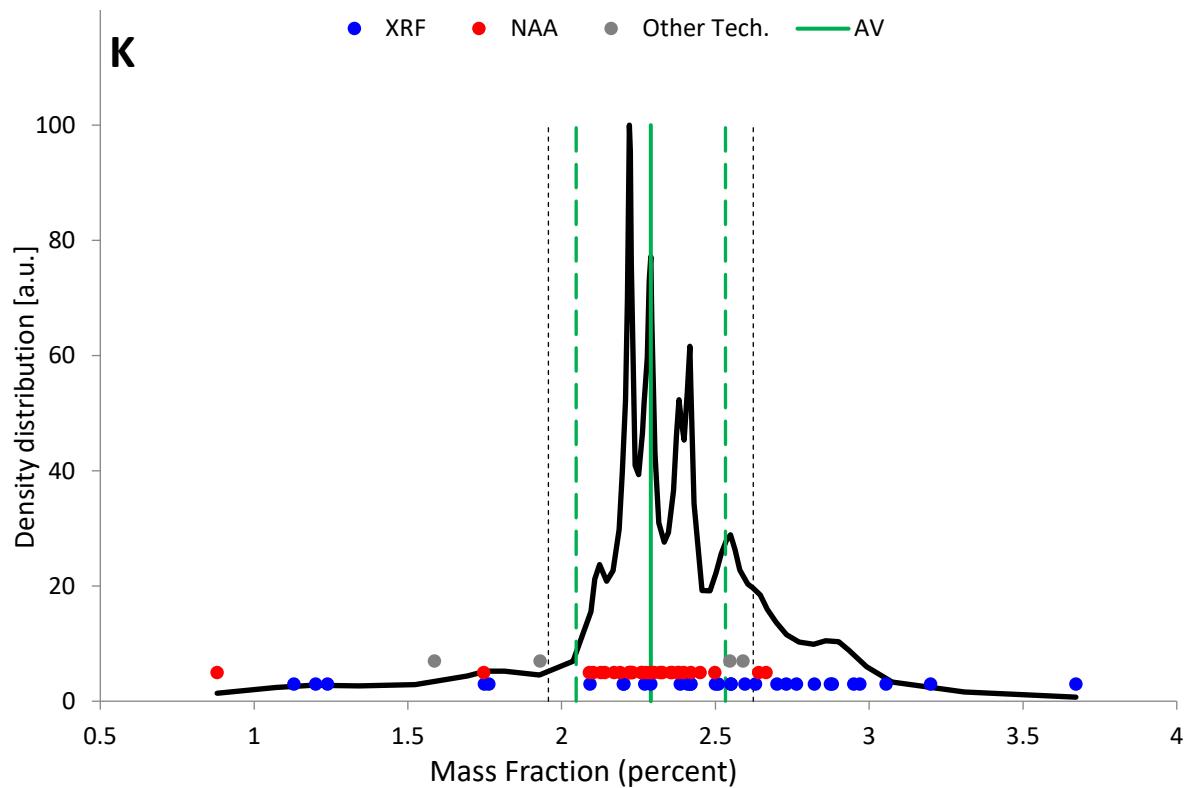


FIG. 27. Density distribution function for the measurand K (Clay sample).

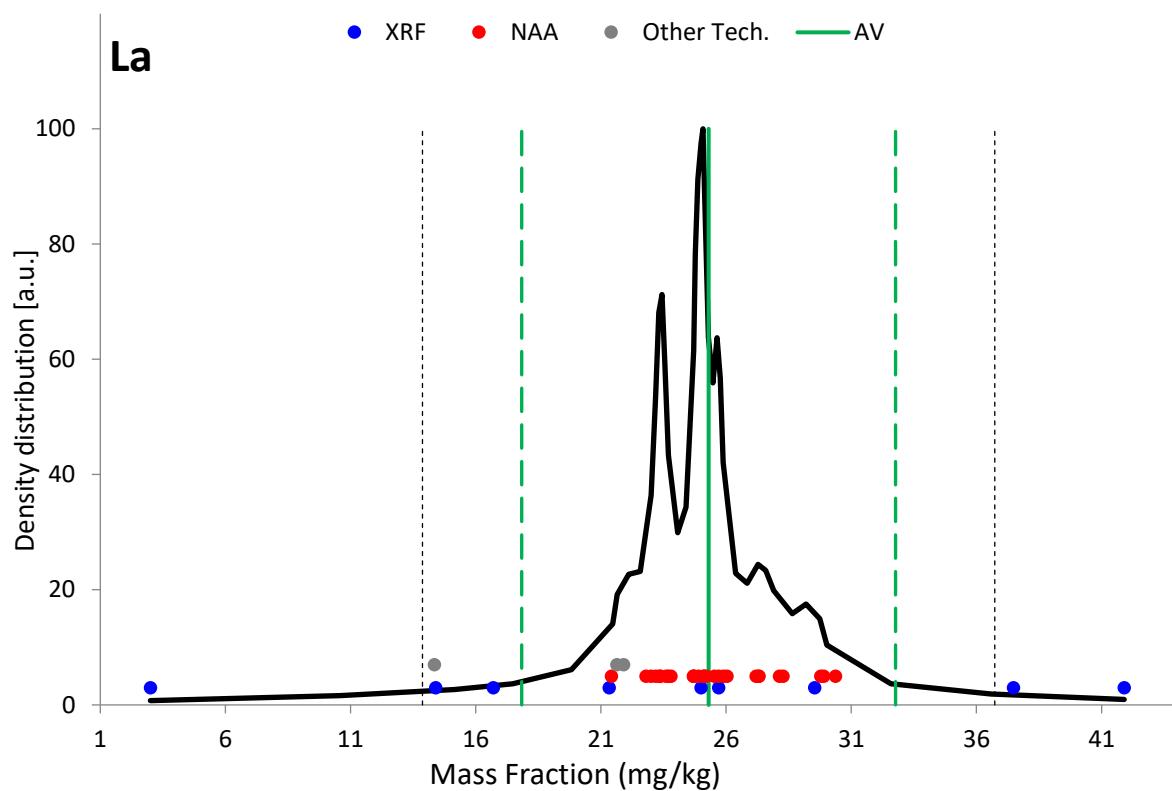


FIG. 28. Density distribution function for the measurand La (Clay sample).

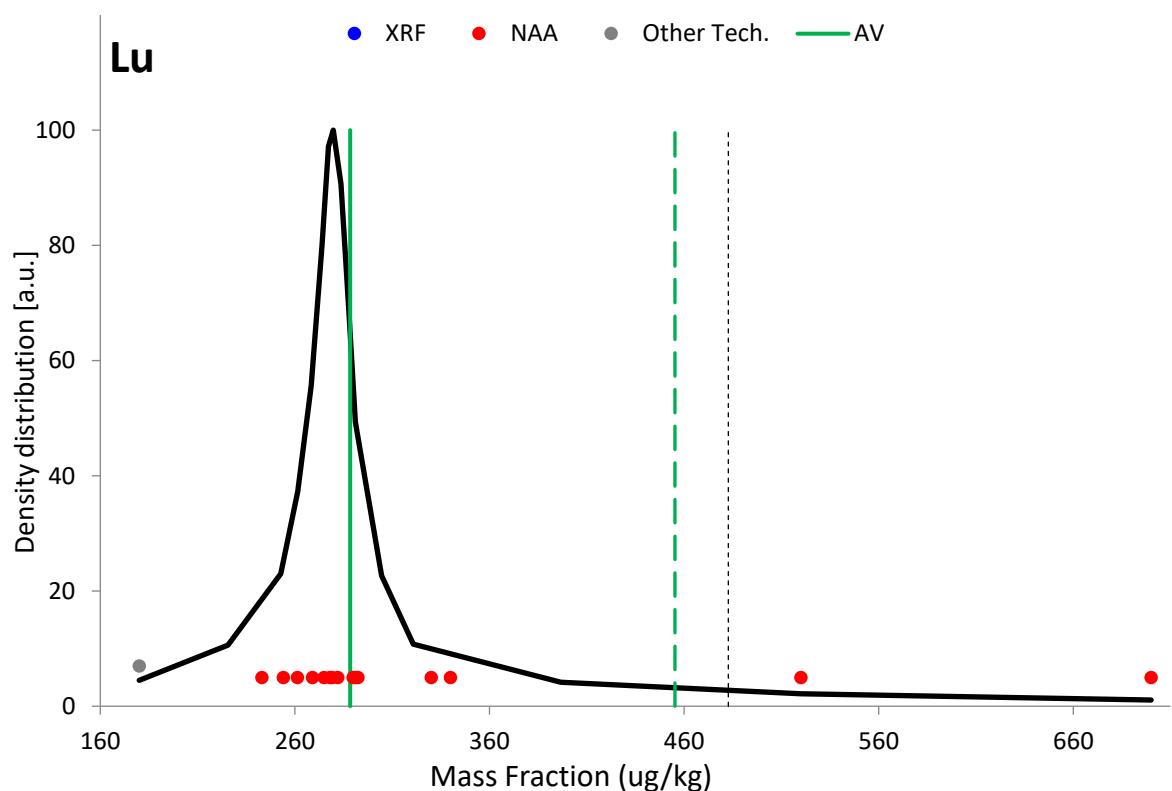


FIG. 29. Density distribution function for the measurand Lu (Clay sample).

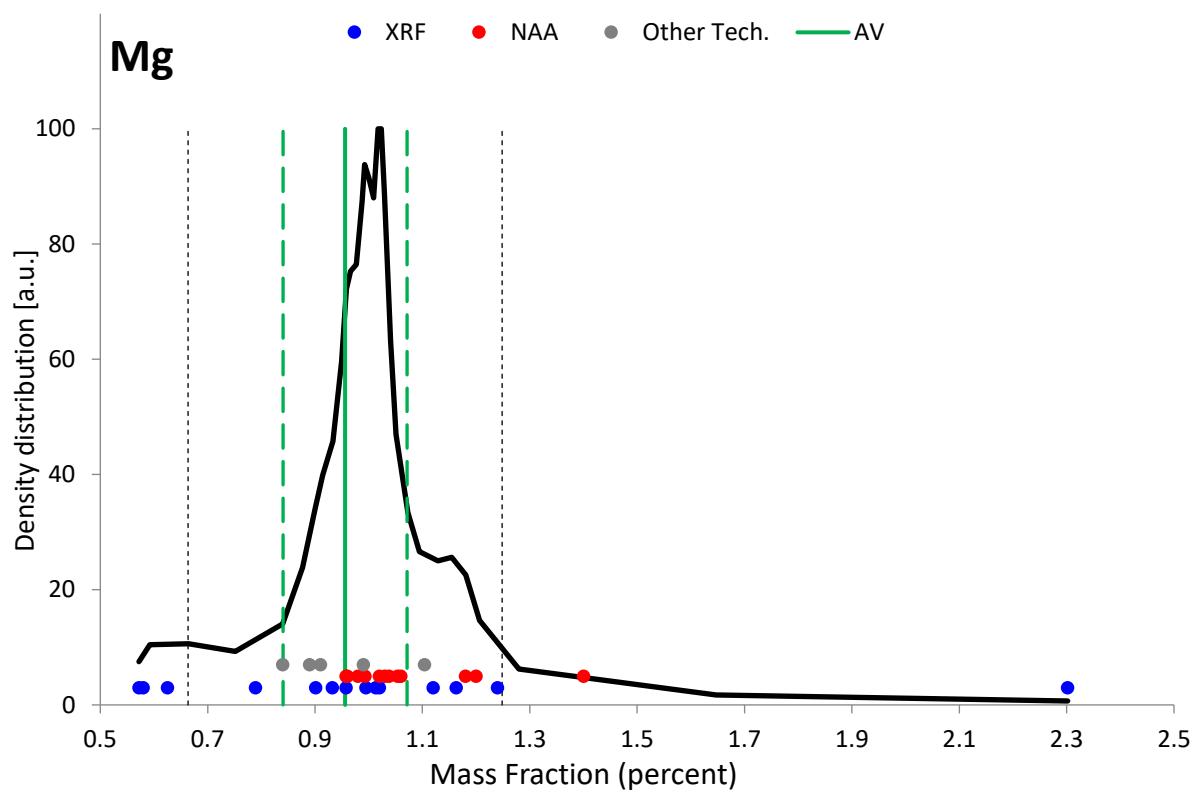


FIG. 30. Density distribution function for the measurand Mg (Clay sample).

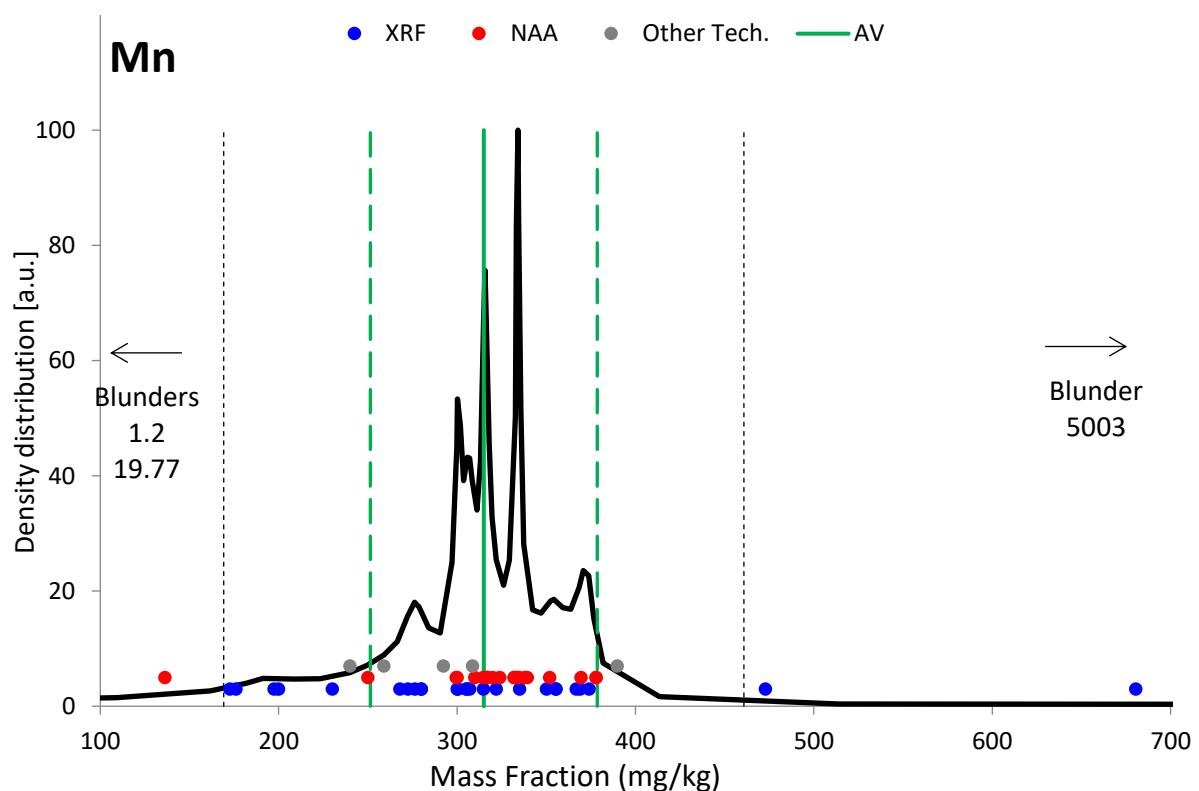


FIG. 31. Density distribution function for the measurand Mn (Clay sample).

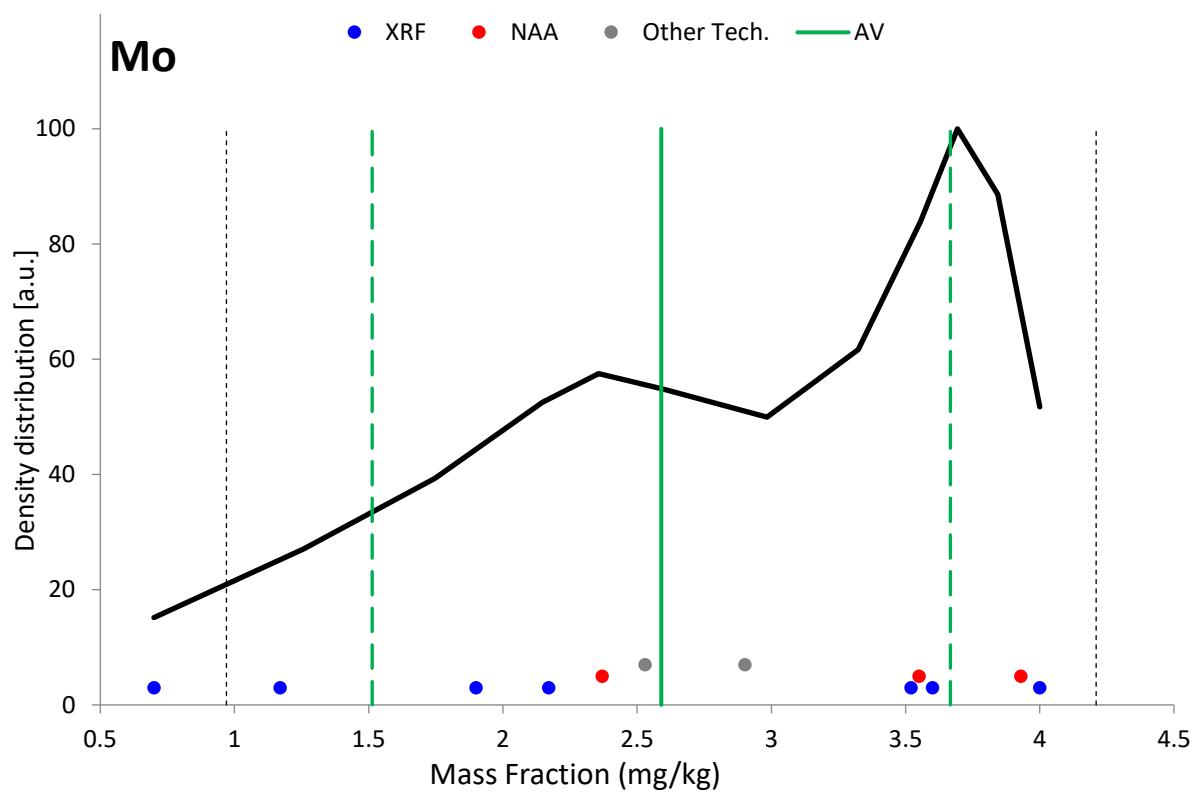


FIG. 32. Density distribution function for the measurand Mo (Clay sample).

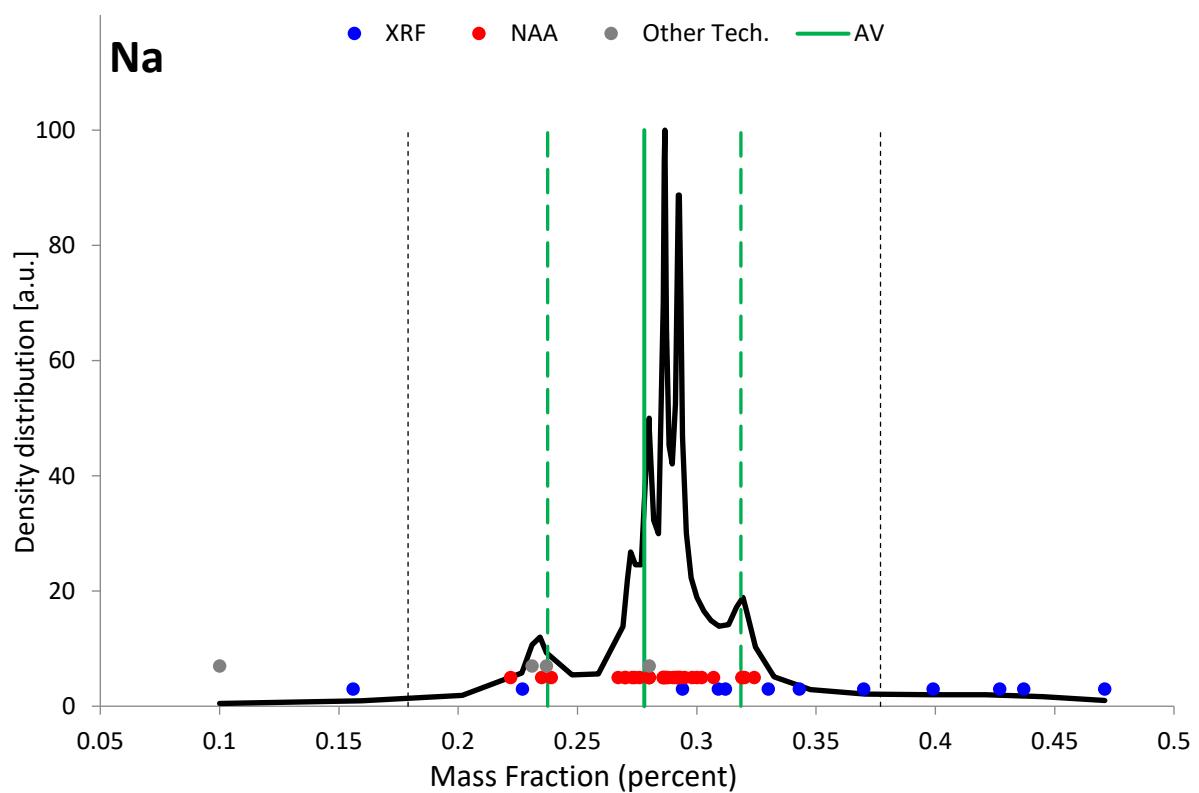


FIG. 33. Density distribution function for the measurand Na (Clay sample).

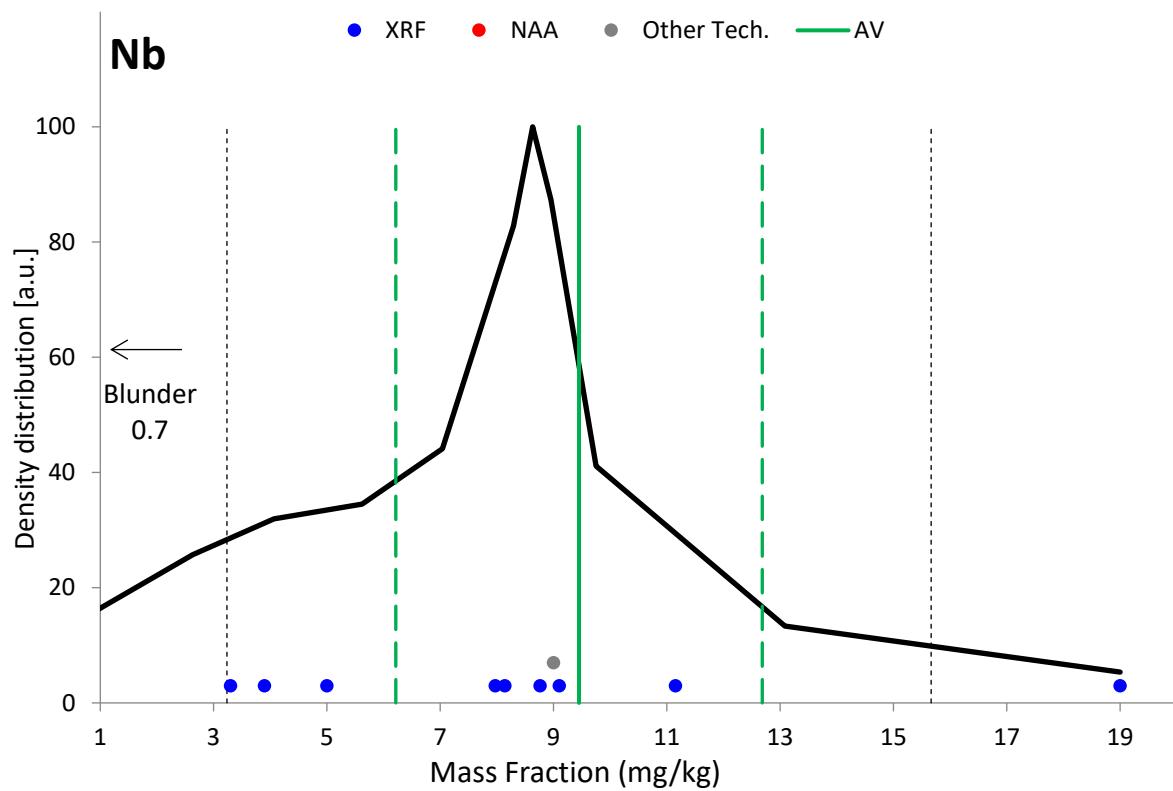


FIG. 34. Density distribution function for the measurand Nb (Clay sample).

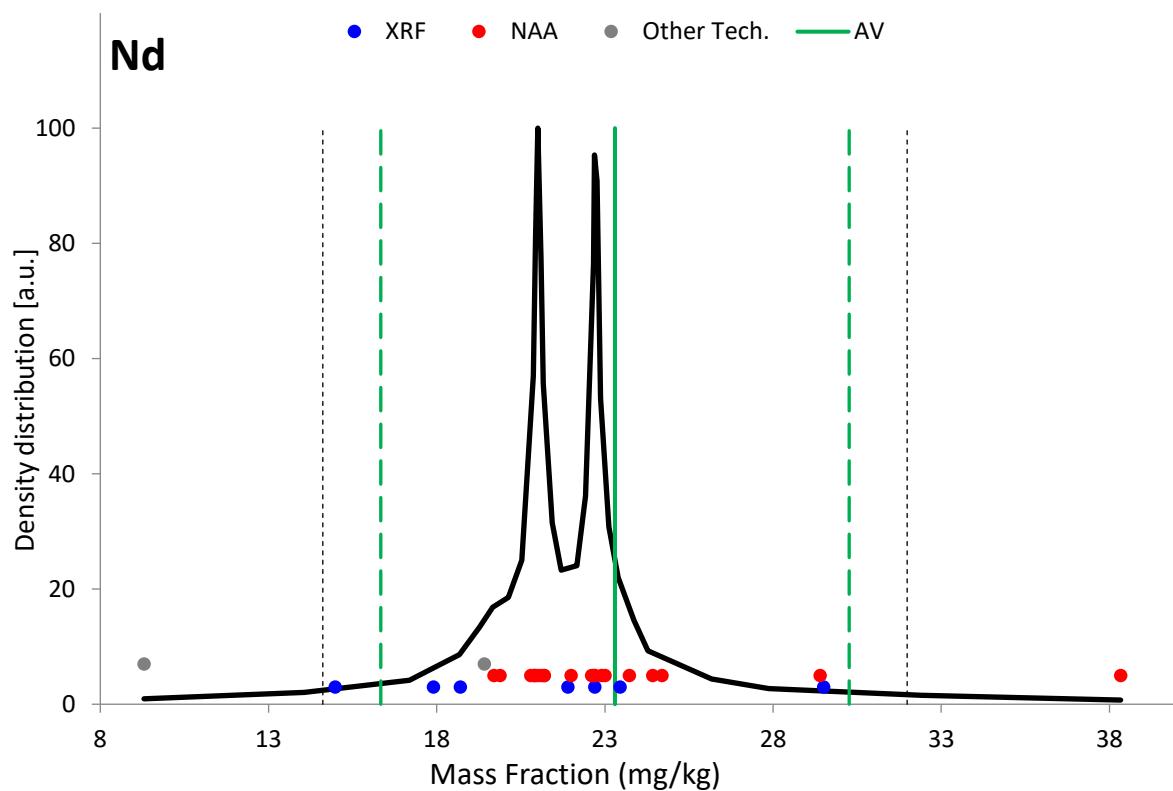


FIG. 35. Density distribution function for the measurand Nd (Clay sample).

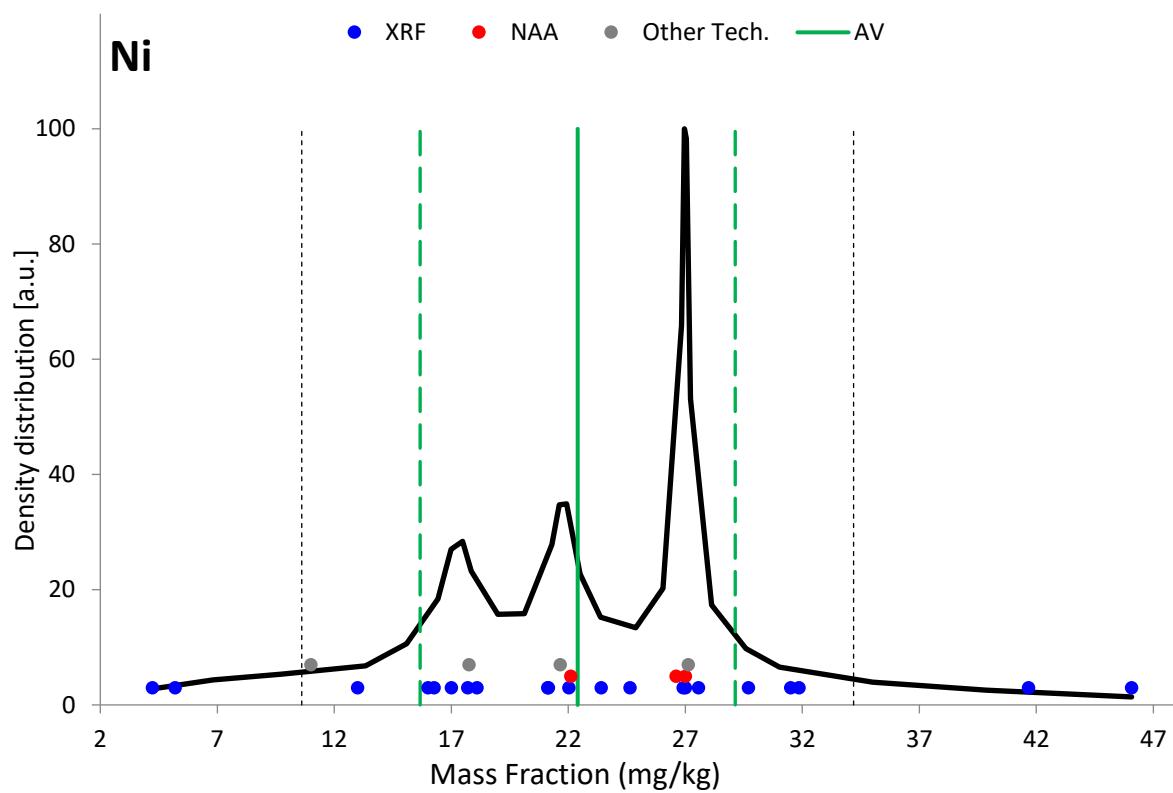


FIG. 36. Density distribution function for the measurand Ni (Clay sample).

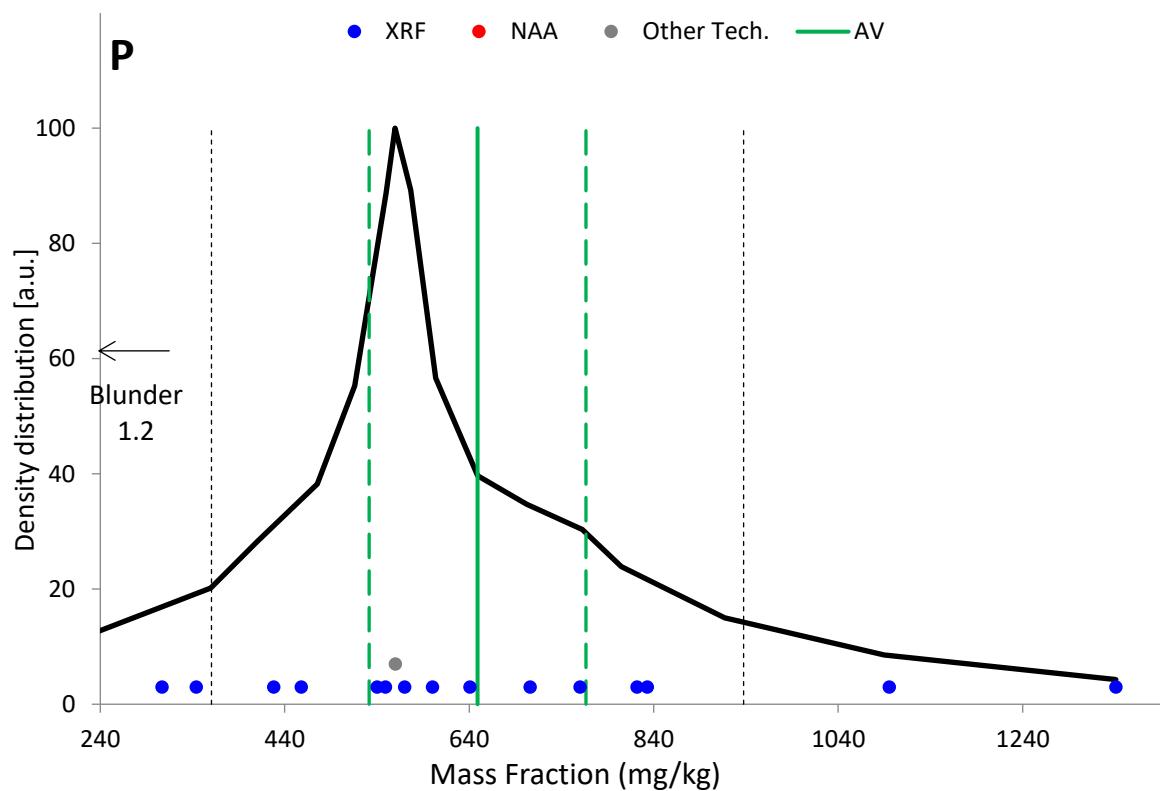


FIG. 37. Density distribution function for the measurand P (Clay sample).

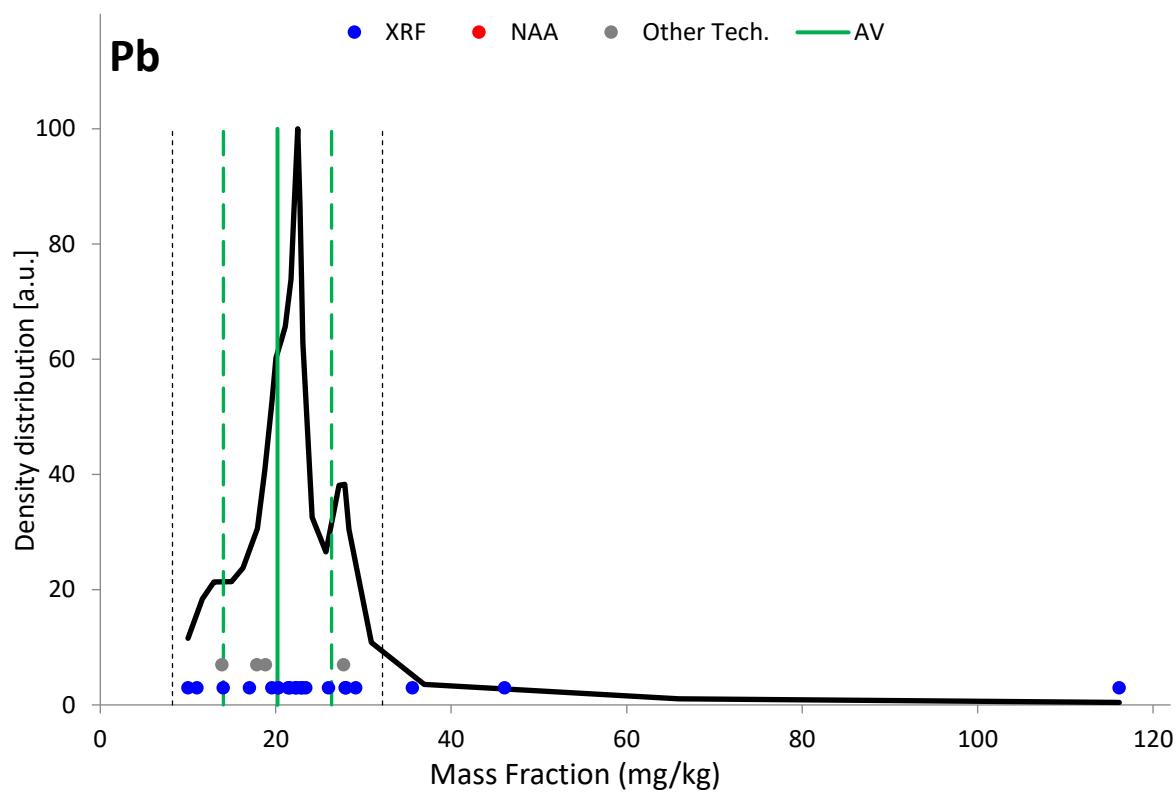


FIG. 38. Density distribution function for the measurand Pb (Clay sample).

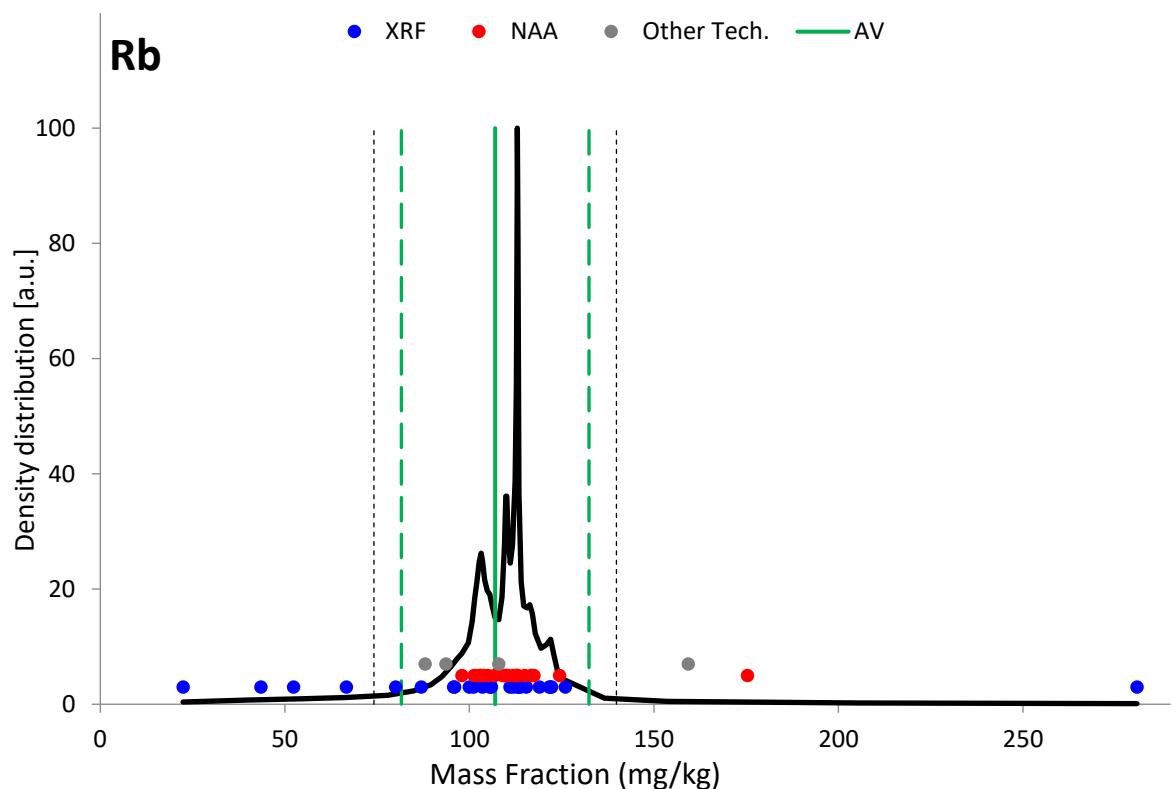


FIG. 39. Density distribution function for the measurand Rb (Clay sample).

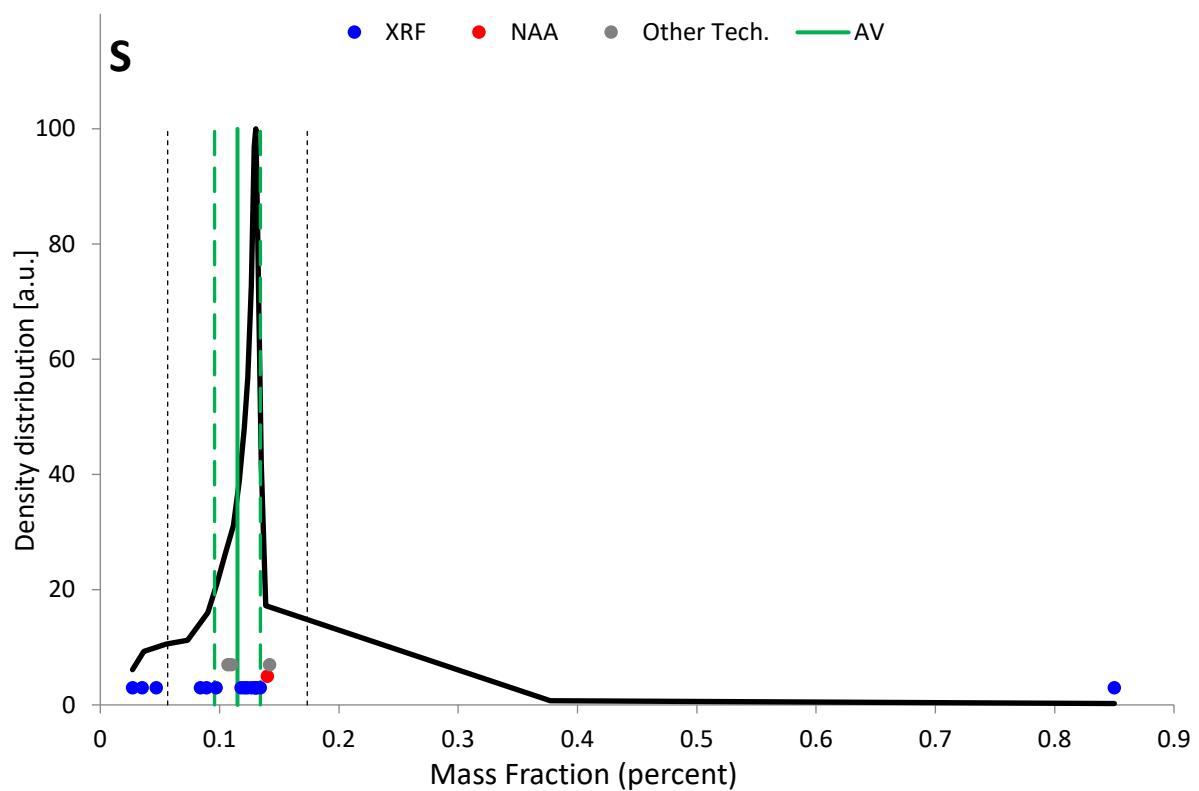


FIG. 40. Density distribution function for the measurand S (Clay sample).

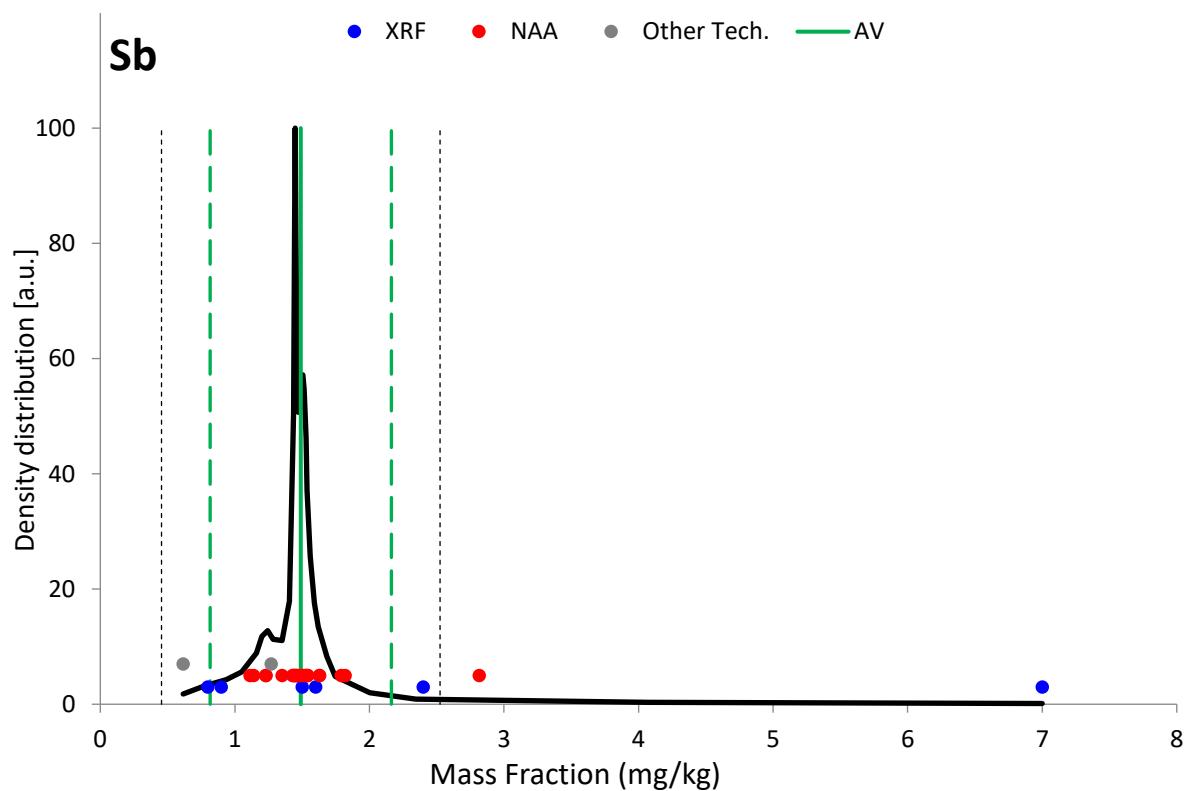


FIG. 41. Density distribution function for the measurand Sb (Clay sample).

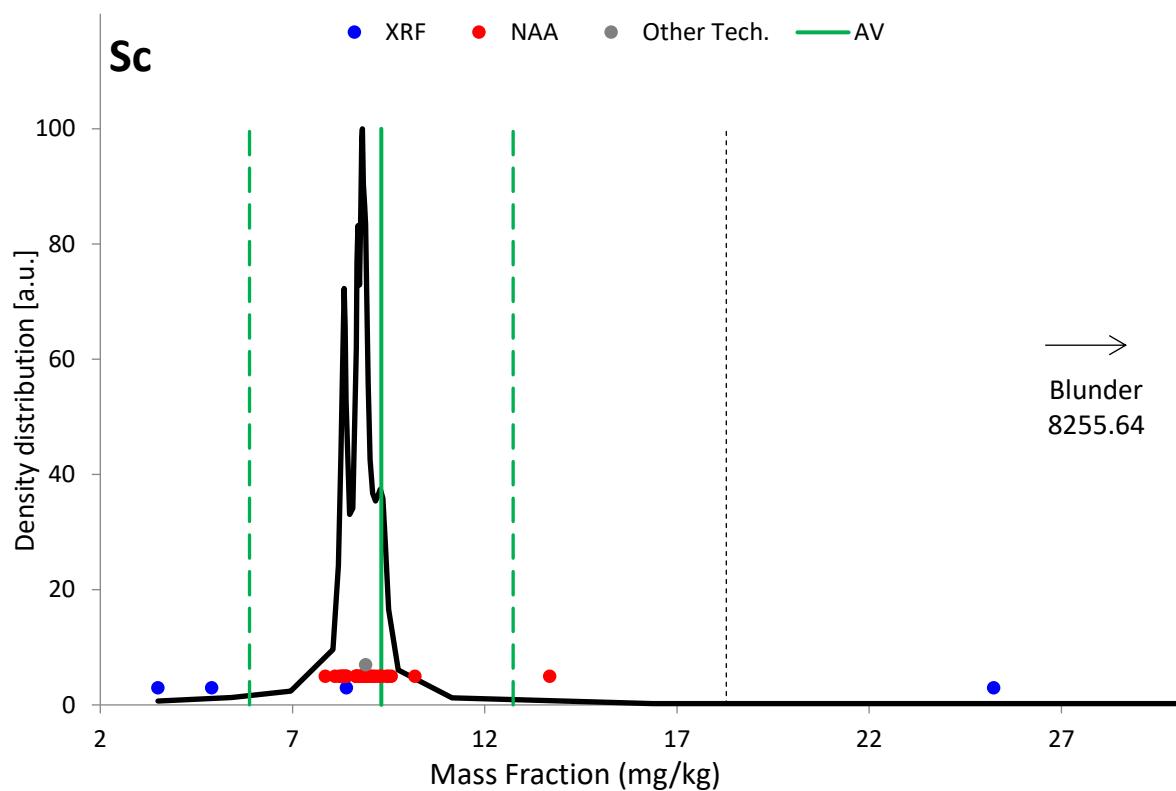


FIG. 42. Density distribution function for the measurand Sc (Clay sample).

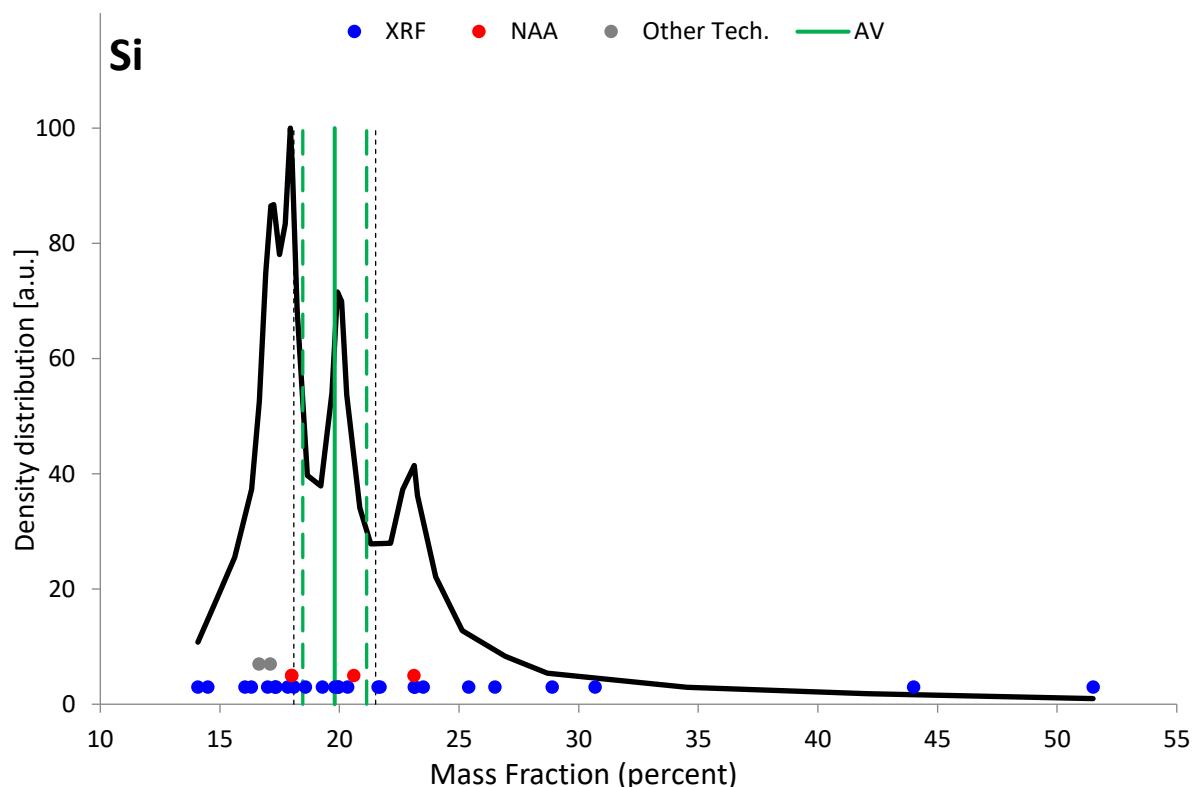


FIG. 43. Density distribution function for the measurand Si (Clay sample).

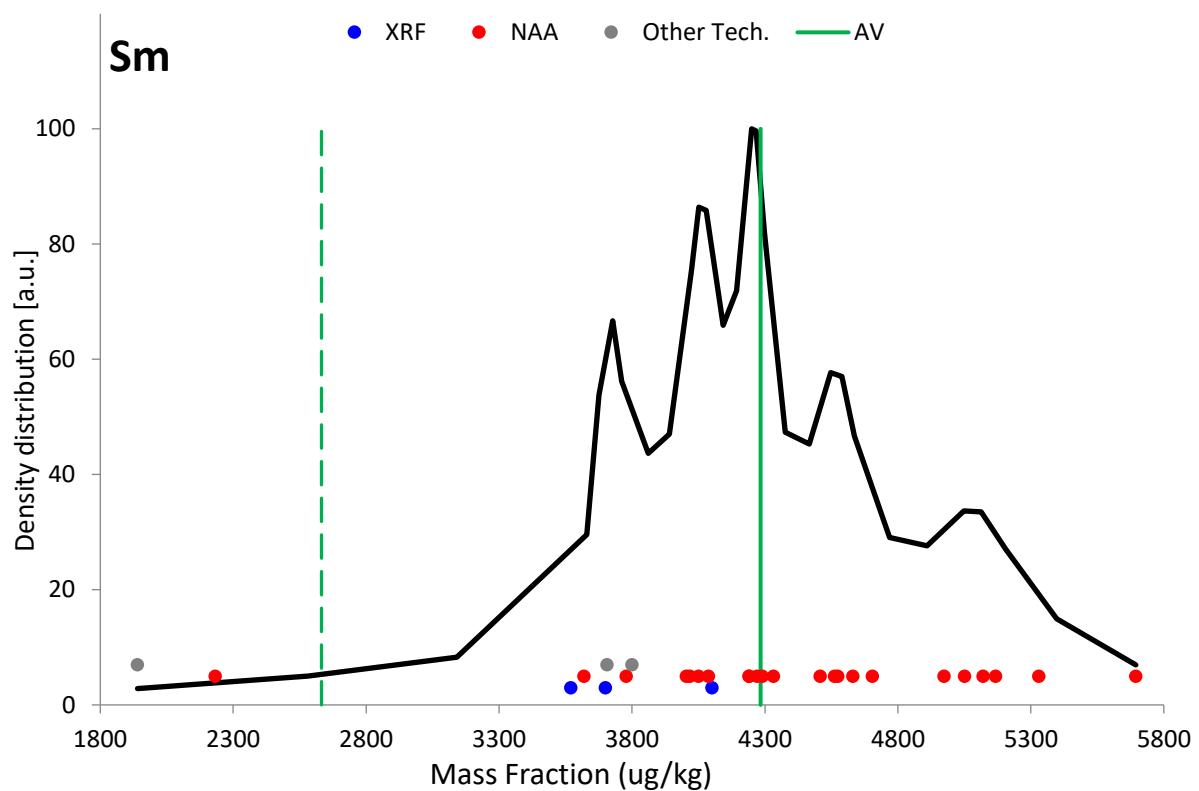


FIG. 44. Density distribution function for the measurand Sm (Clay sample).

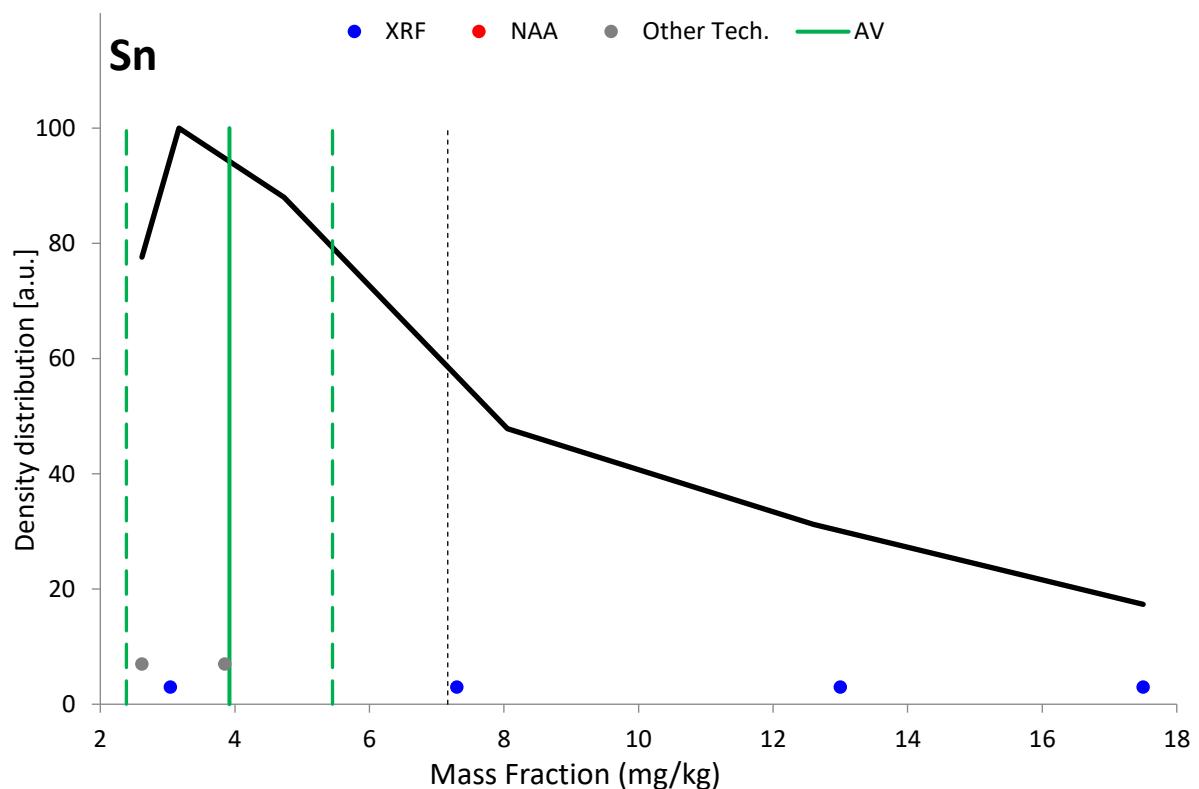


FIG. 45. Density distribution function for the measurand Sn (Clay sample).

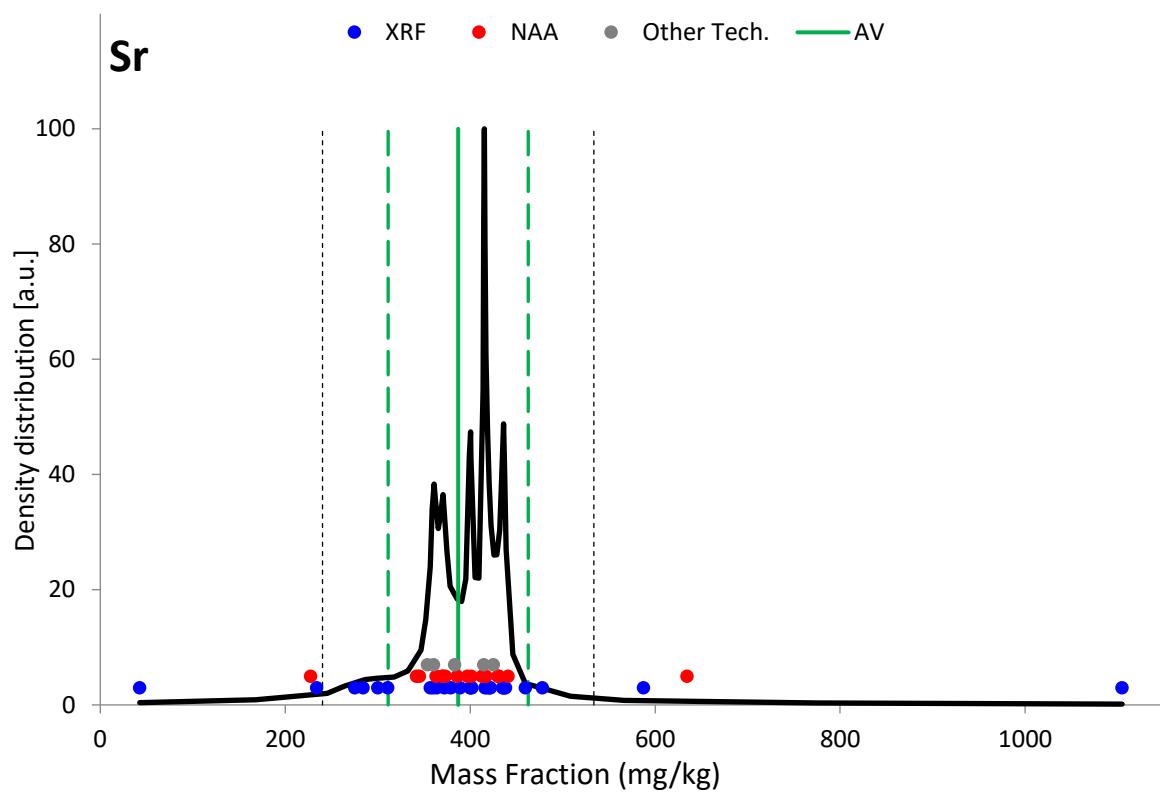


FIG. 46. Density distribution function for the measurand Sr (Clay sample).

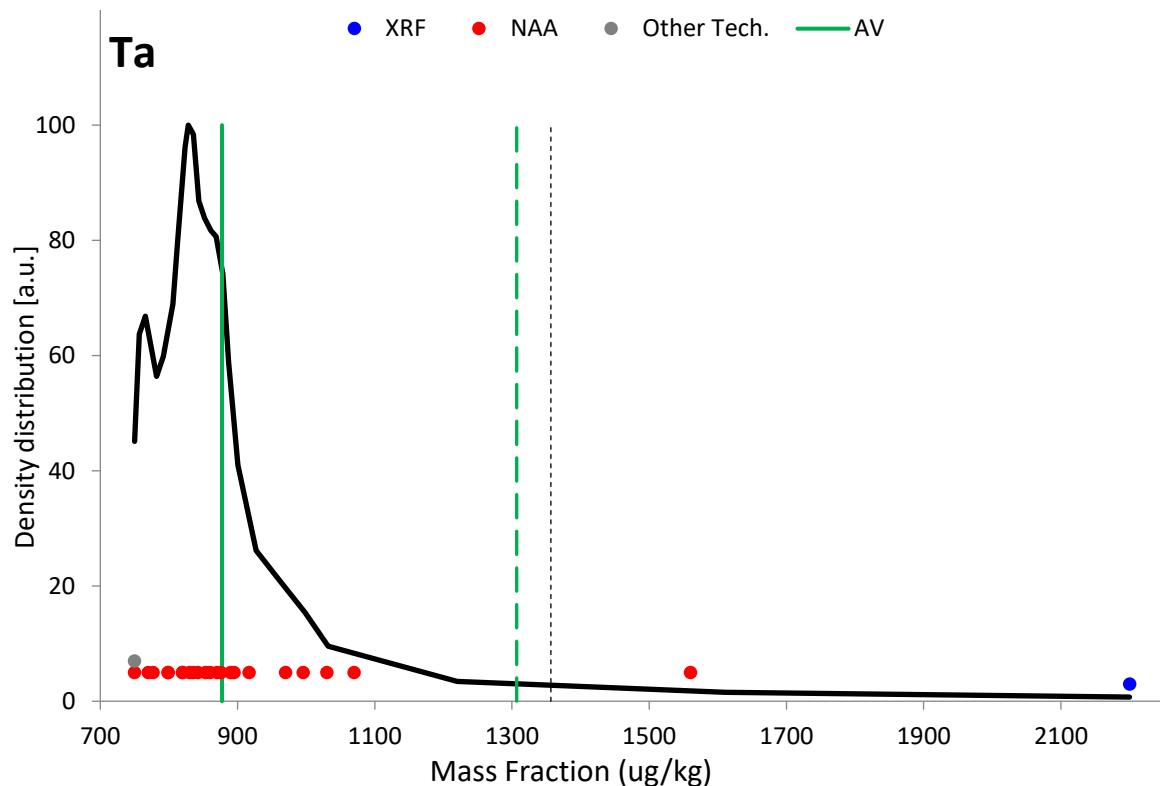


FIG. 47. Density distribution function for the measurand Ta (Clay sample).

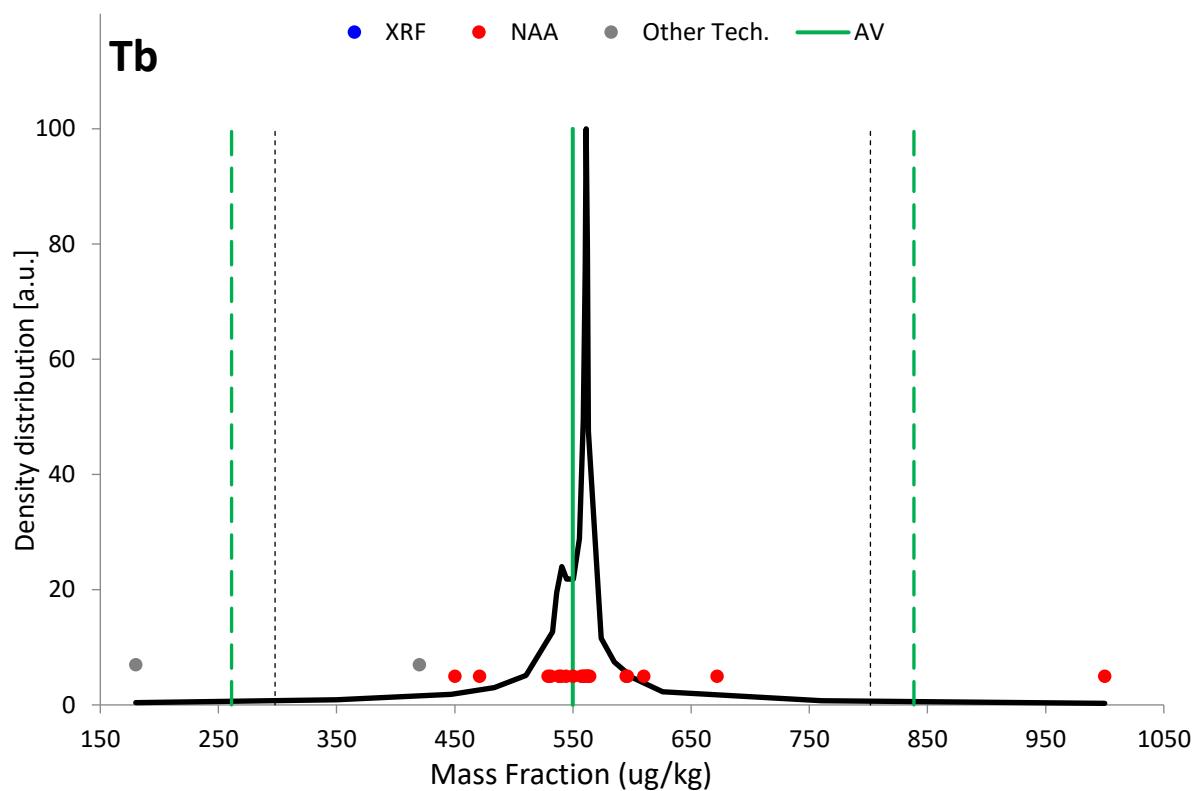


FIG. 48. Density distribution function for the measurand Tb (Clay sample).

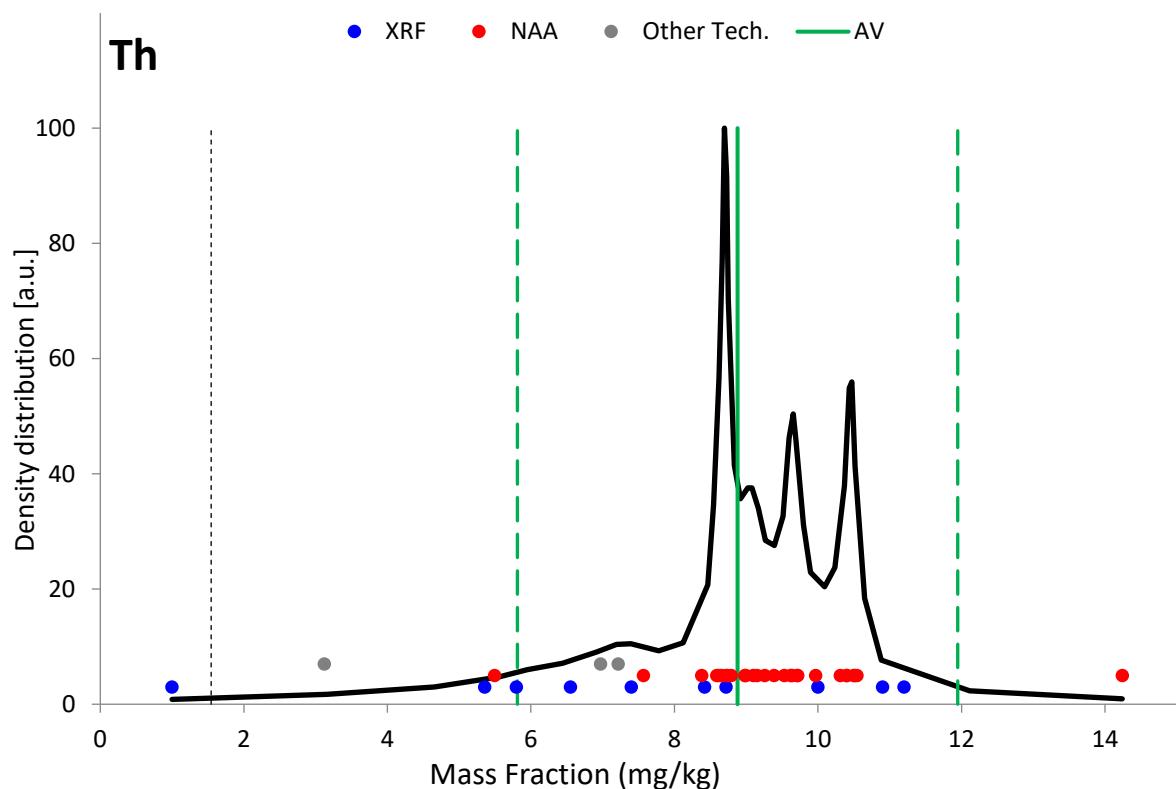


FIG. 49. Density distribution function for the measurand Th (Clay sample).

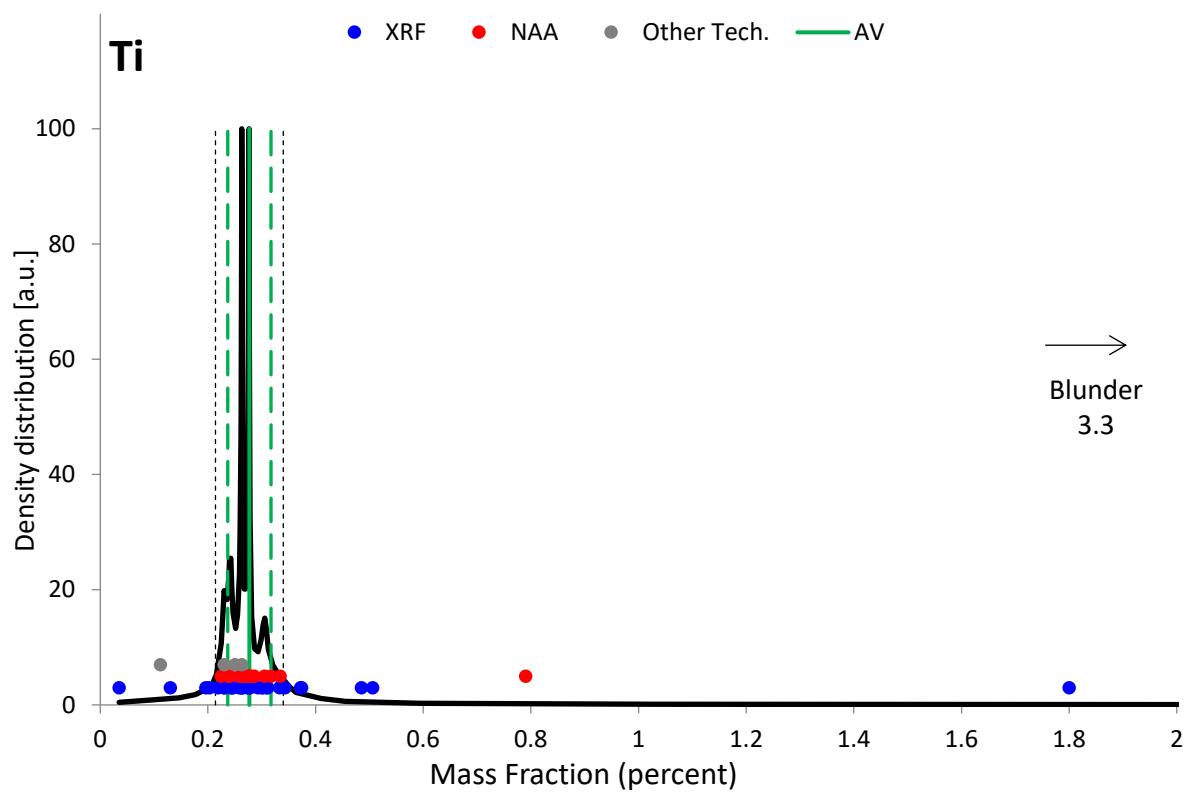


FIG. 50. Density distribution function for the measurand Ti (Clay sample).

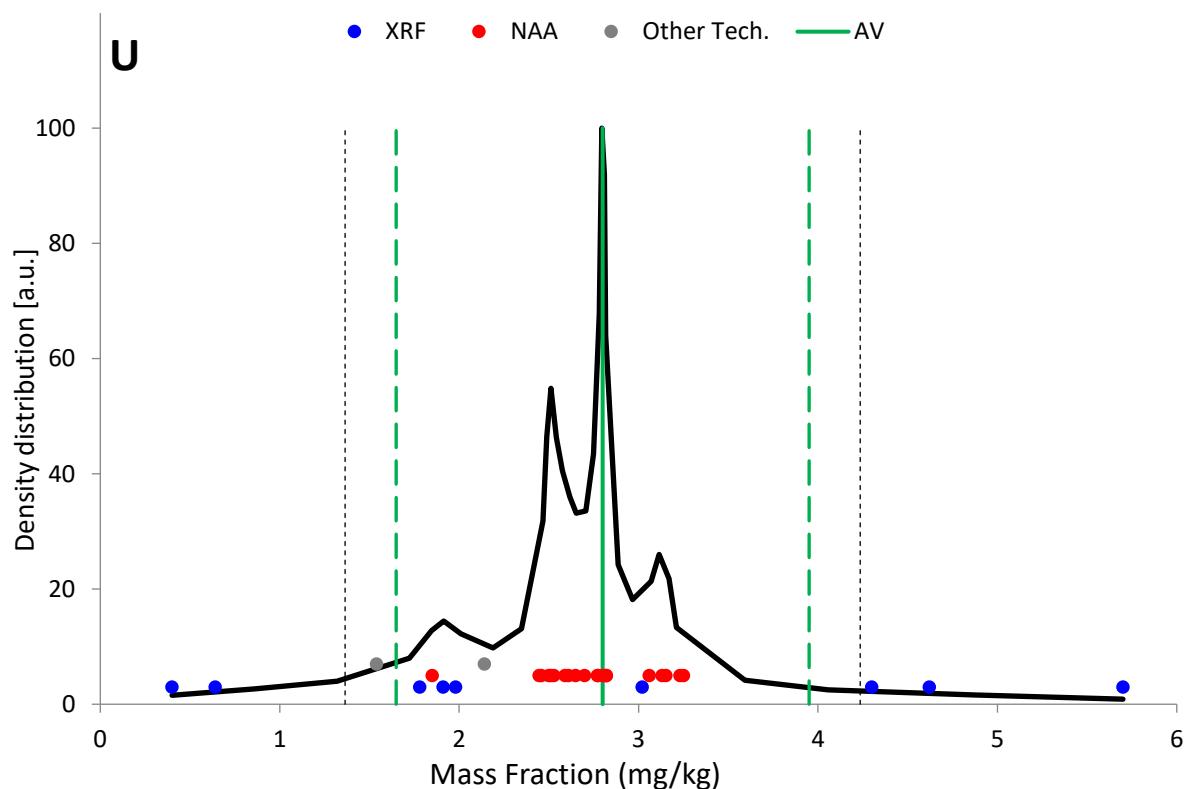


FIG. 51. Density distribution function for the measurand U (Clay sample).

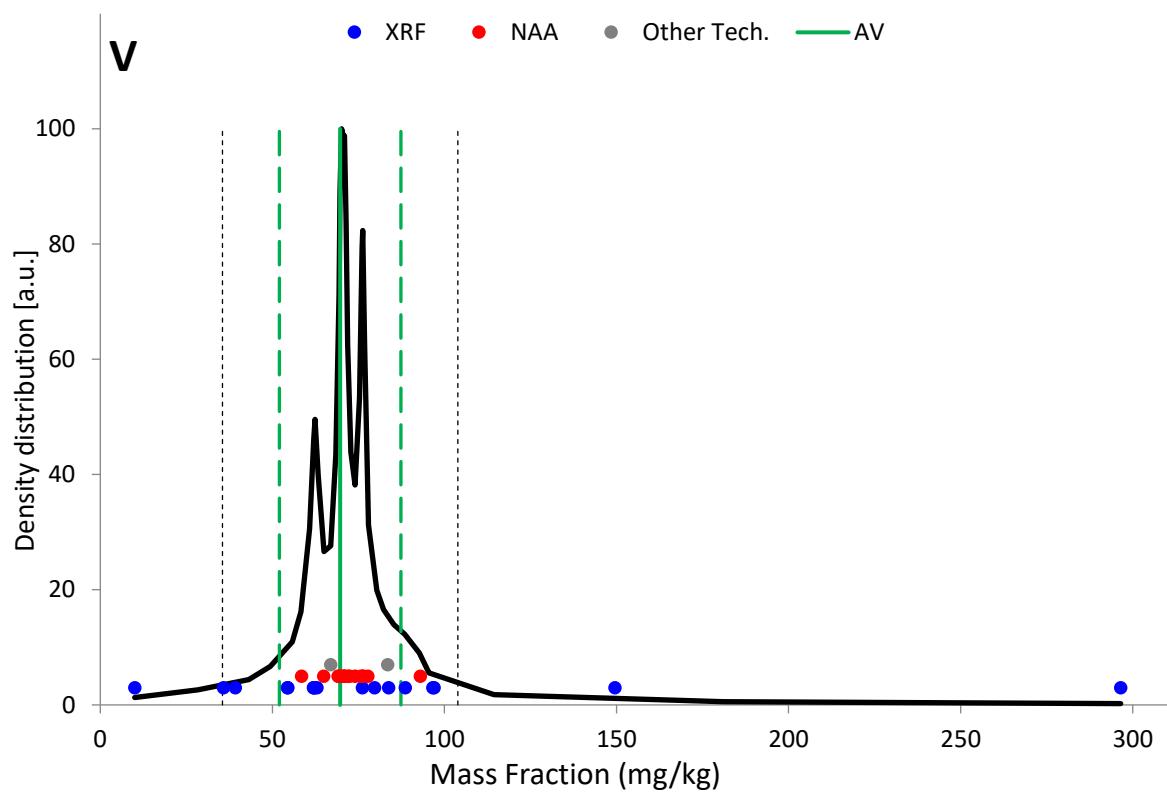


FIG. 52. Density distribution function for the measurand V (Clay sample).

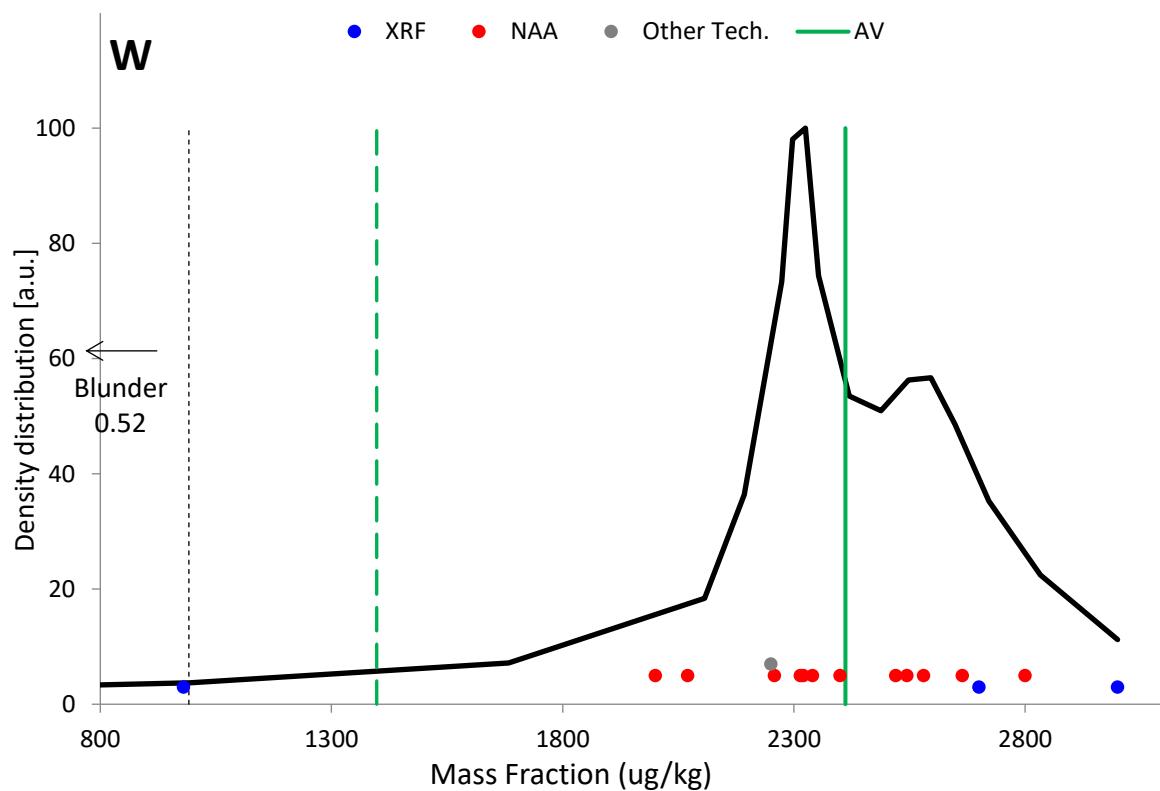


FIG. 53. Density distribution function for the measurand W (Clay sample).

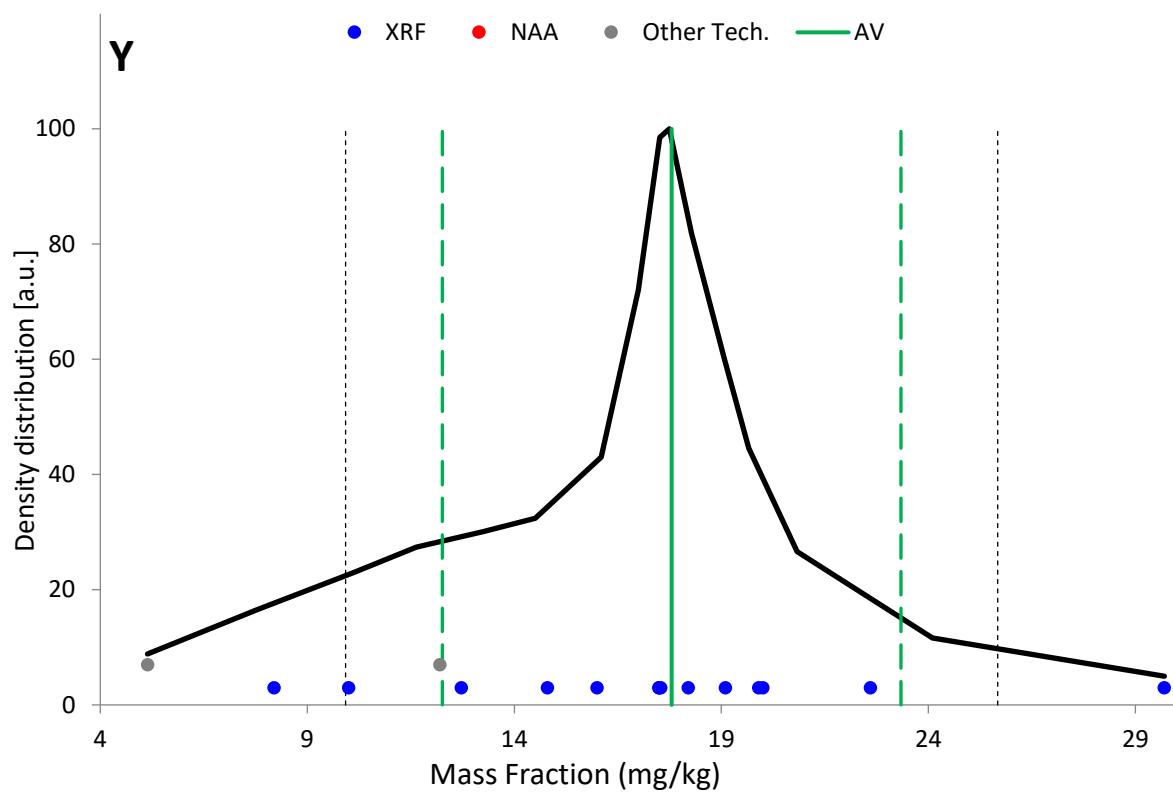


FIG. 54. Density distribution function for the measurand Y (Clay sample).

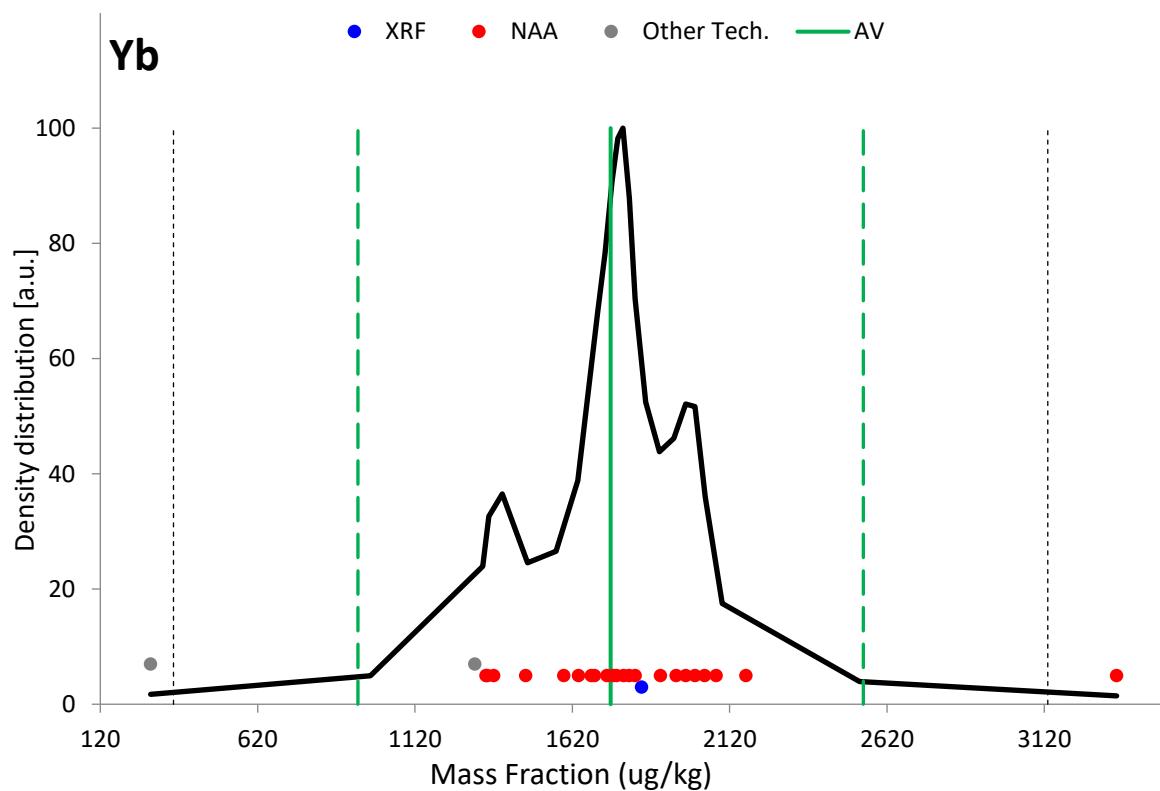


FIG. 55. Density distribution function for the measurand Yb (Clay sample).

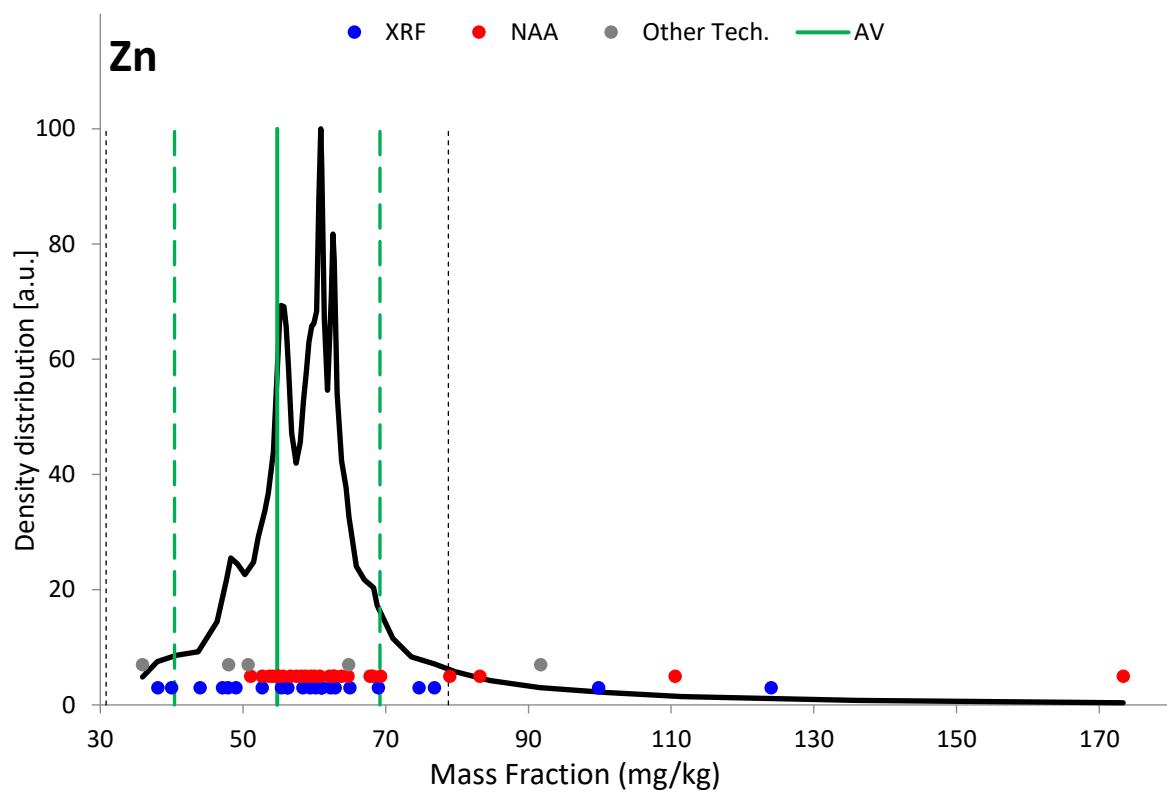


FIG. 56. Density distribution function for the measurand Zn (Clay sample).

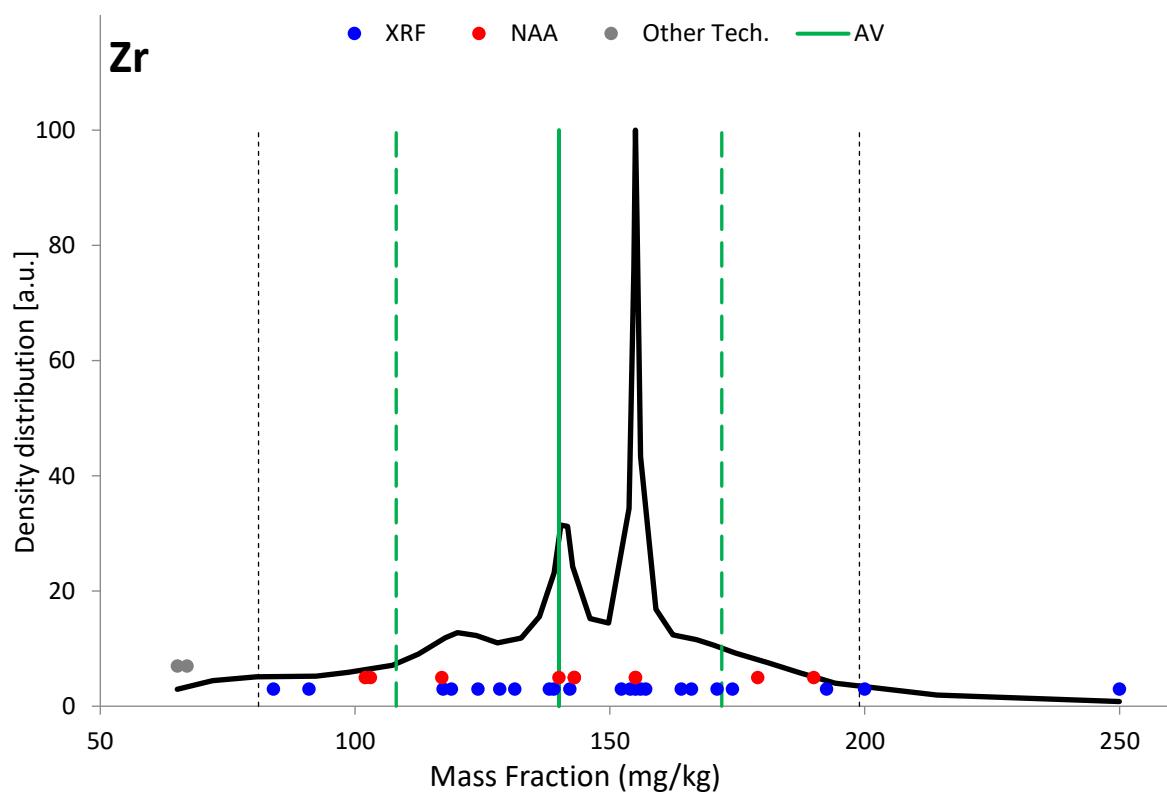


FIG. 57. Density distribution function for the measurand Zr (Clay sample).

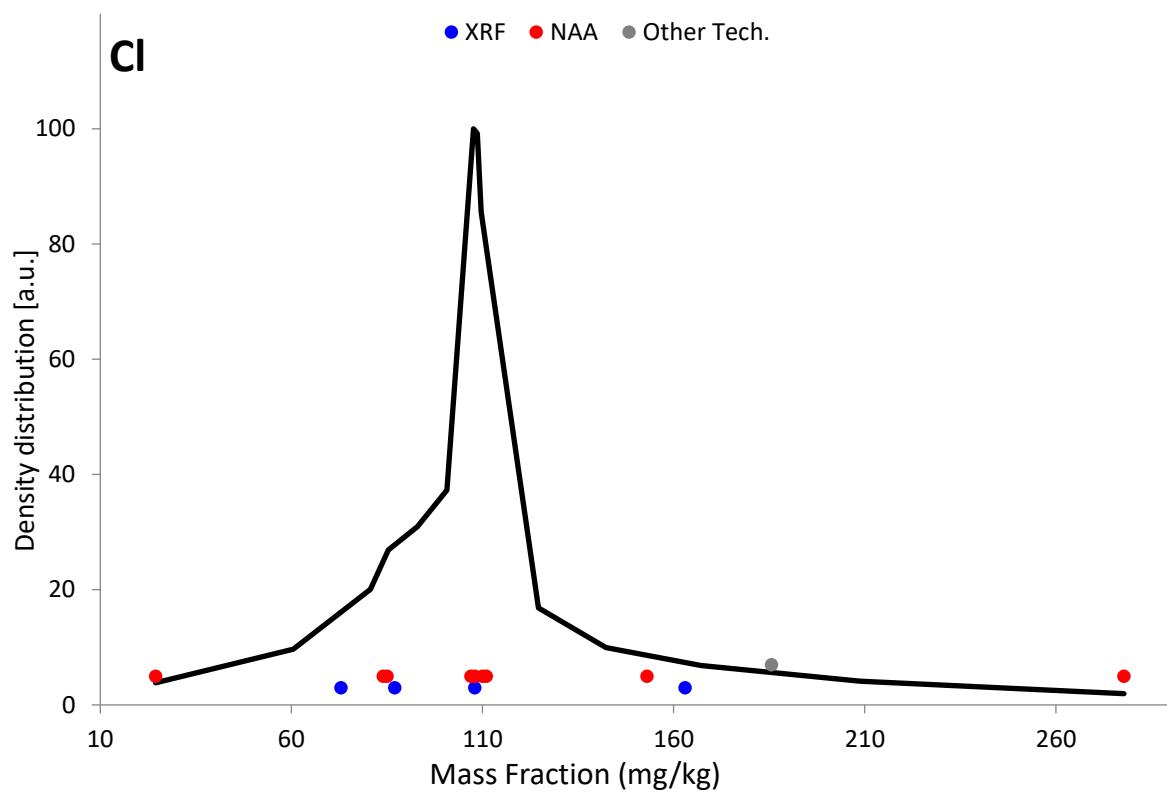


FIG. 58. Density distribution function for the measurand Cl (Clay sample).

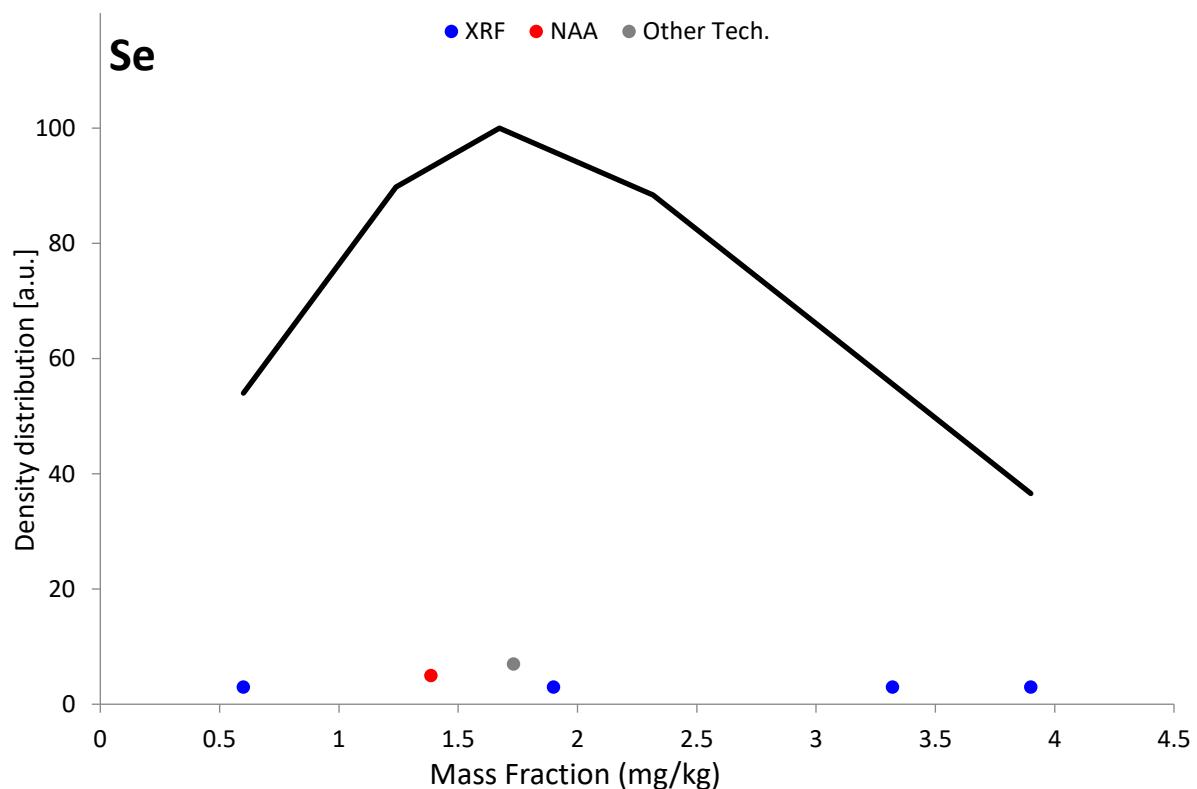


FIG. 59. Density distribution function for the measurand Se (Clay sample).

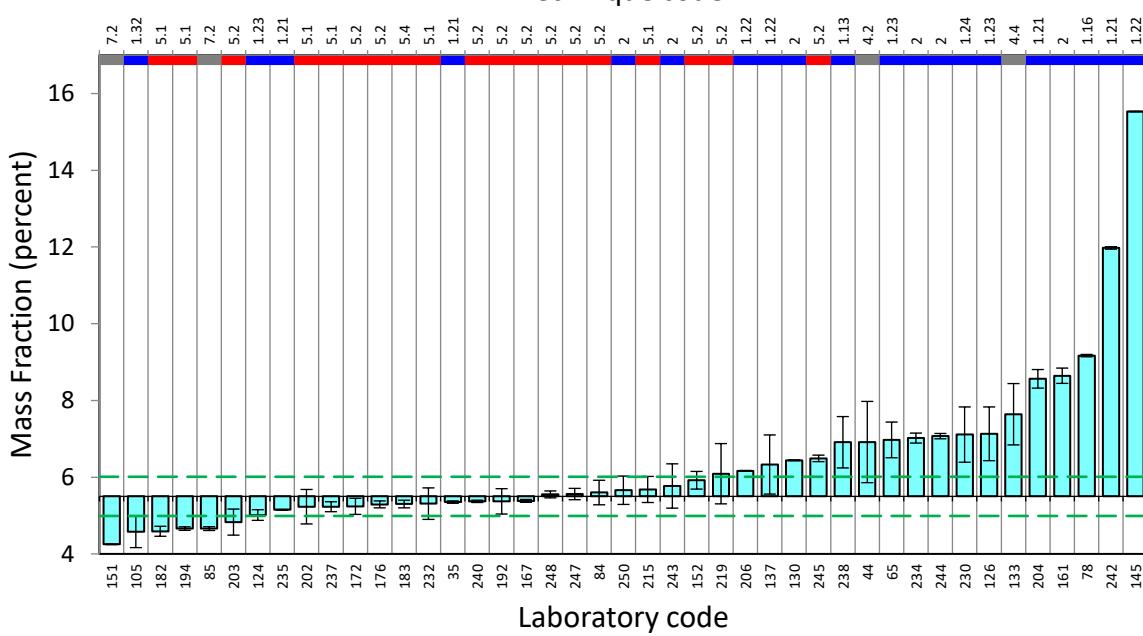
Al

FIG. 60. Bar chart distributions of results for measurand Al (Clay sample).

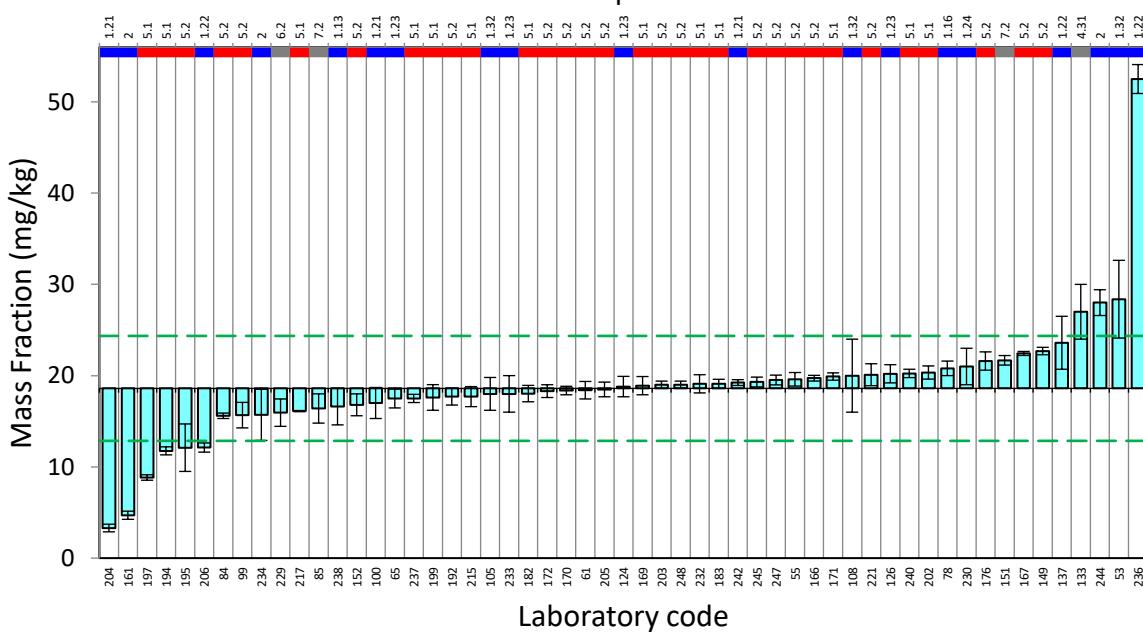
As

FIG. 61. Bar chart distributions of results for measurand As (Clay sample).

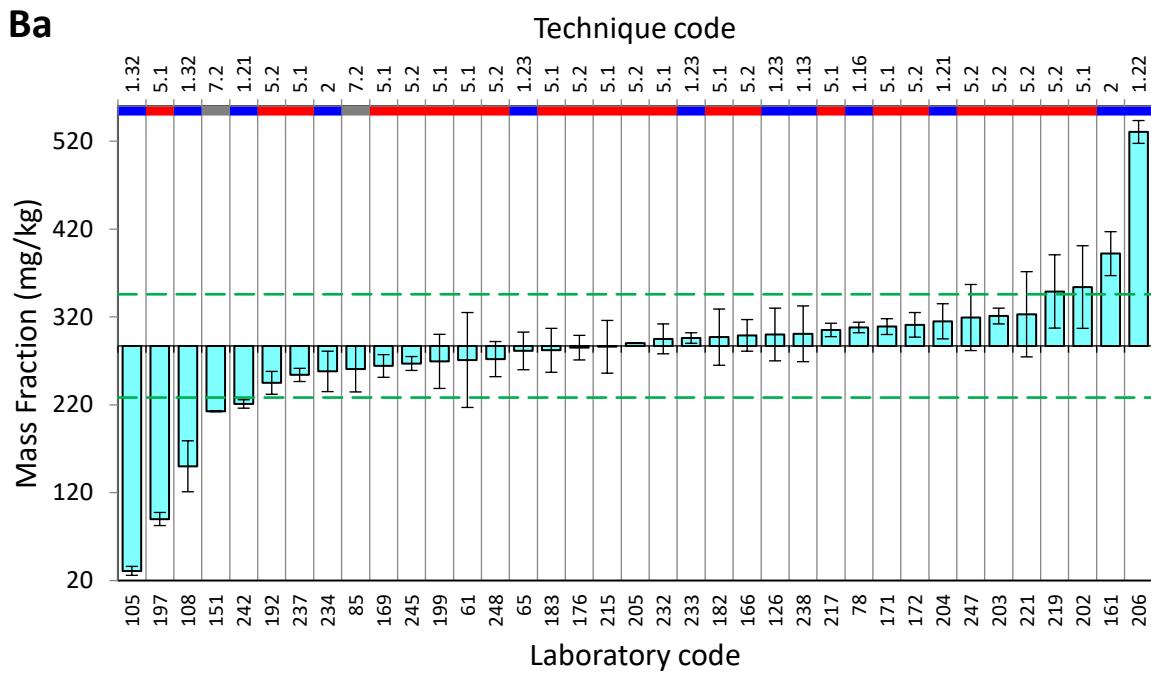


FIG. 62. Bar chart distributions of results for measurand Ba (Clay sample).

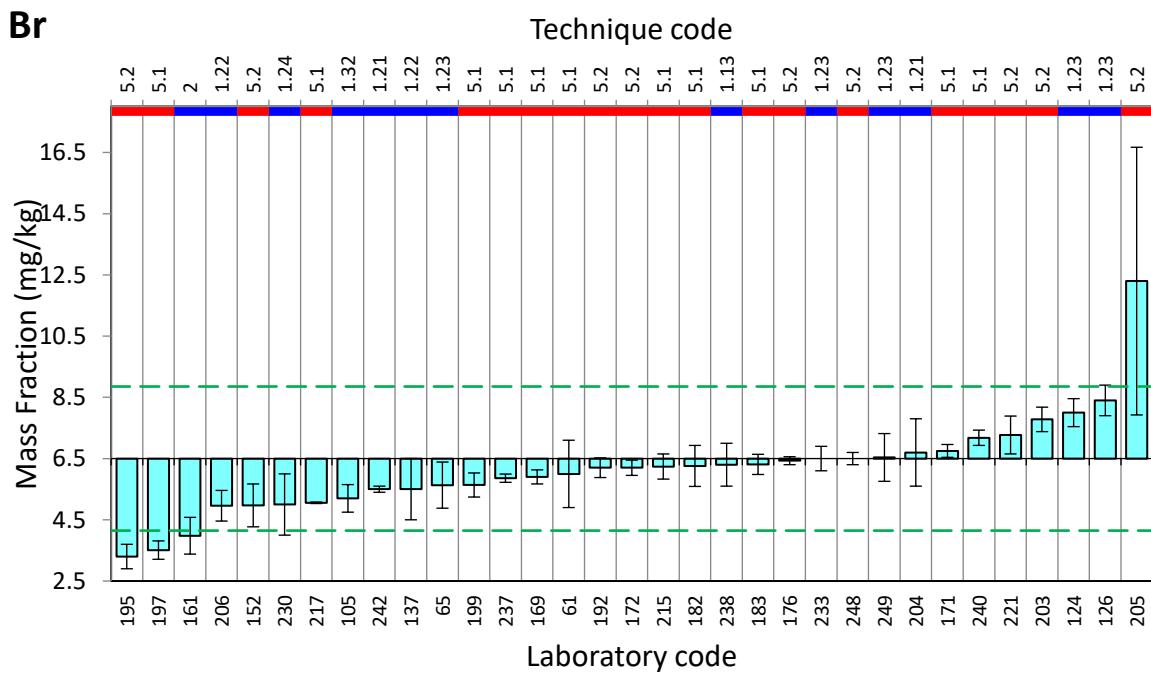


FIG. 63. Bar chart distributions of results for measurand Br (Clay sample).

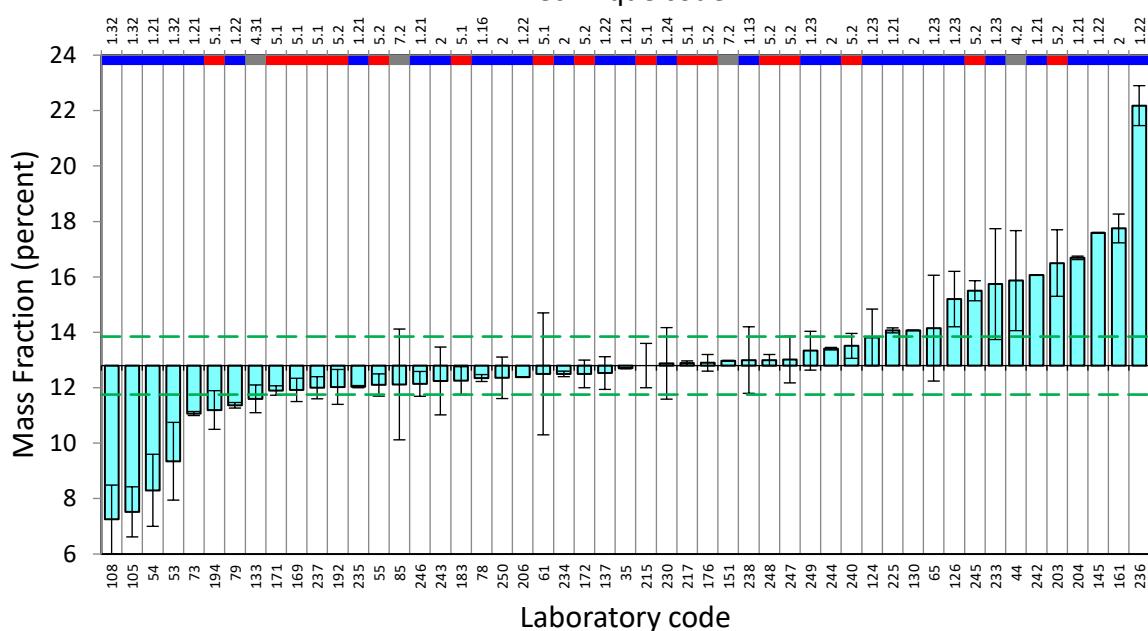
Ca

FIG. 64. Bar chart distributions of results for measurand Ca (Clay sample).

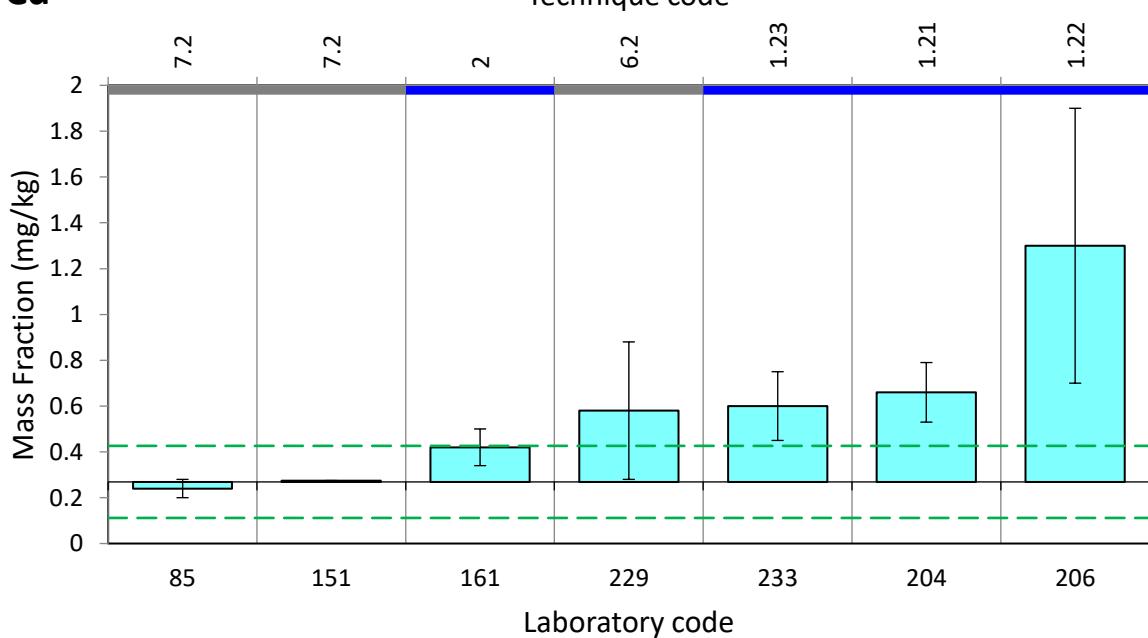
Cd

FIG. 65. Bar chart distributions of results for measurand Cd (Clay sample).

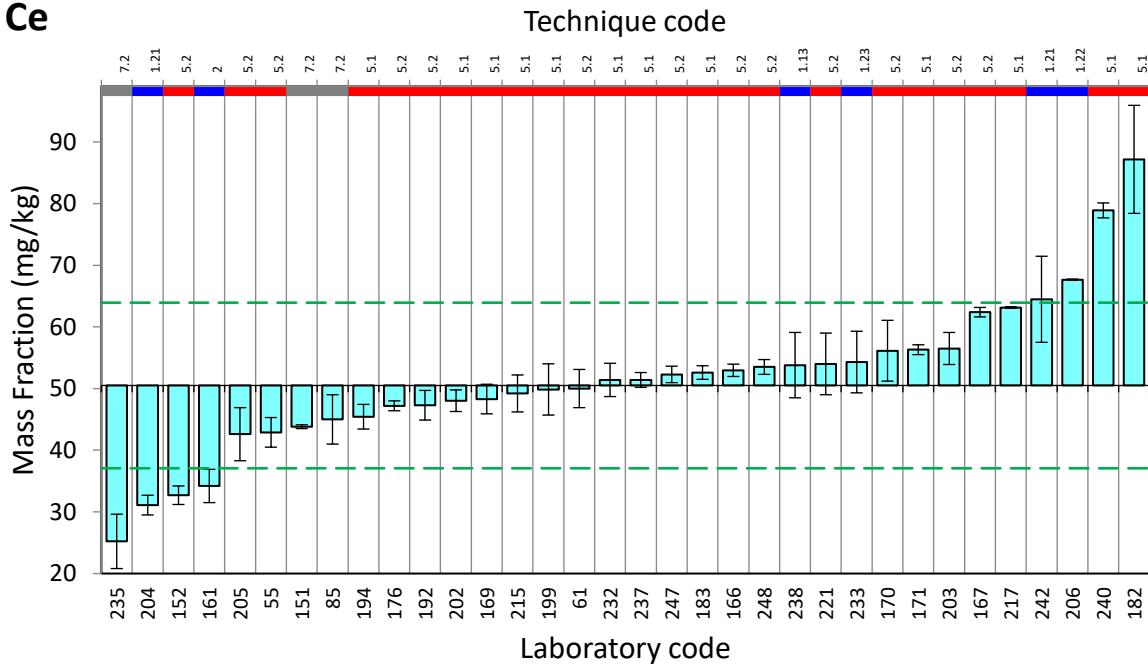
Ce

FIG. 66. Bar chart distributions of results for measurand Ce (Clay sample).

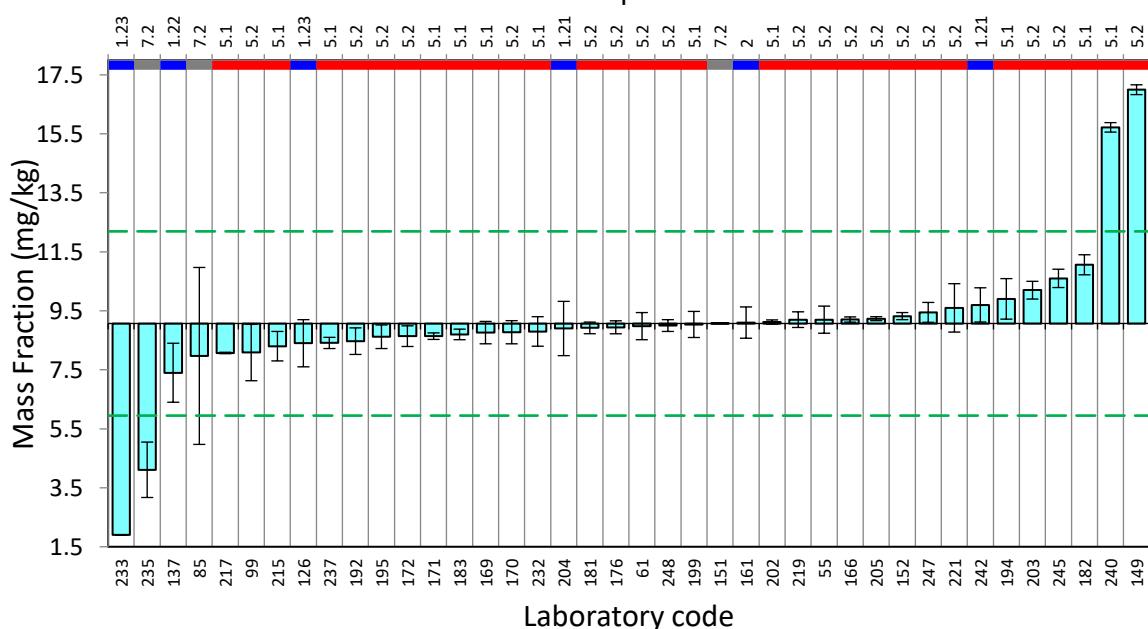
Co

FIG. 67. Bar chart distributions of results for measurand Co (Clay sample).

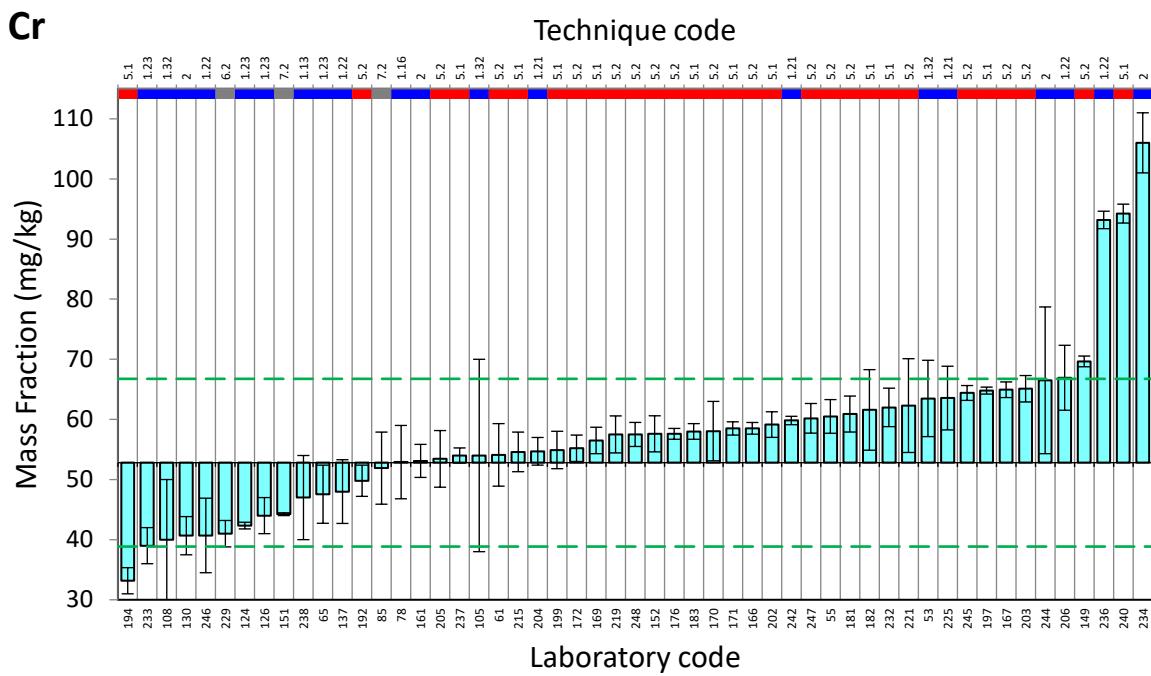


FIG. 68. Bar chart distributions of results for measurand Cr (Clay sample).

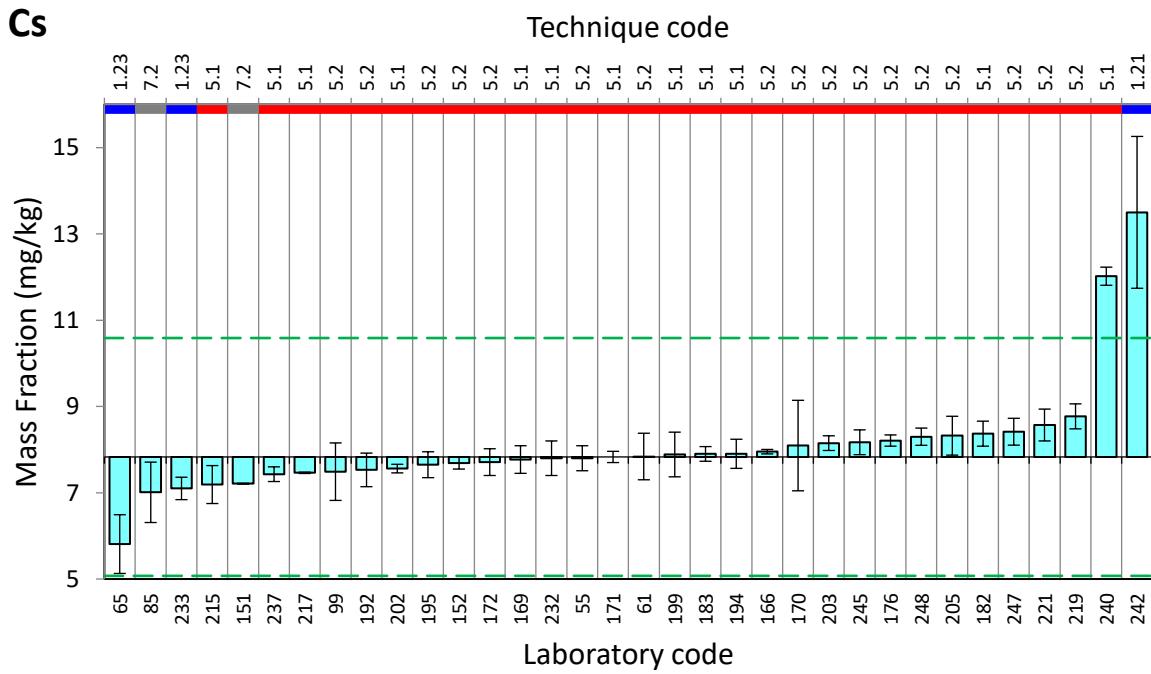


FIG. 69. Bar chart distributions of results for measurand Cs (Clay sample).

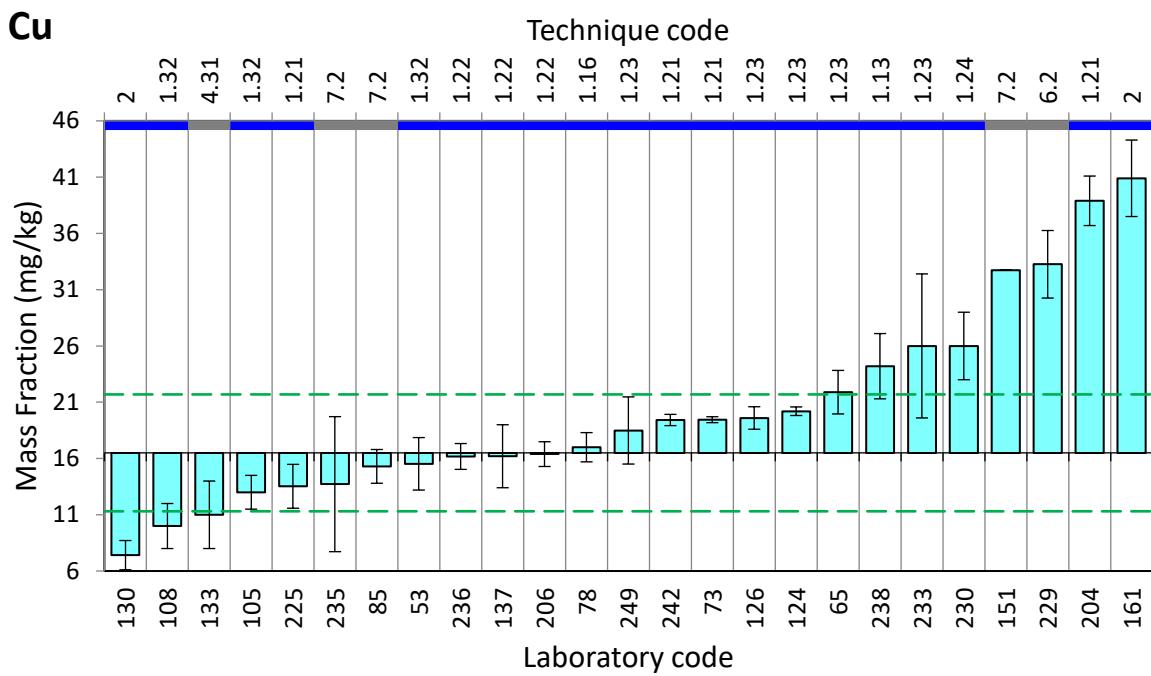


FIG. 70. Bar chart distributions of results for measurand Cu (Clay sample).

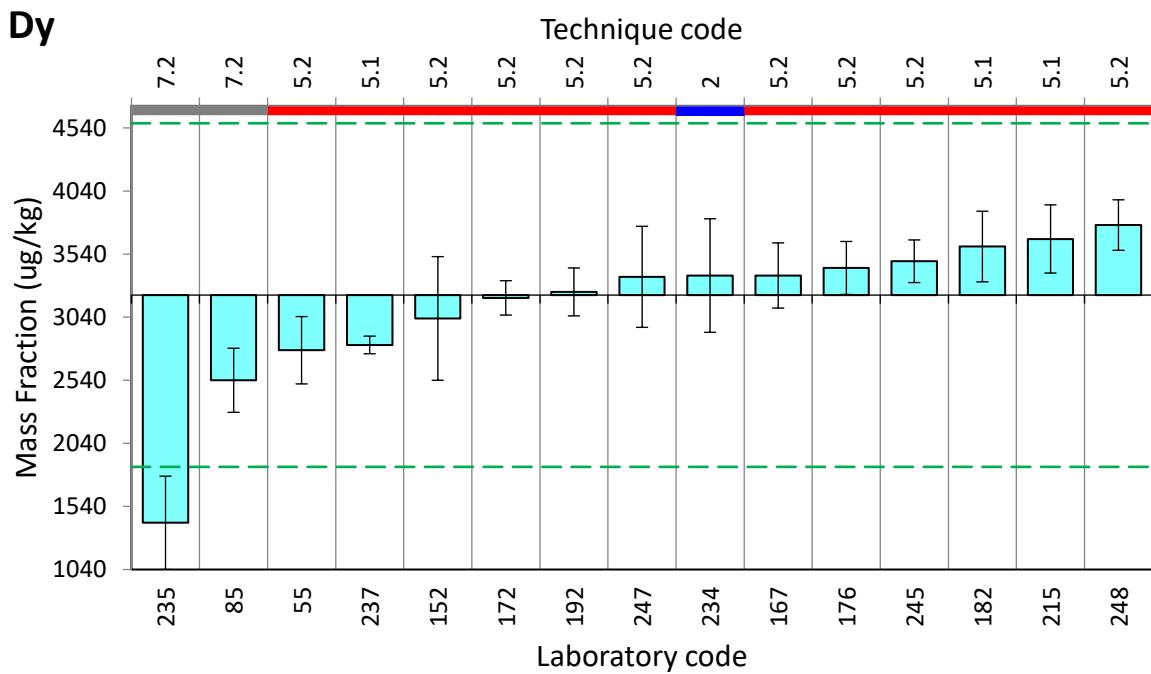


FIG. 71. Bar chart distributions of results for measurand Dy (Clay sample).

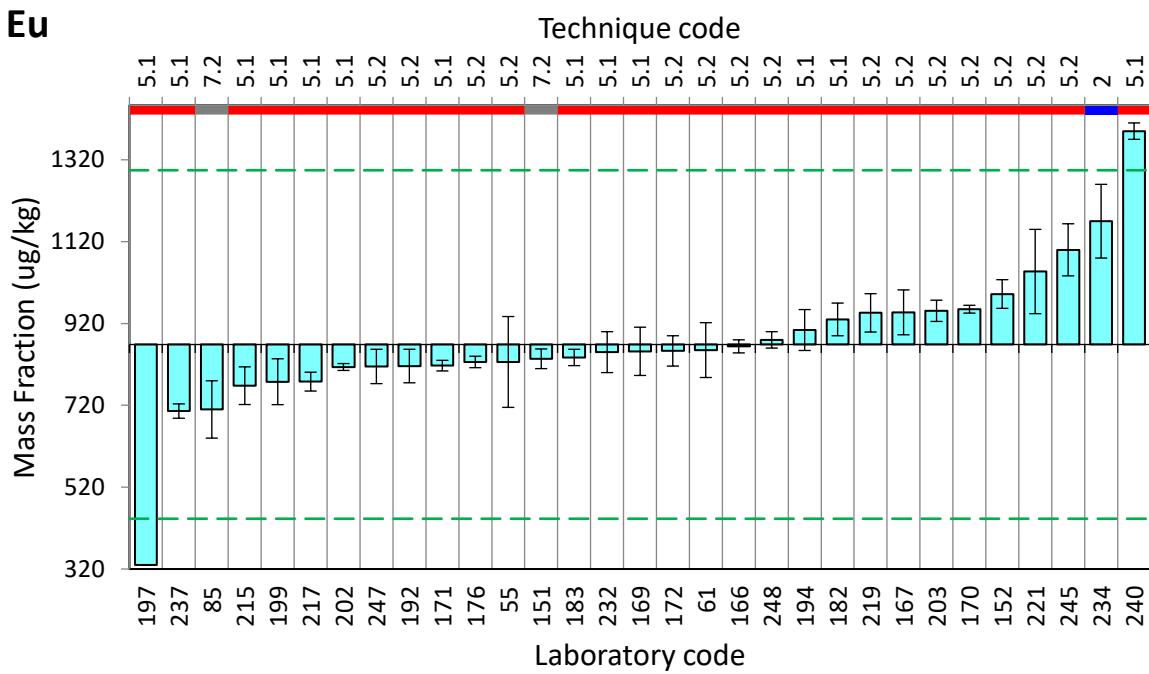


FIG. 72. Bar chart distributions of results for measurand Eu (Clay sample).

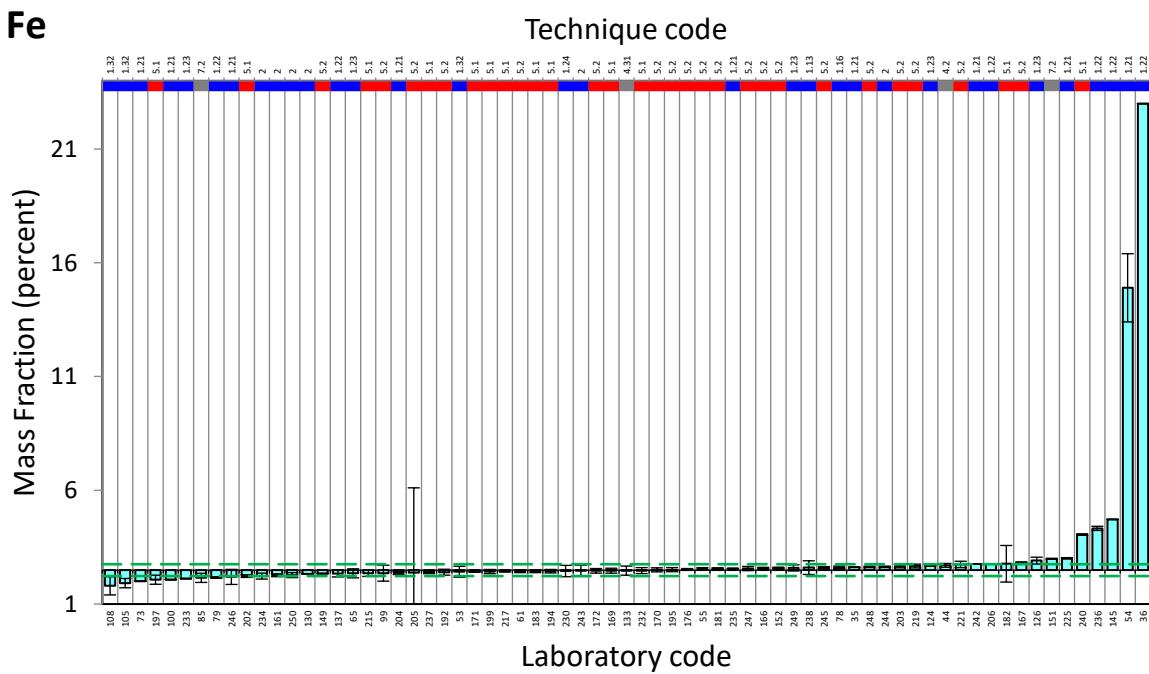


FIG. 73. Bar chart distributions of results for measurand Fe (Clay sample).

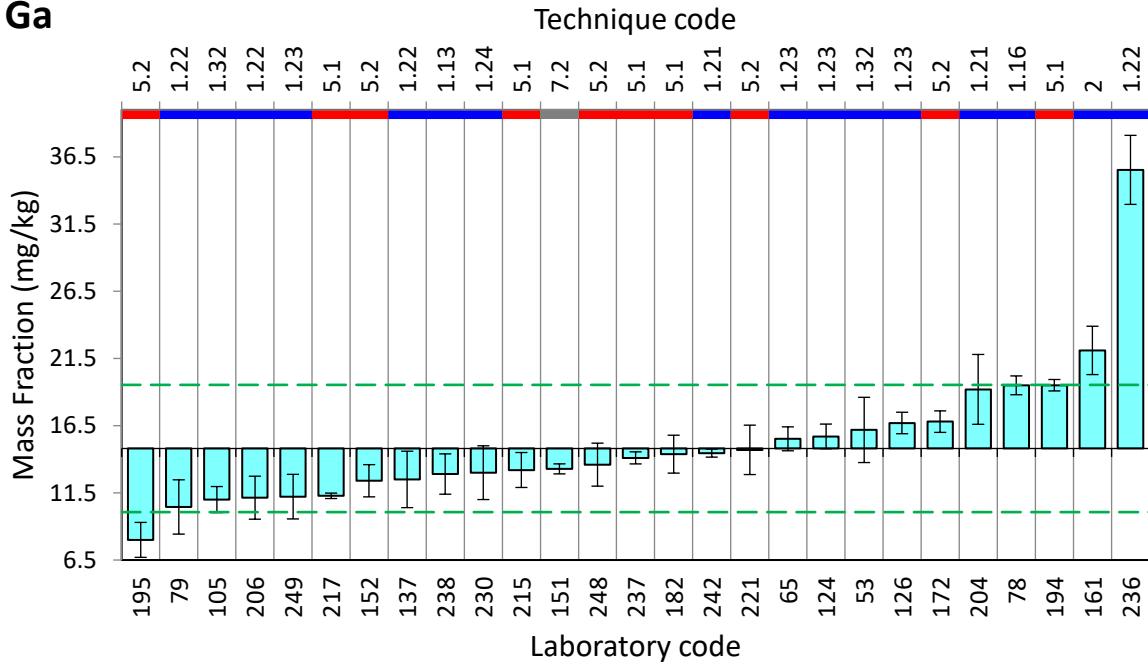
Ga

FIG. 74. Bar chart distributions of results for measurand Ga (Clay sample).

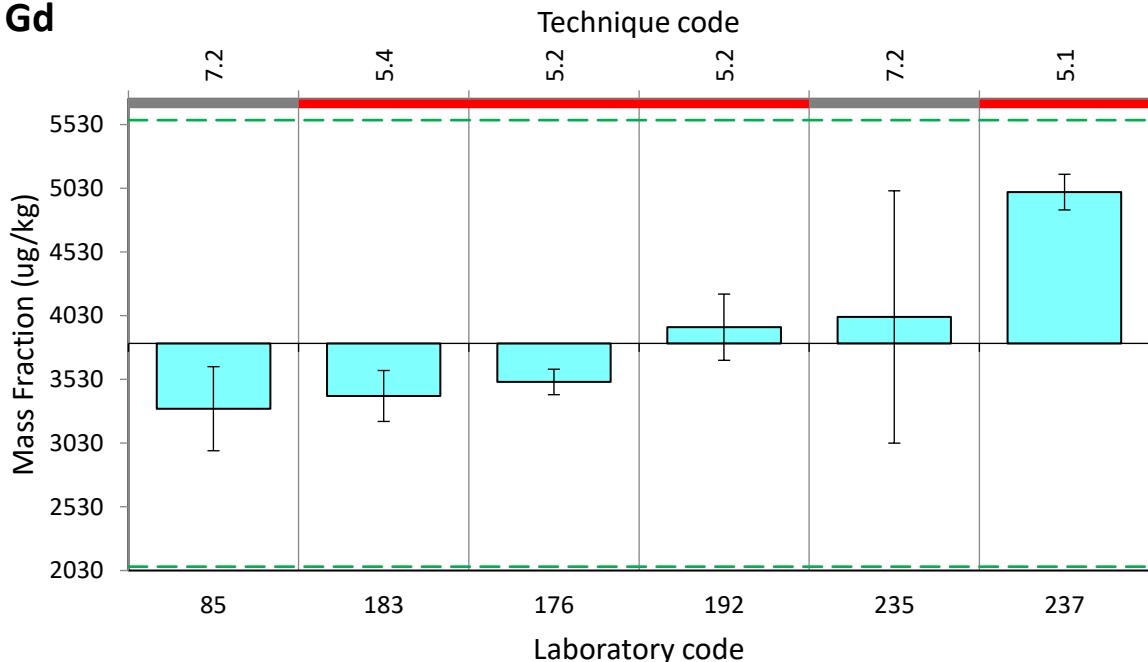
Gd

FIG. 75. Bar chart distributions of results for measurand Gd (Clay sample).

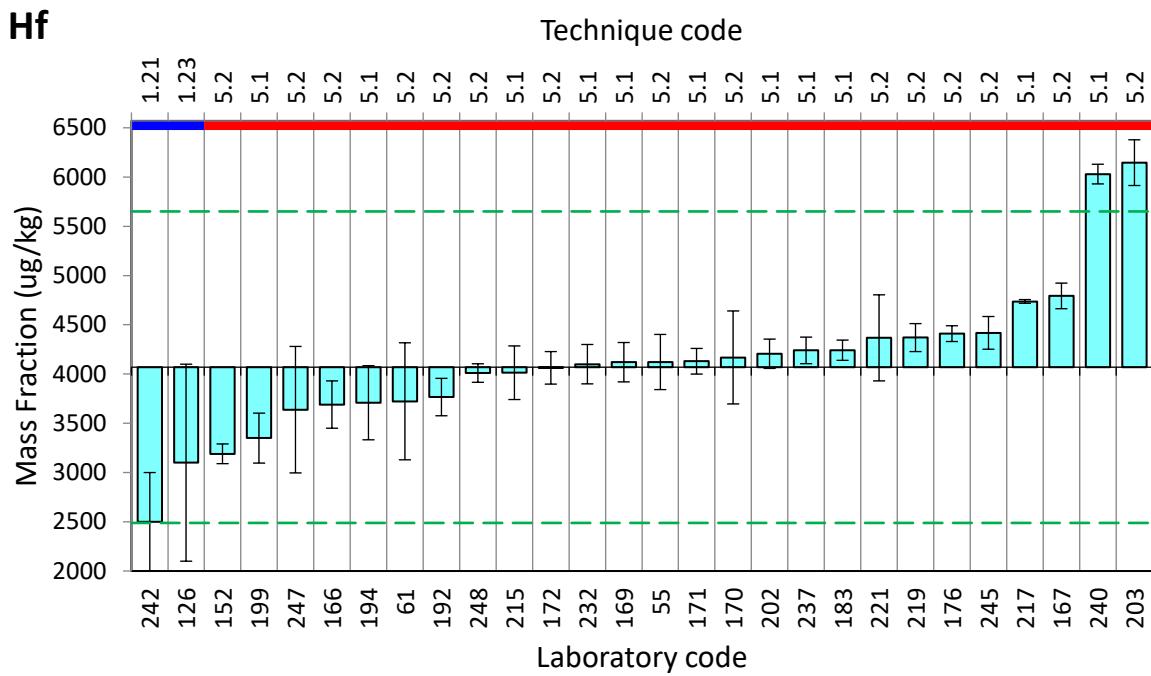


FIG. 76. Bar chart distributions of results for measurand Hf (Clay sample).

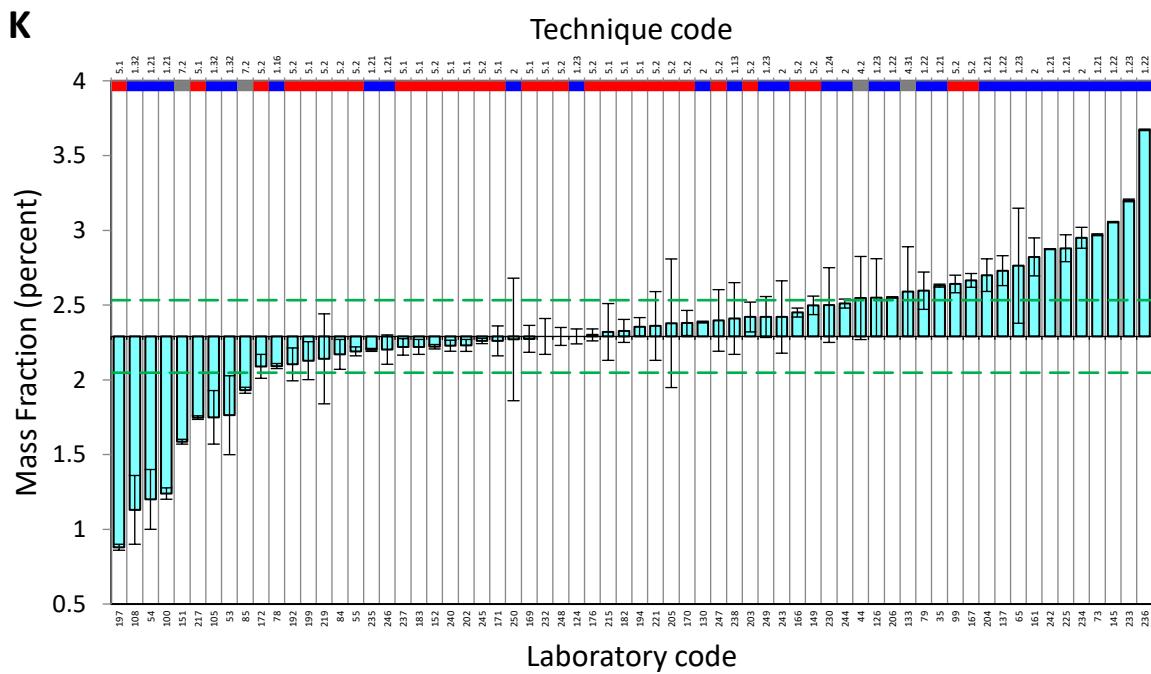


FIG. 77. Bar chart distributions of results for measurand K (Clay sample).

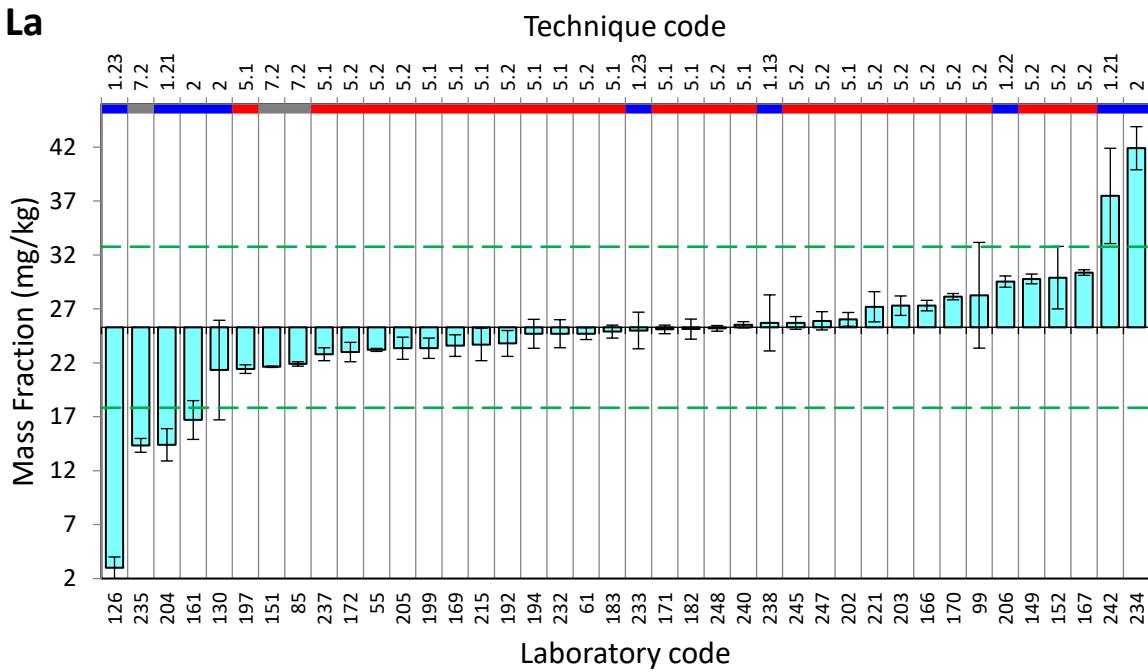
La

FIG. 78. Bar chart distributions of results for measurand La (Clay sample).

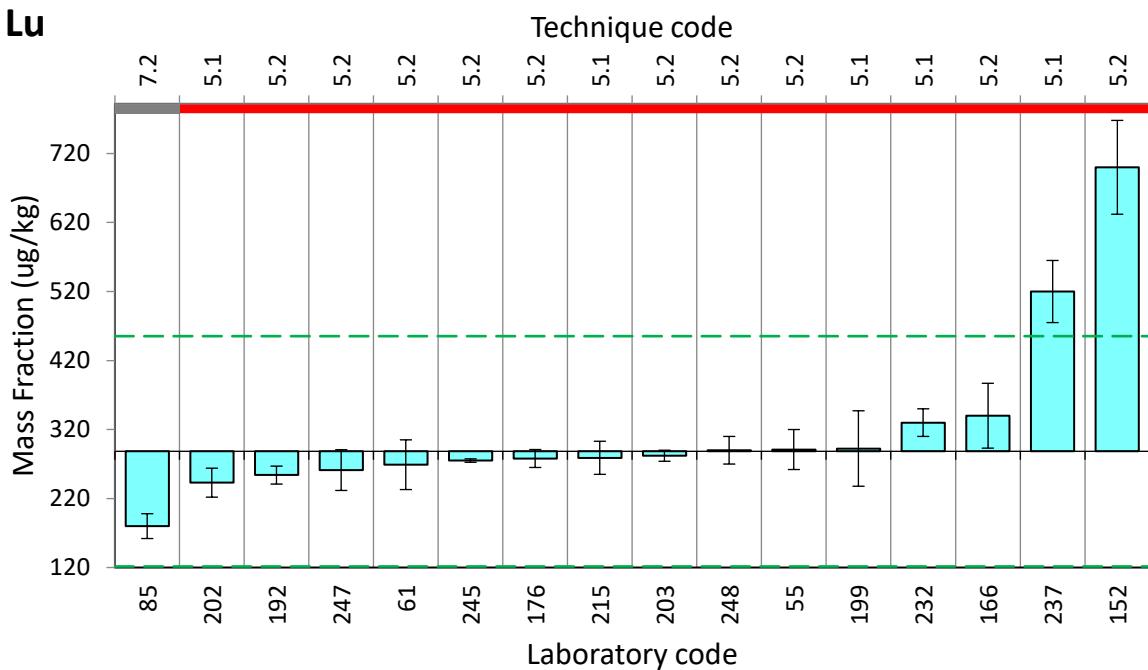
Lu

FIG. 79. Bar chart distributions of results for measurand Lu (Clay sample).

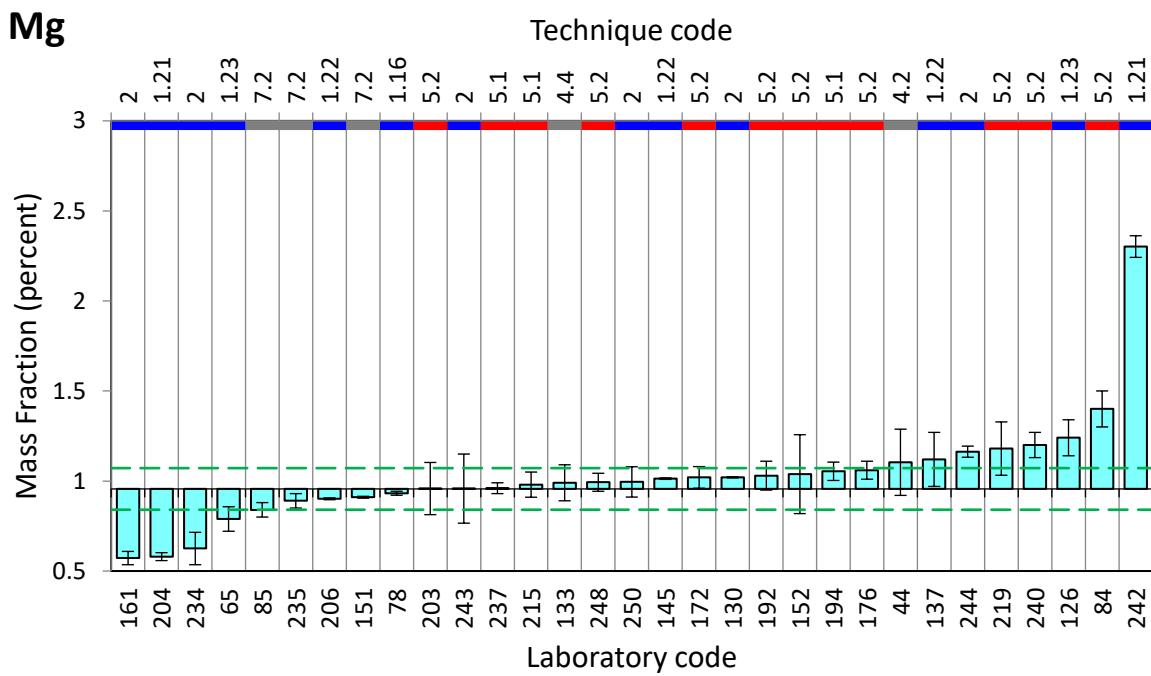


FIG. 80. Bar chart distributions of results for measurand Mg (Clay sample).

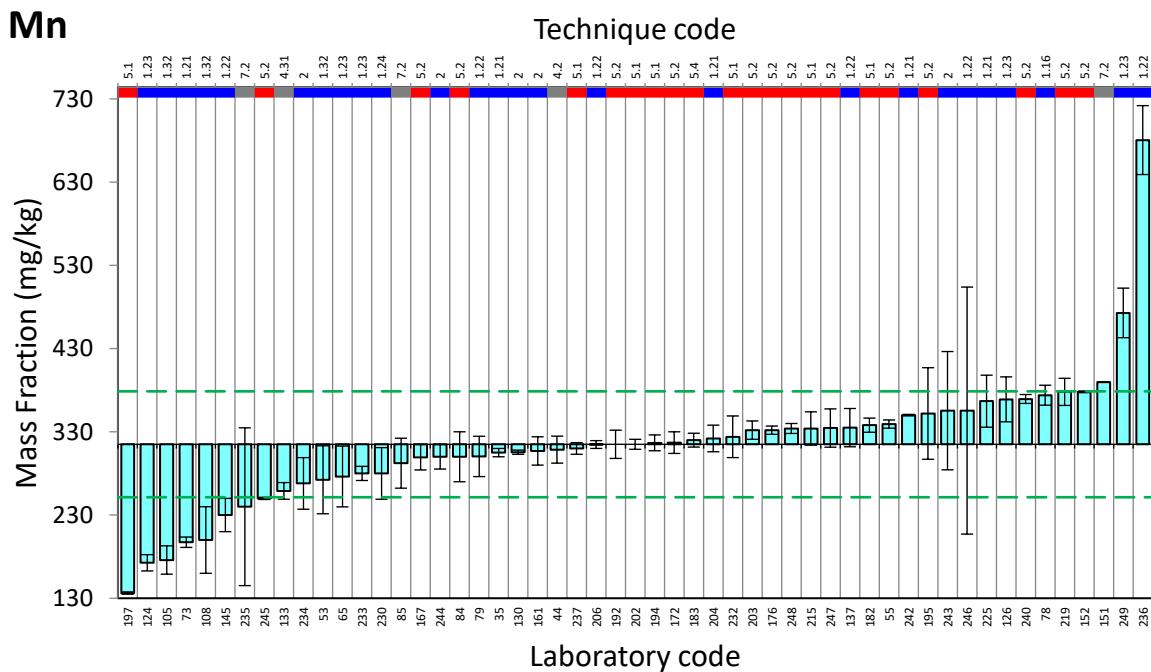


FIG. 81. Bar chart distributions of results for measurand Mn (Clay sample).

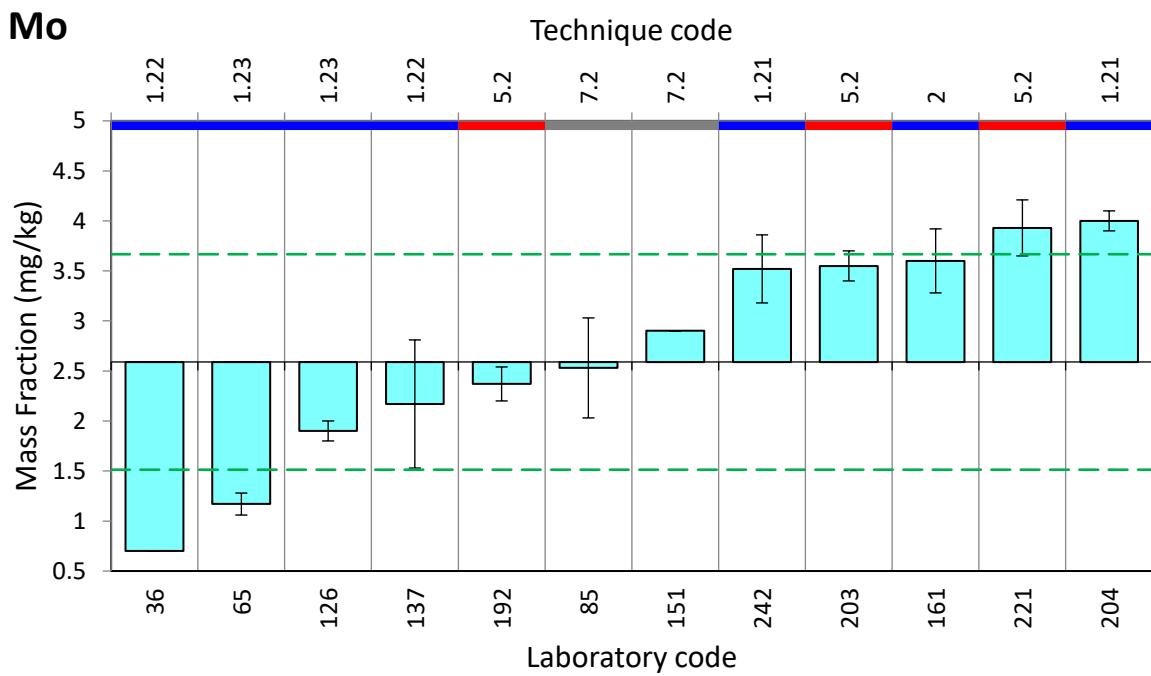


FIG. 82. Bar chart distributions of results for measurand Mo (Clay sample).

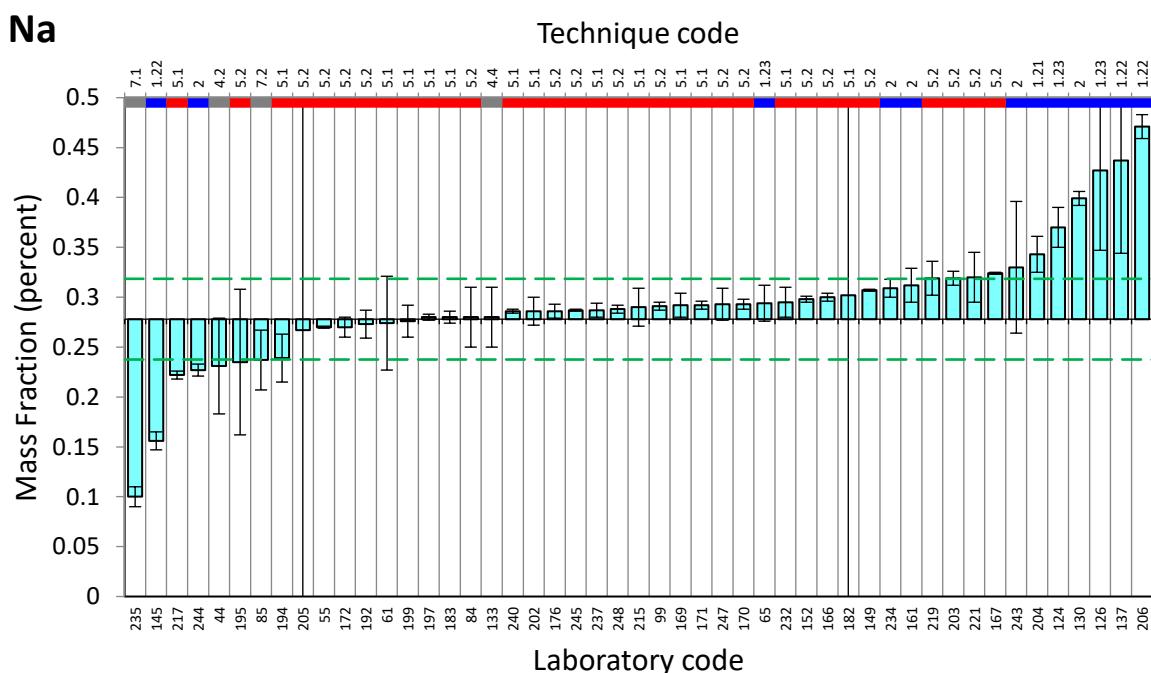


FIG. 83. Bar chart distributions of results for measurand Na (Clay sample).

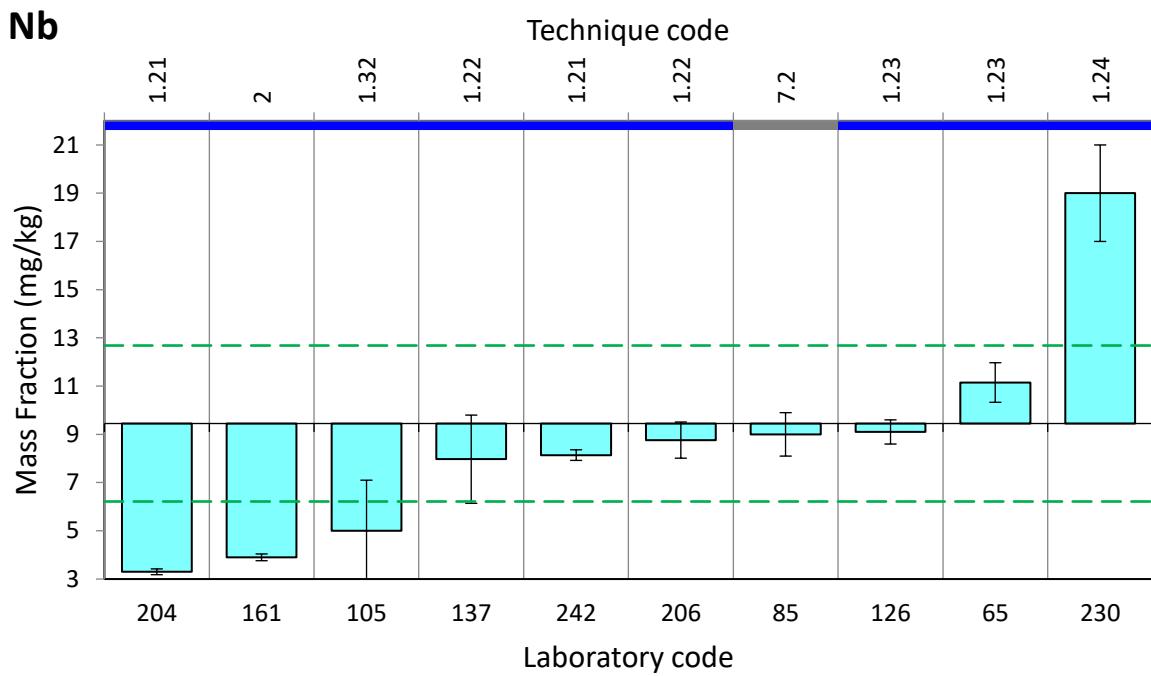


FIG. 84. Bar chart distributions of results for measurand Nb (Clay sample).

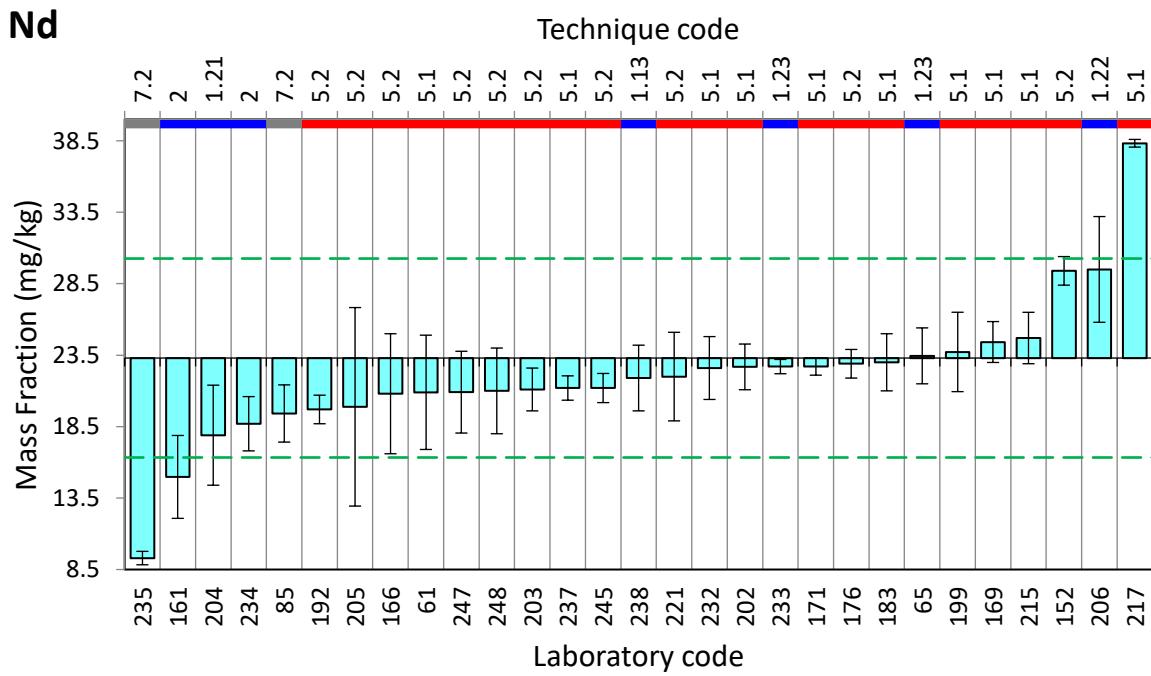


FIG. 85. Bar chart distributions of results for measurand Nd (Clay sample).

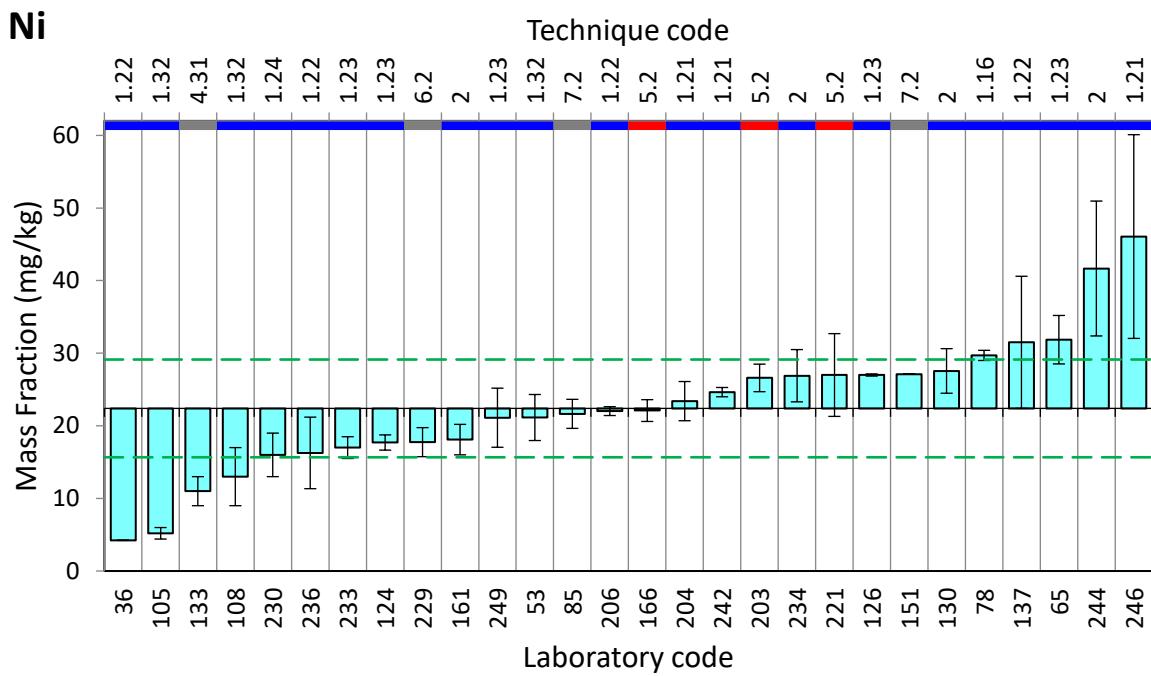


FIG. 86. Bar chart distributions of results for measurand Ni (Clay sample).

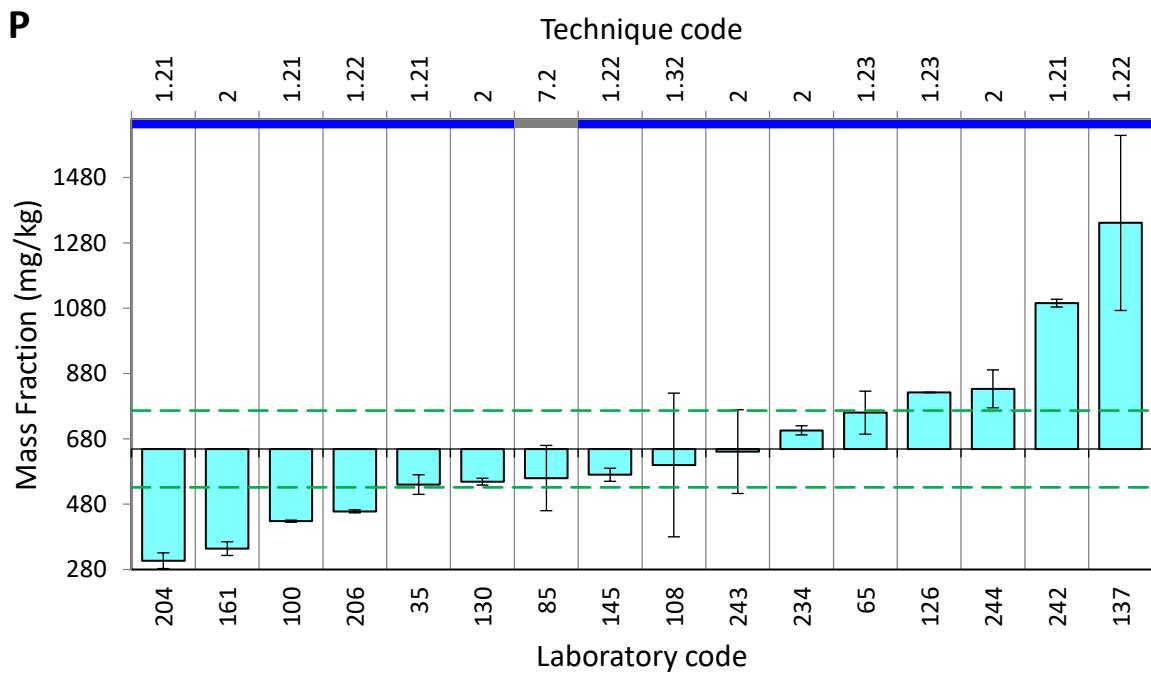


FIG. 87. Bar chart distributions of results for measurand P (Clay sample).

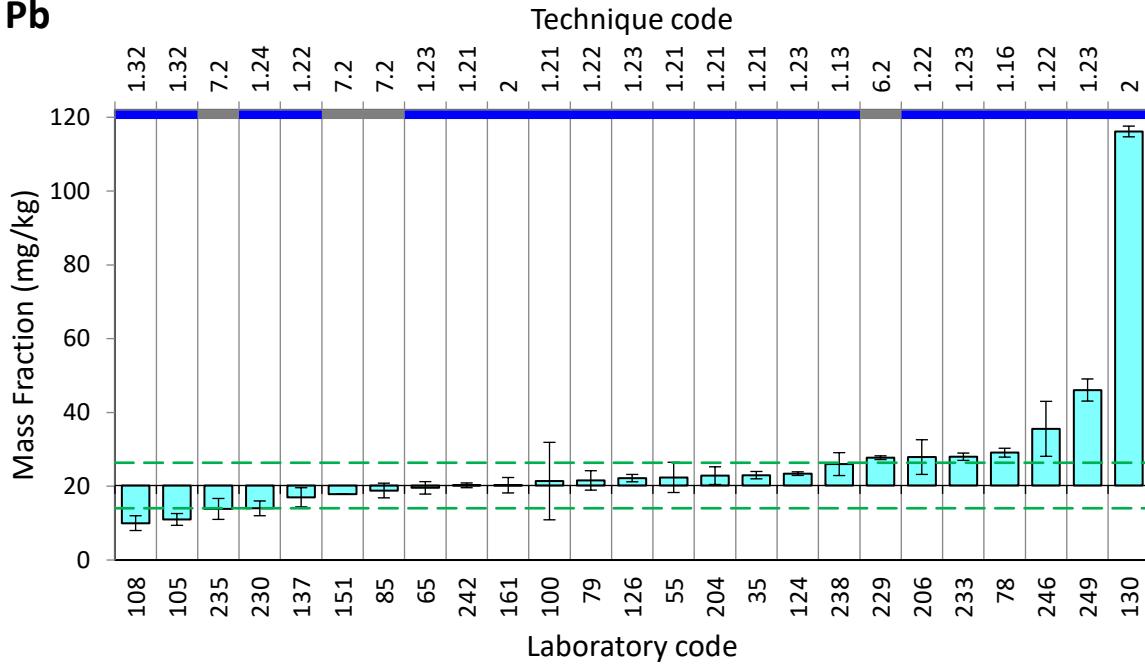
Pb

FIG. 88. Bar chart distributions of results for measurand Pb (Clay sample).

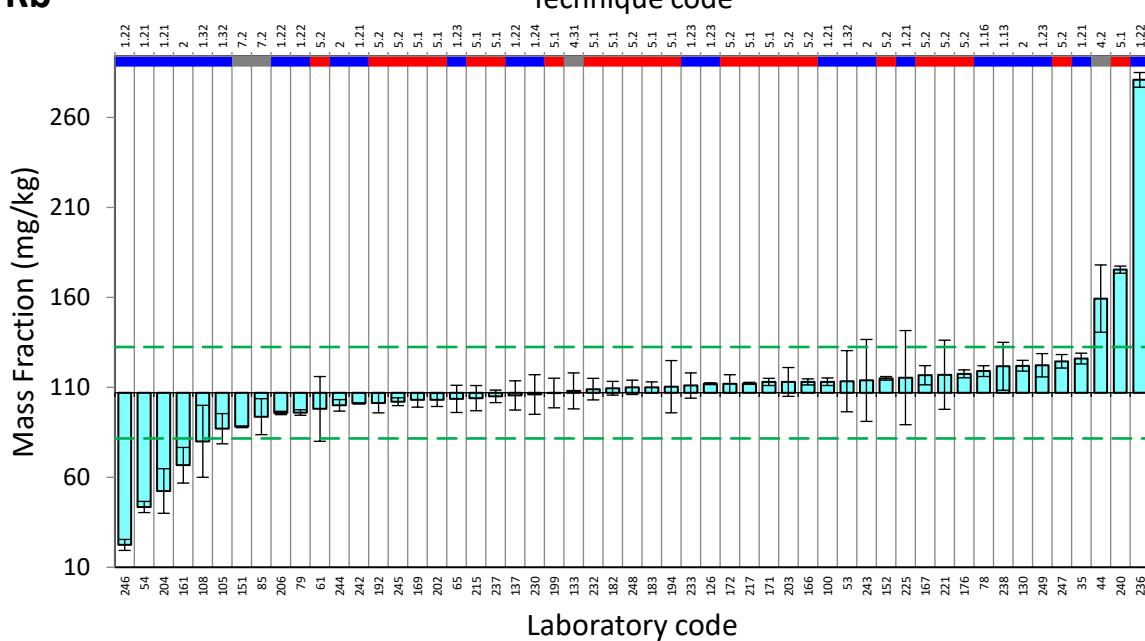
Rb

FIG. 89. Bar chart distributions of results for measurand Rb (Clay sample).

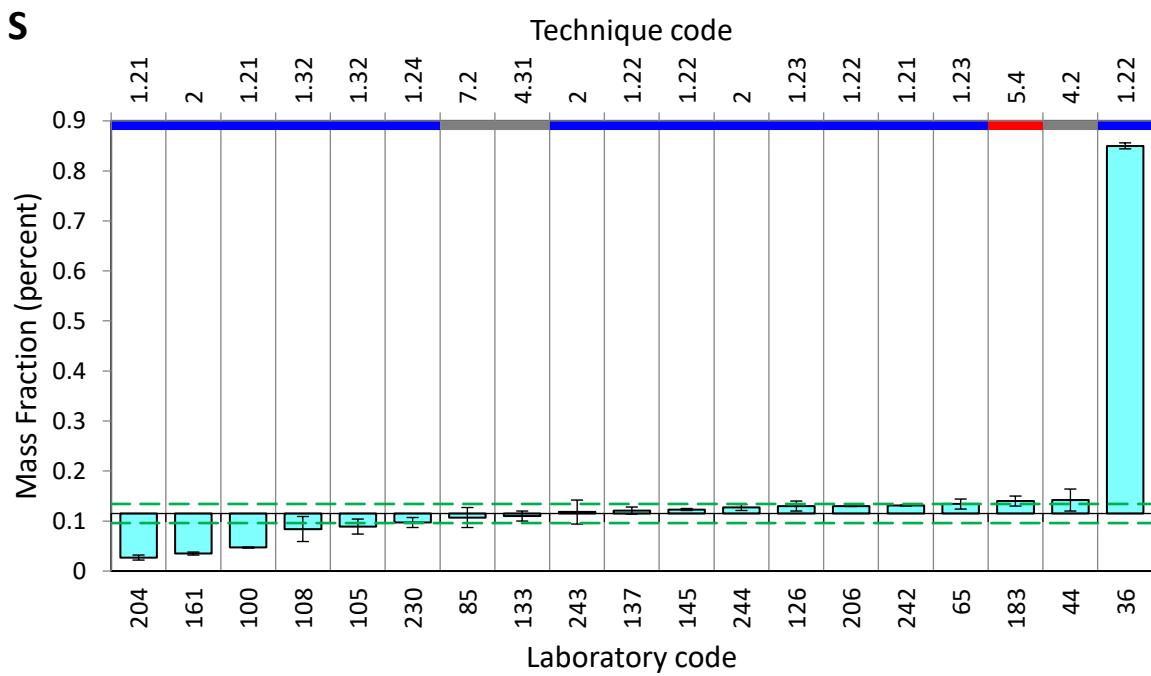


FIG. 90. Bar chart distributions of results for measurand S (Clay sample).

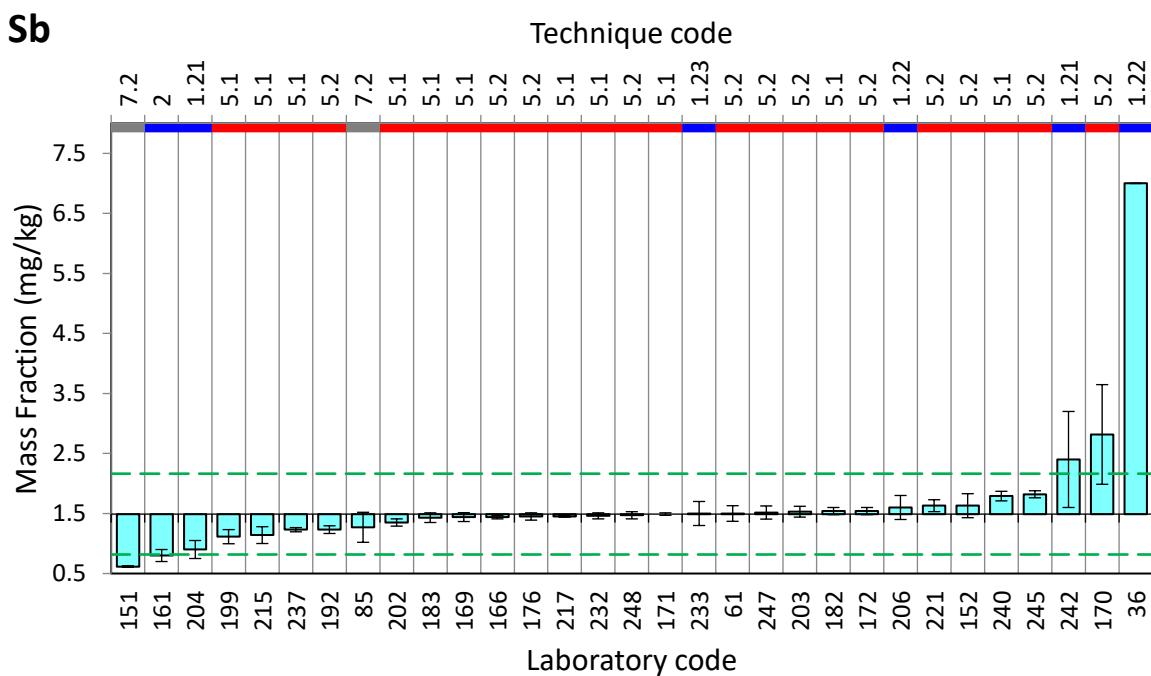


FIG. 91. Bar chart distributions of results for measurand Sb (Clay sample).

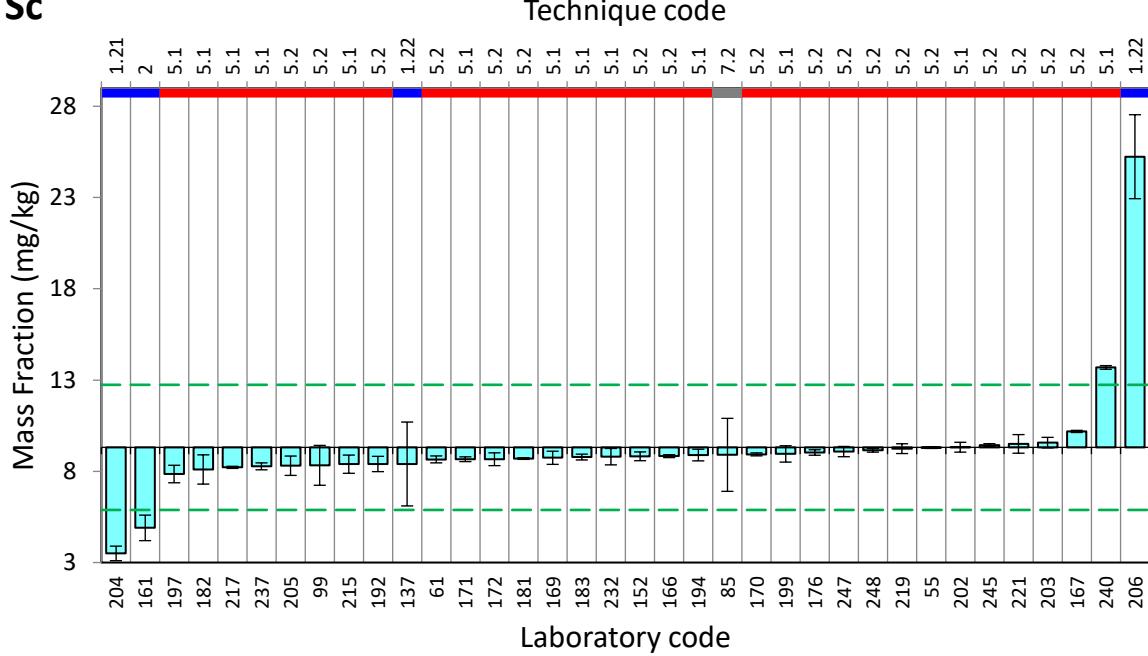
Sc

FIG. 92. Bar chart distributions of results for measurand Sc (Clay sample).

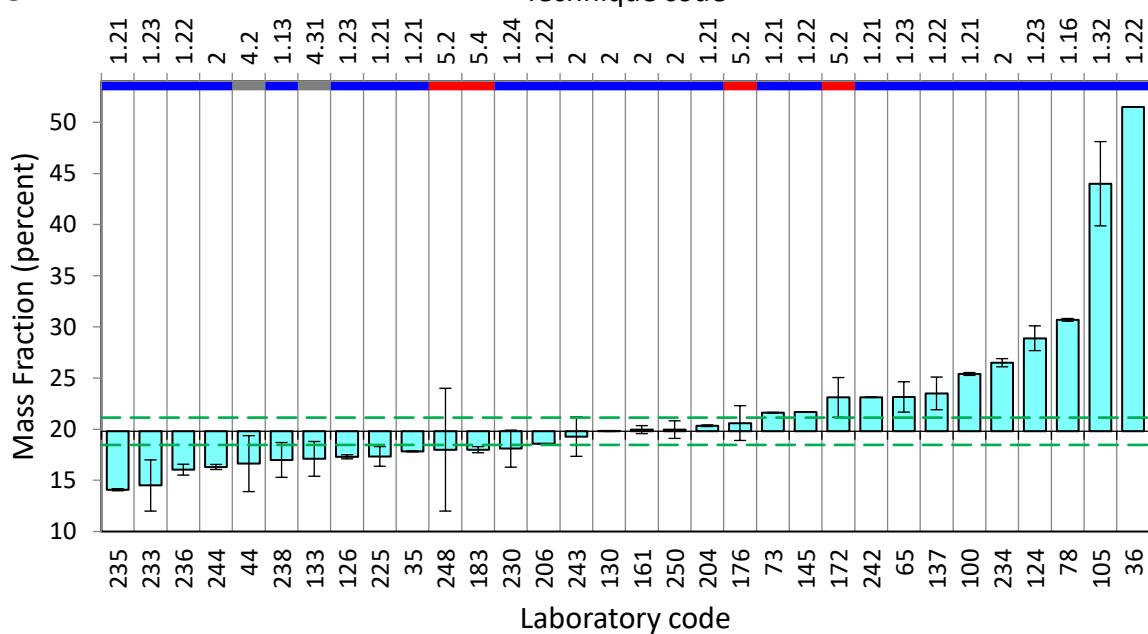
Si

FIG. 93. Bar chart distributions of results for measurand Si (Clay sample).

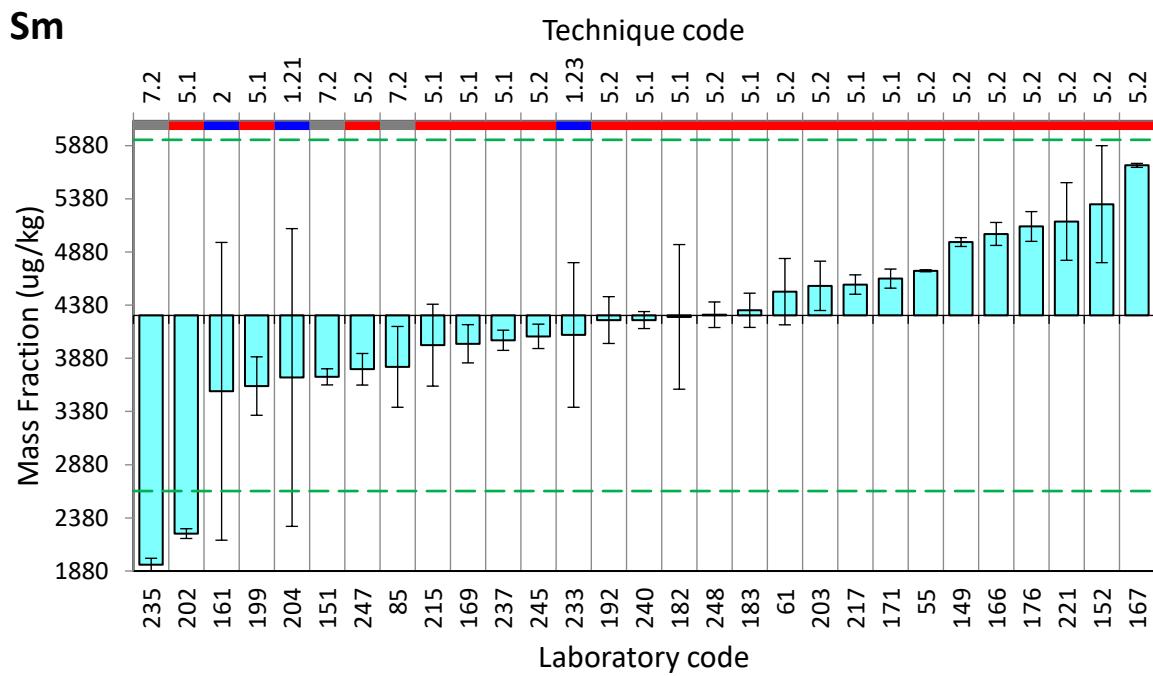


FIG. 94. Bar chart distributions of results for measurand Sm (Clay sample).

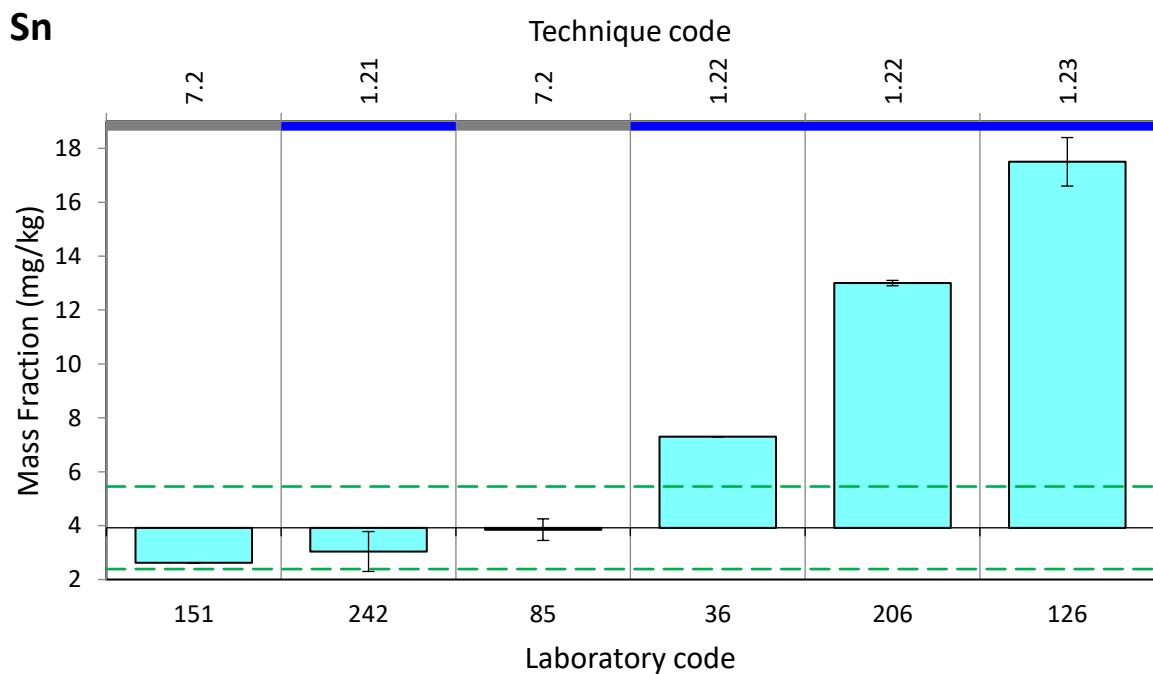


FIG. 95. Bar chart distributions of results for measurand Sn (Clay sample).

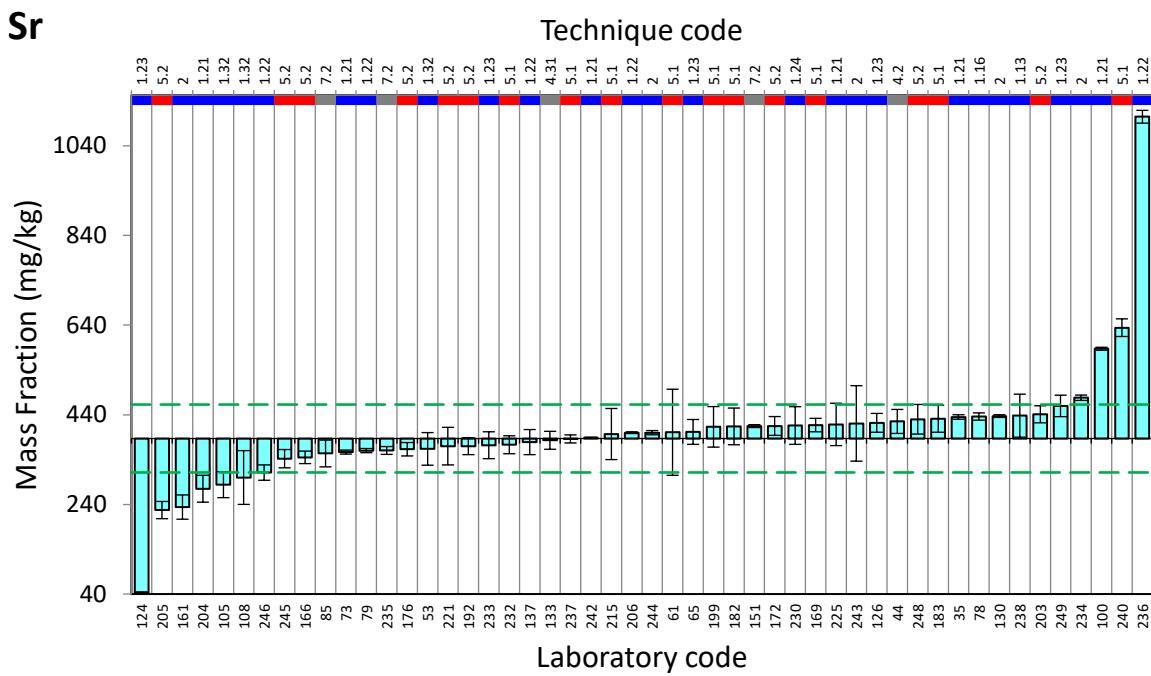


FIG. 96. Bar chart distributions of results for measurand Sr (Clay sample).

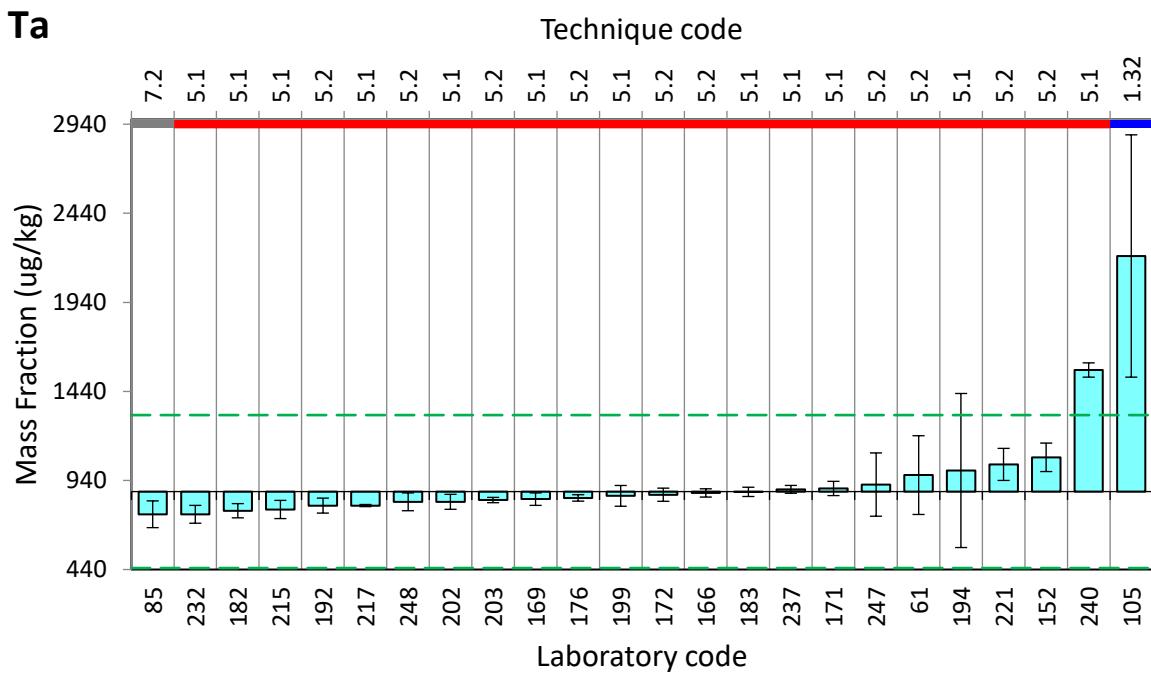


FIG. 97. Bar chart distributions of results for measurand Ta (Clay sample).

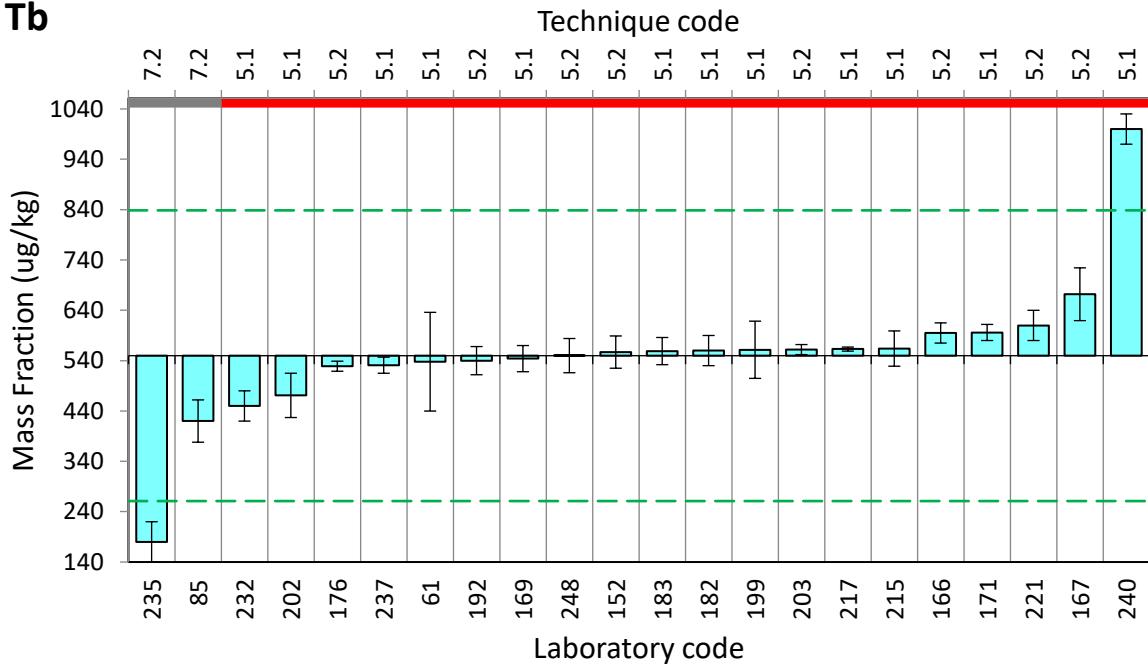
Tb

FIG. 98. Bar chart distributions of results for measurand Tb (Clay sample).

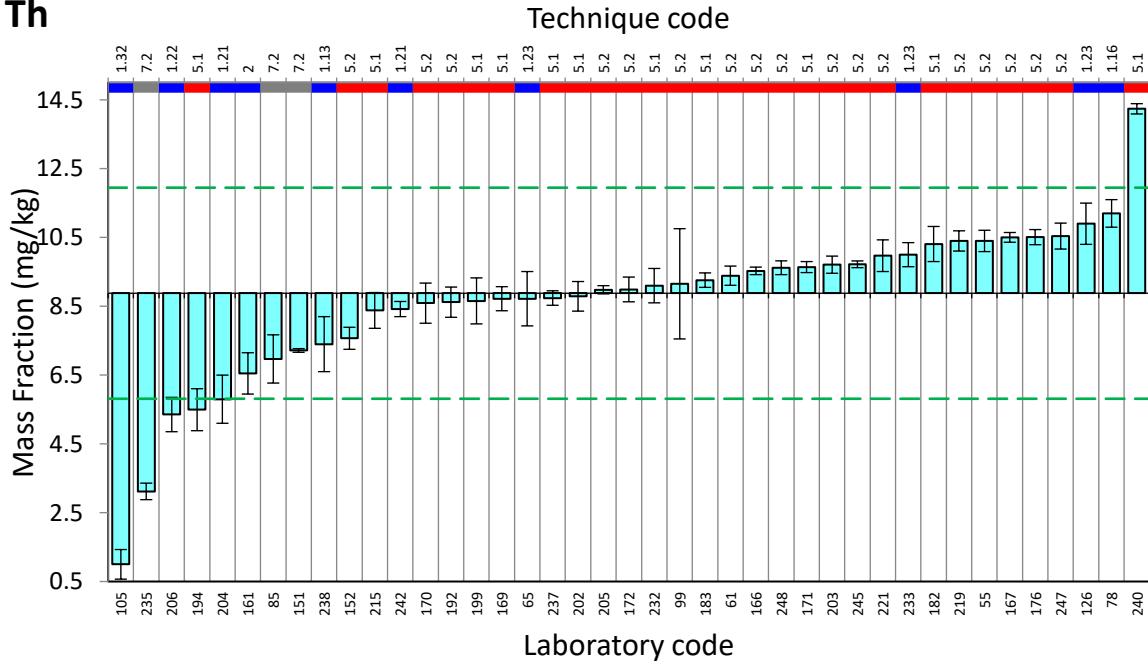
Th

FIG. 99. Bar chart distributions of results for measurand Th (Clay sample).

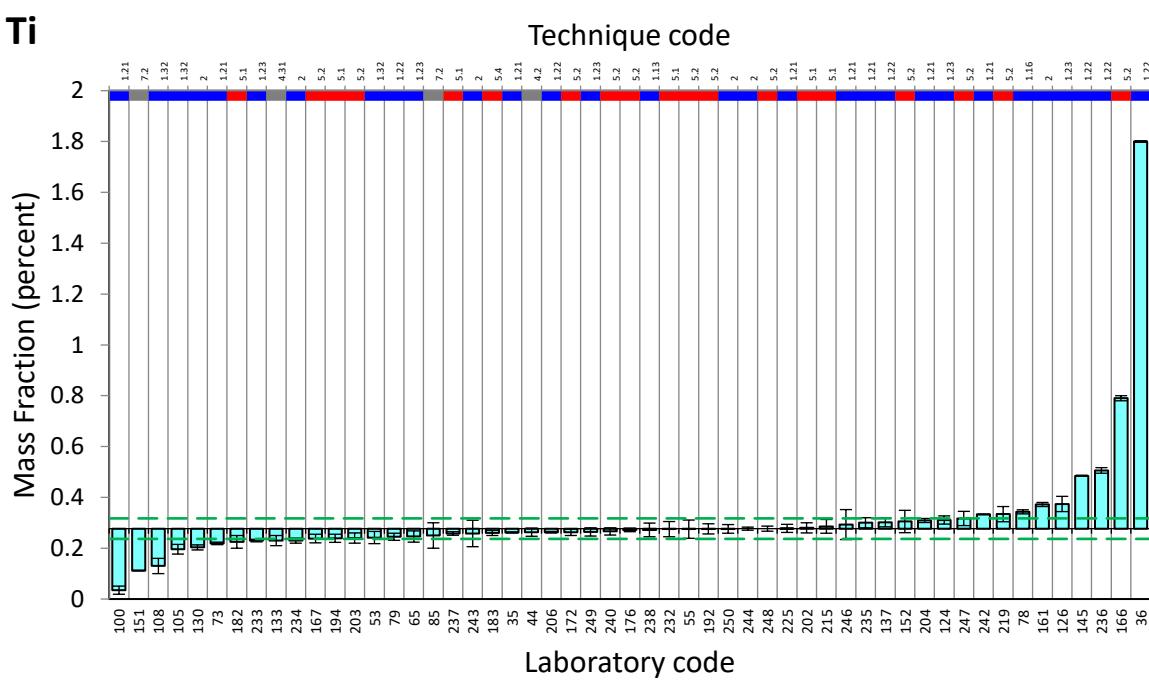


FIG. 100. Bar chart distributions of results for measurand T_i (Clay sample).

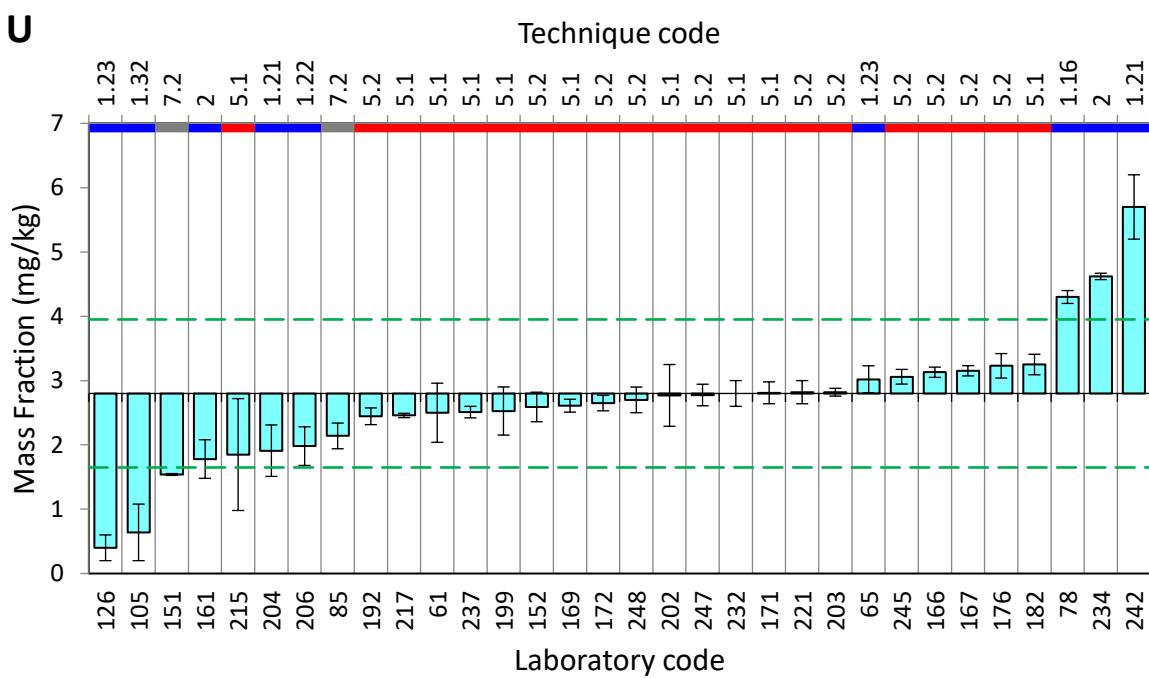


FIG. 101. Bar chart distributions of results for measurand U (Clay sample).

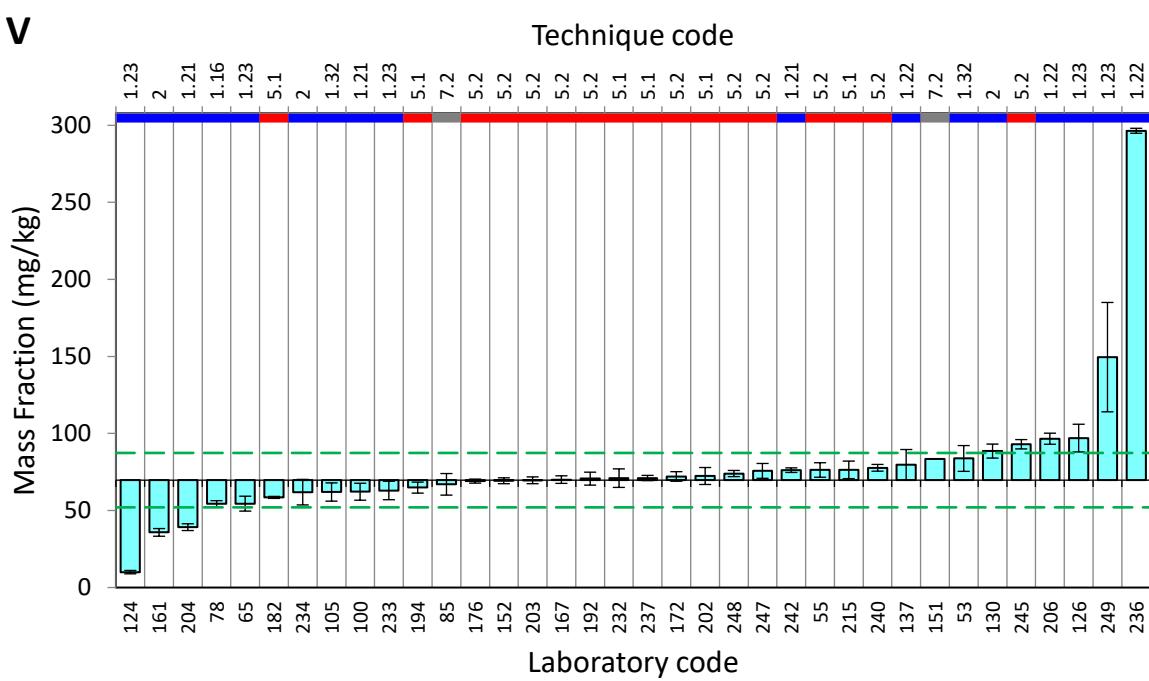


FIG. 102. Bar chart distributions of results for measurand V (Clay sample).

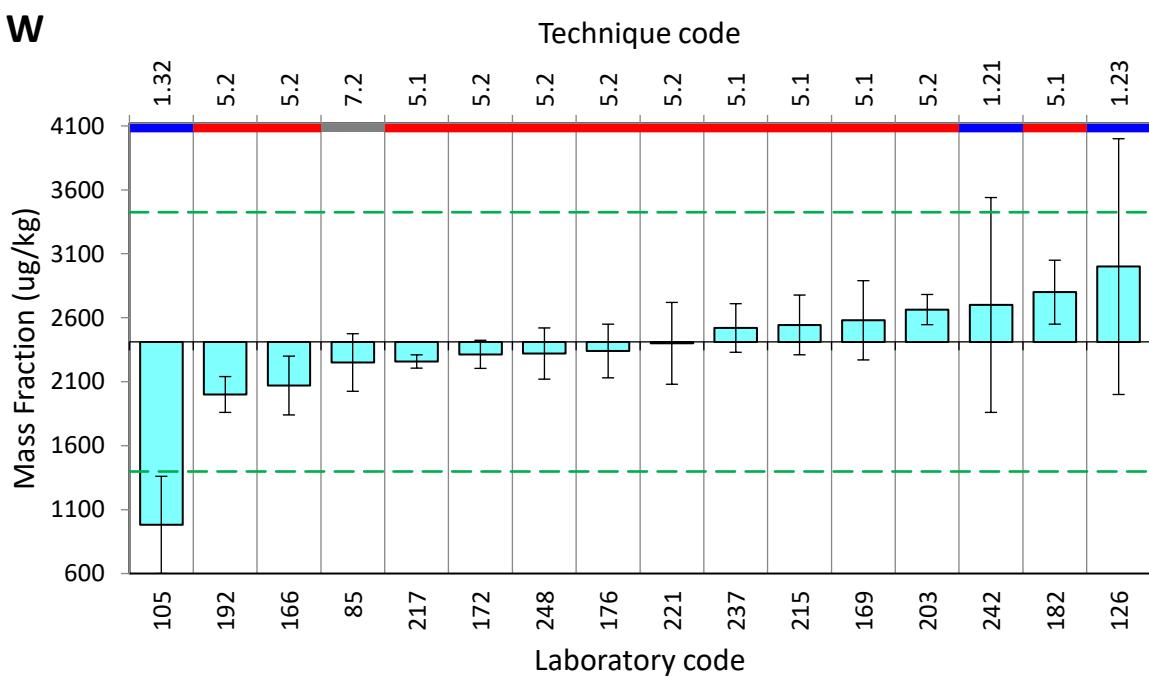


FIG. 103. Bar chart distributions of results for measurand W (Clay sample).

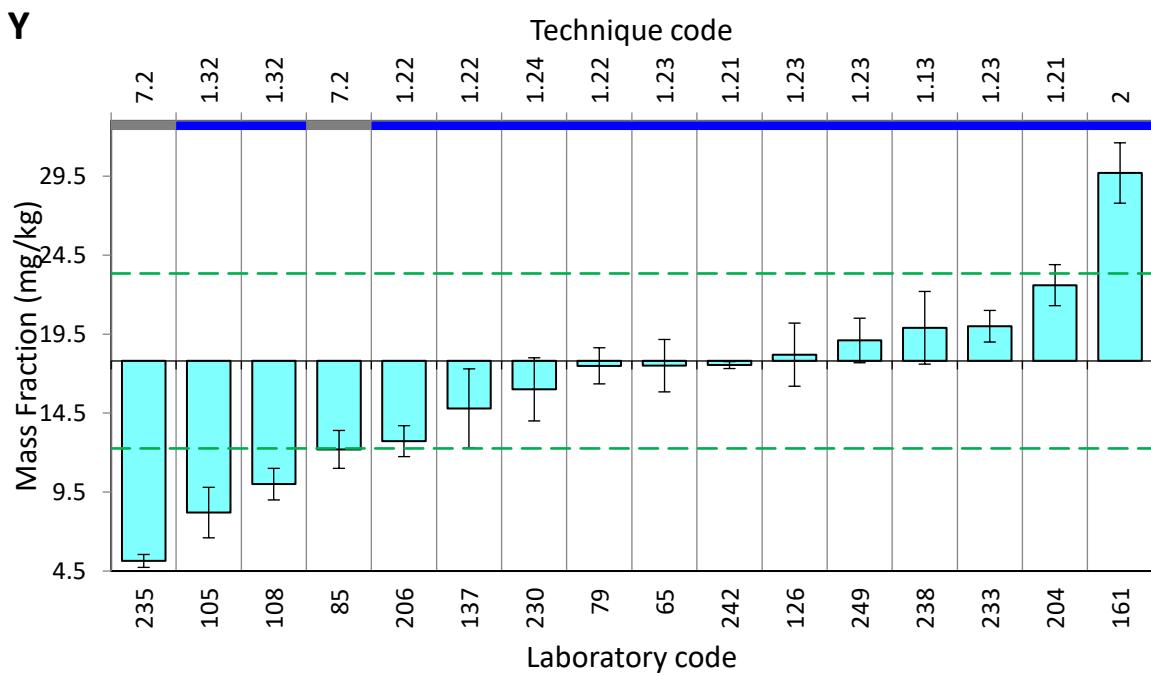


FIG. 104. Bar chart distributions of results for measurand Y (Clay sample).

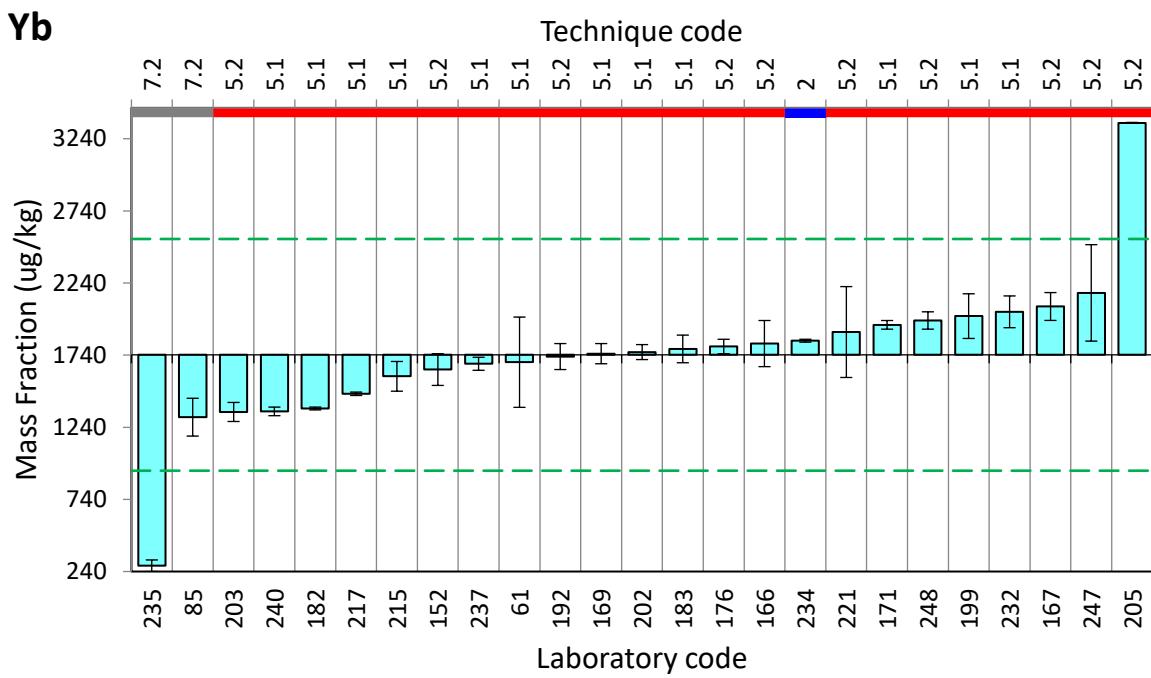


FIG. 105. Bar chart distributions of results for measurand Yb (Clay sample).

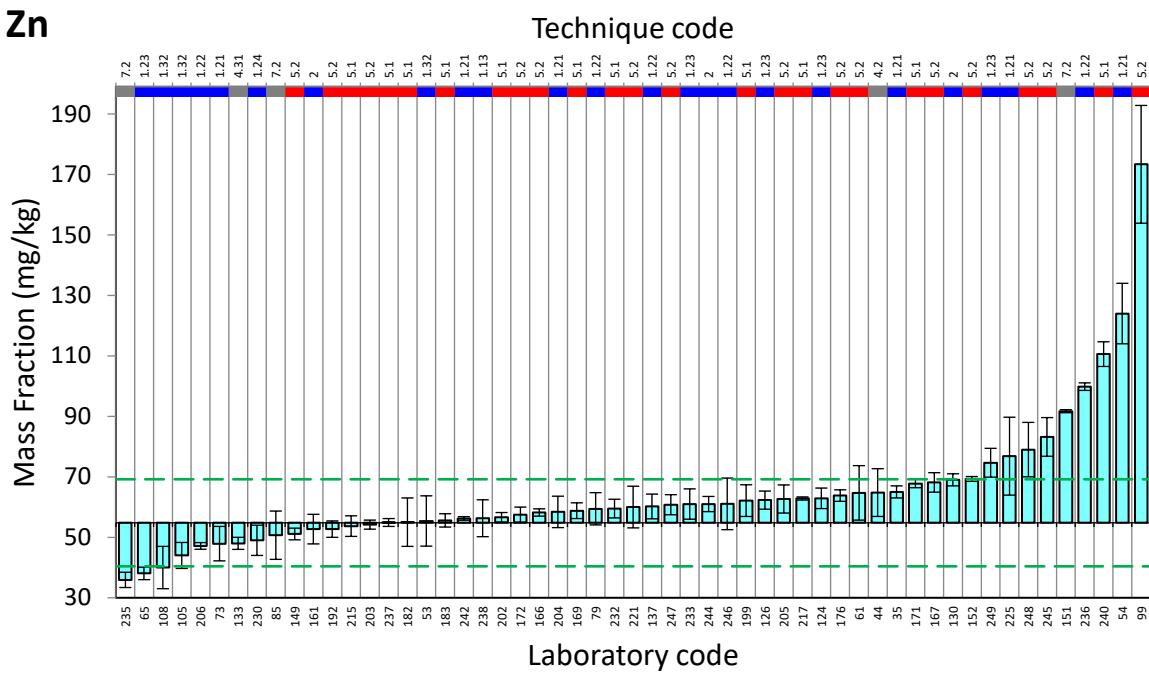


FIG. 106. Bar chart distributions of results for measurand Zn (Clay sample).

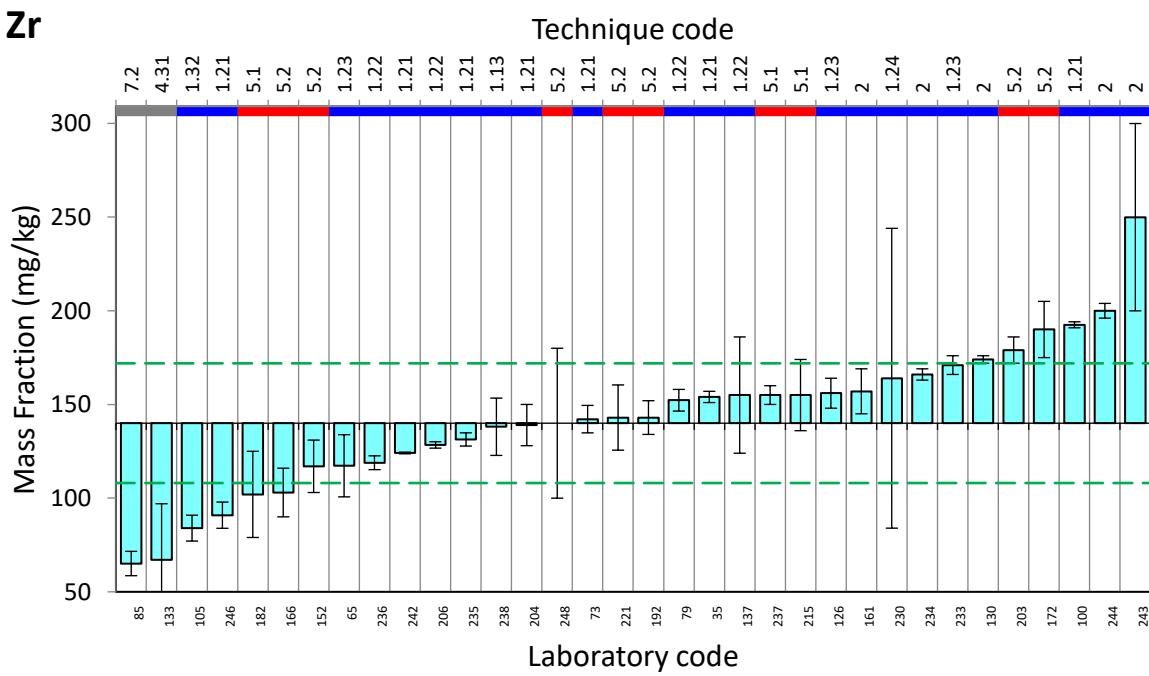


FIG. 107. Bar chart distributions of results for measurand Zr (Clay sample).

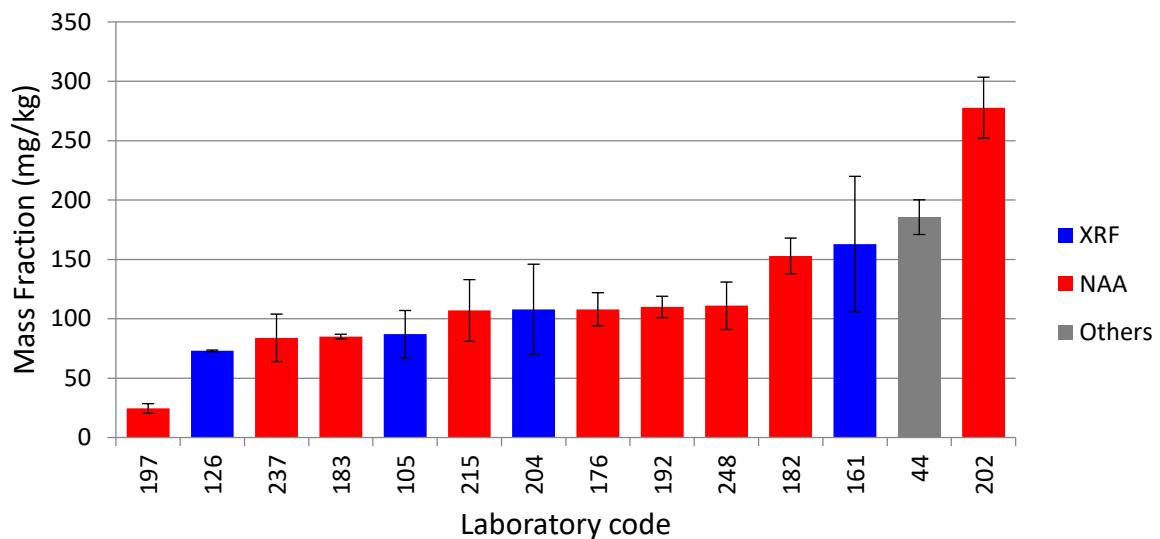
Cl

FIG. 108. Bar chart distributions of results for measurand Cl (Clay sample).

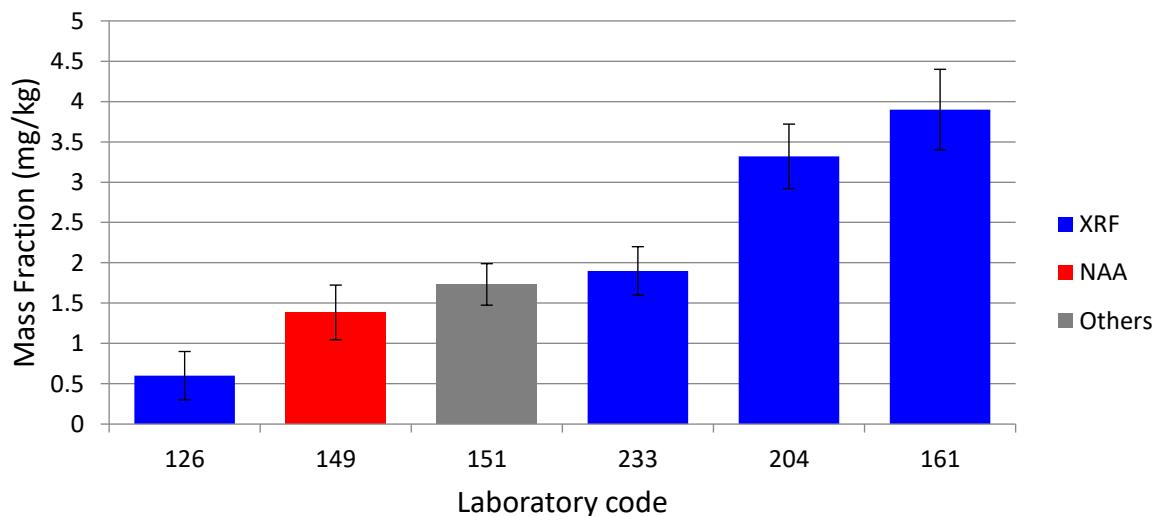
Se

FIG. 109. Bar chart distributions of results for measurand Se (Clay sample).

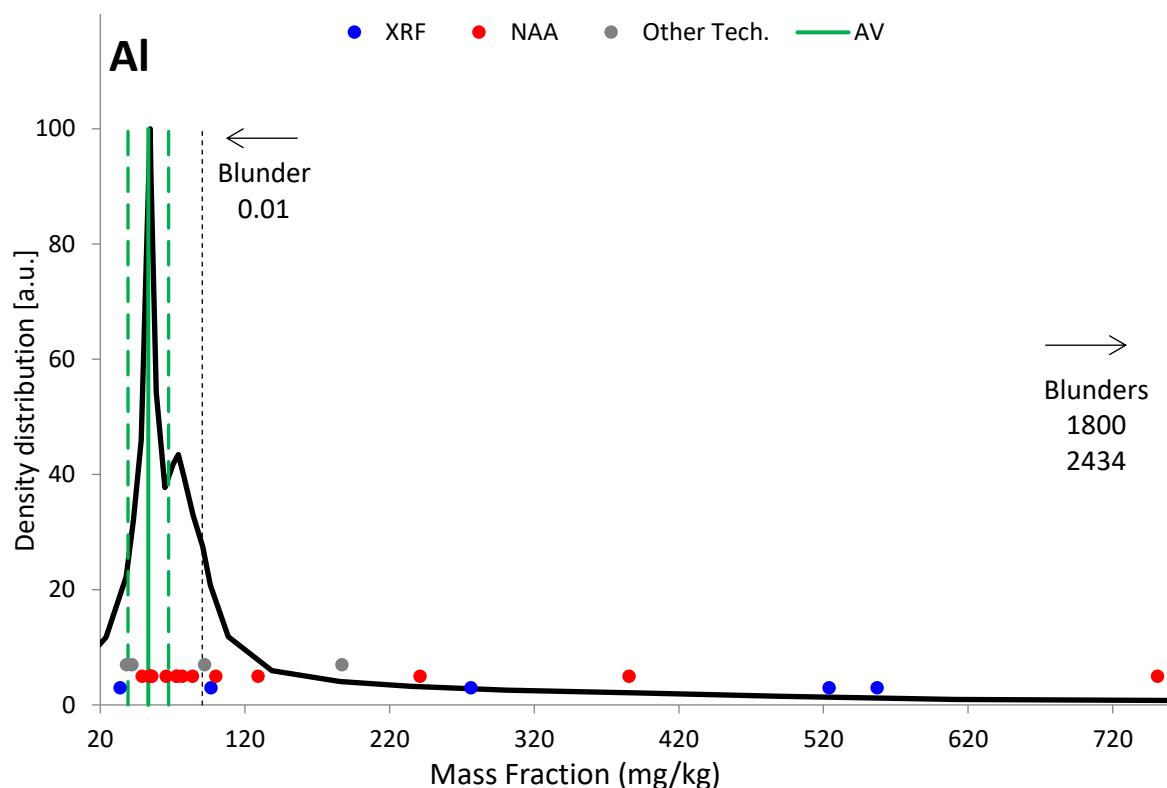


FIG. 110. Density distribution function for the measurand Al (Plant sample).

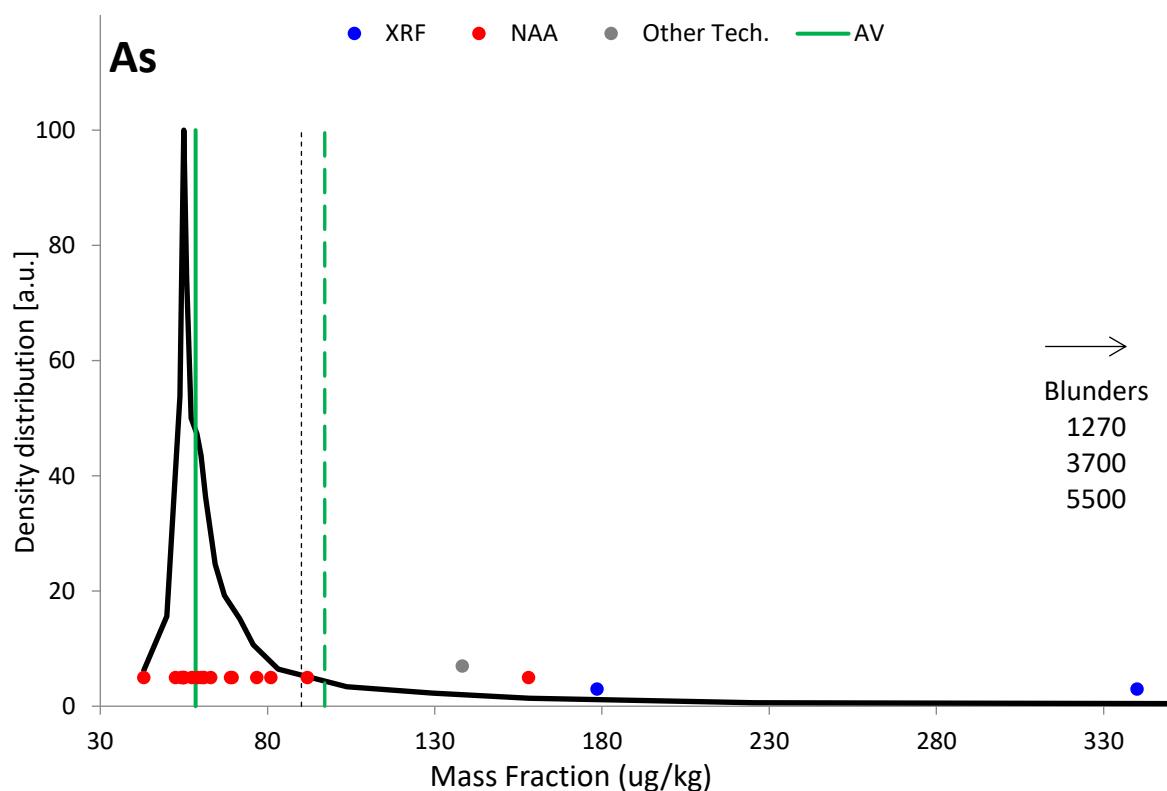


FIG. 111. Density distribution function for the measurand As (Plant sample).

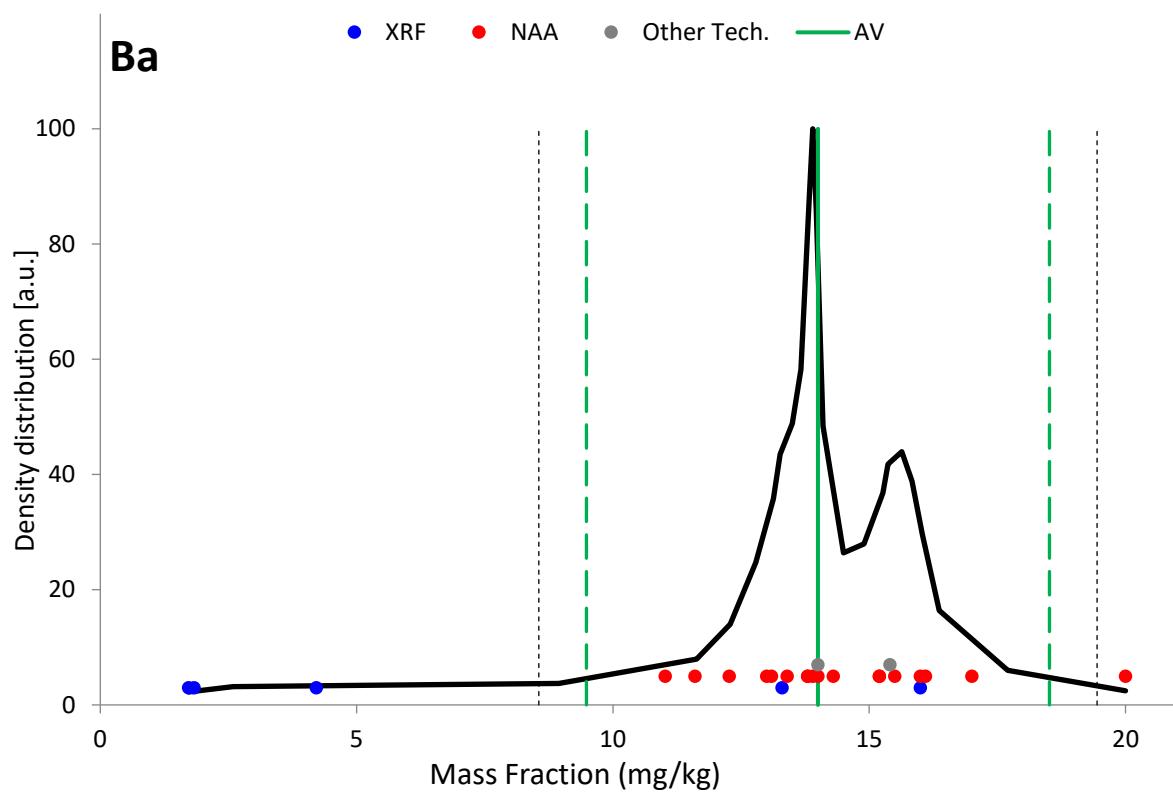


FIG. 112. Density distribution function for the measurand Ba (Plant sample).

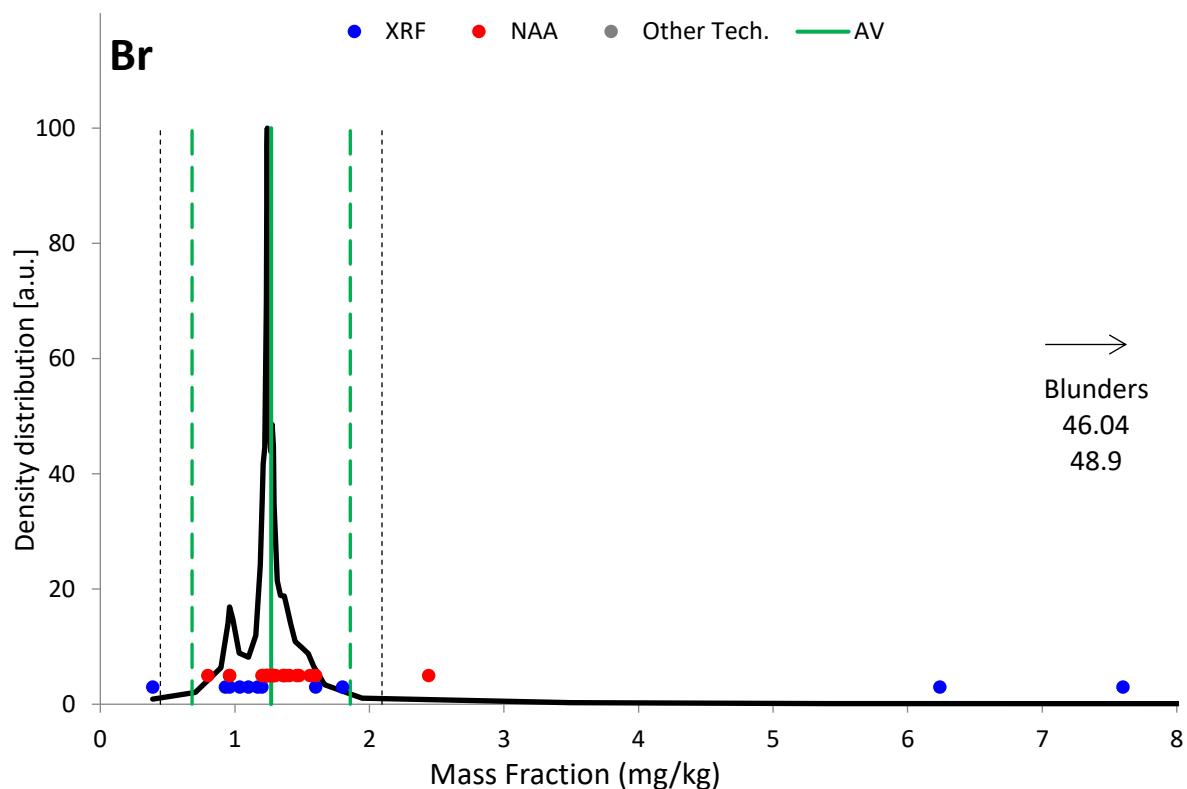


FIG. 113. Density distribution function for the measurand Br (Plant sample).

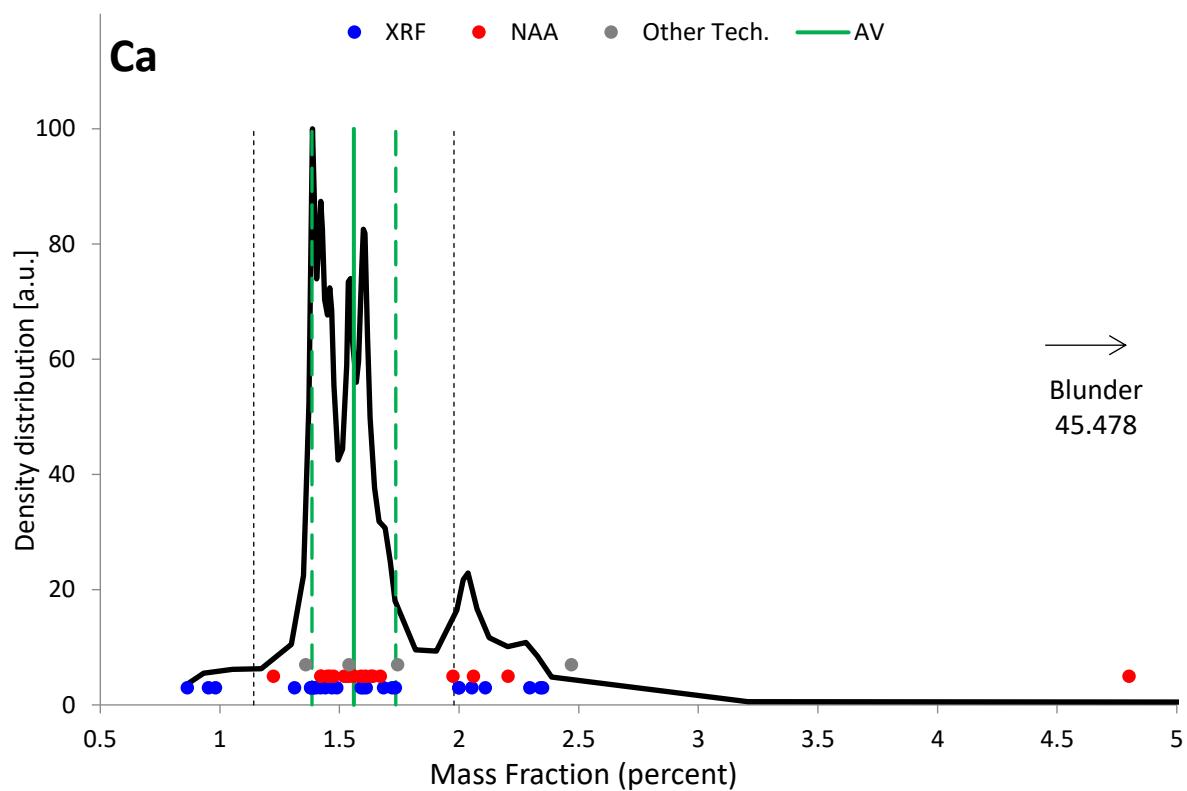


FIG. 114. Density distribution function for the measurand Ca (Plant sample).

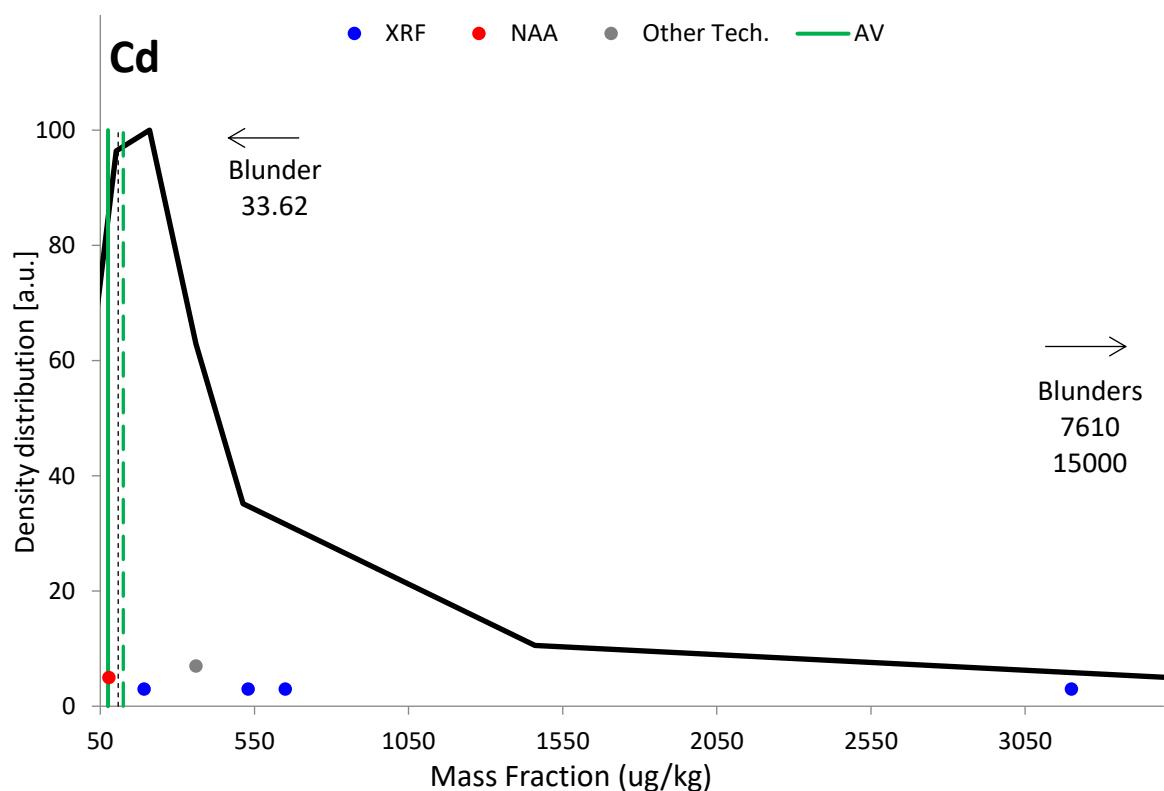


FIG. 115. Density distribution function for the measurand Cd (Plant sample).

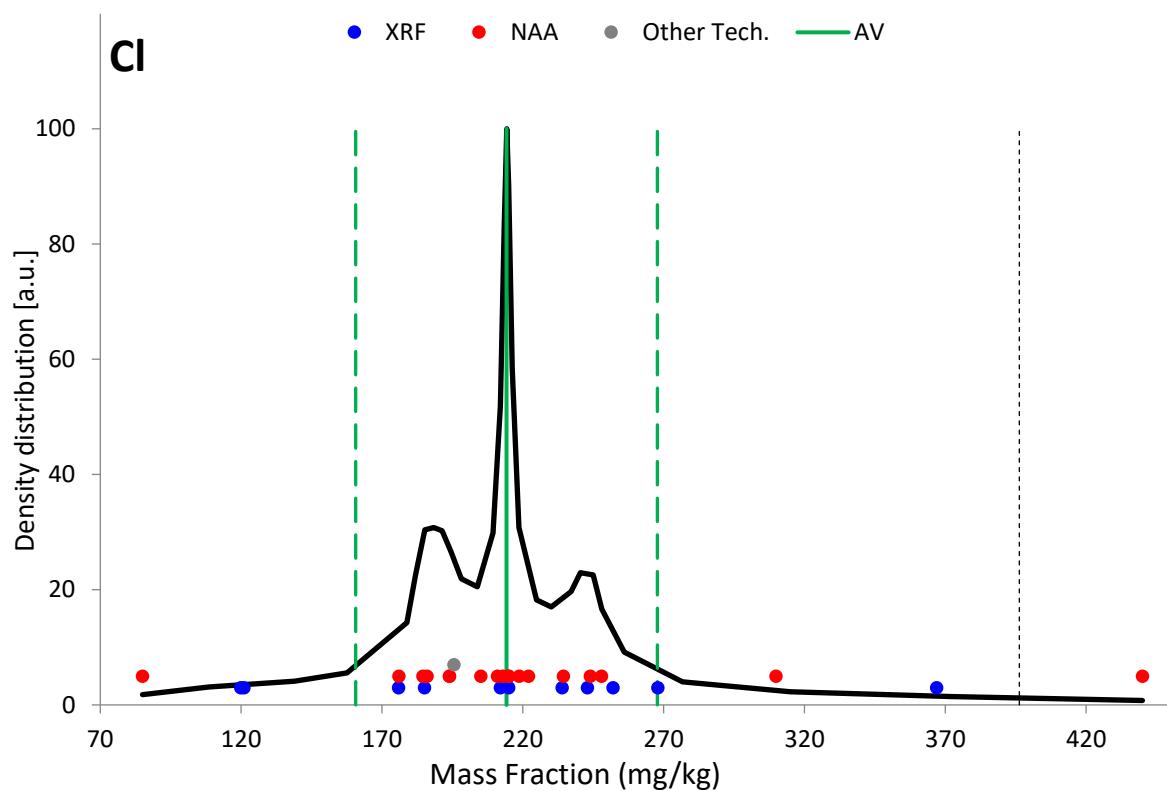


FIG. 116. Density distribution function for the measurand Cl (Plant sample).

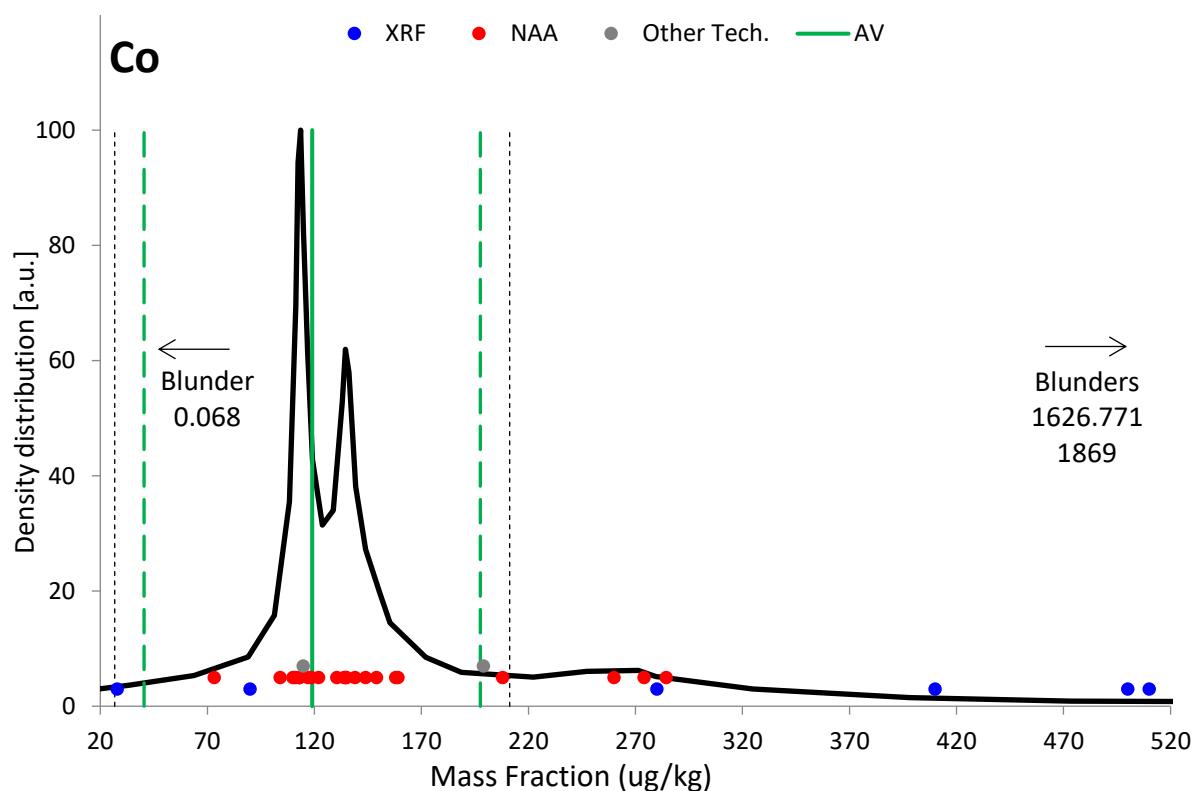


FIG. 117. Density distribution function for the measurand Co (Plant sample).

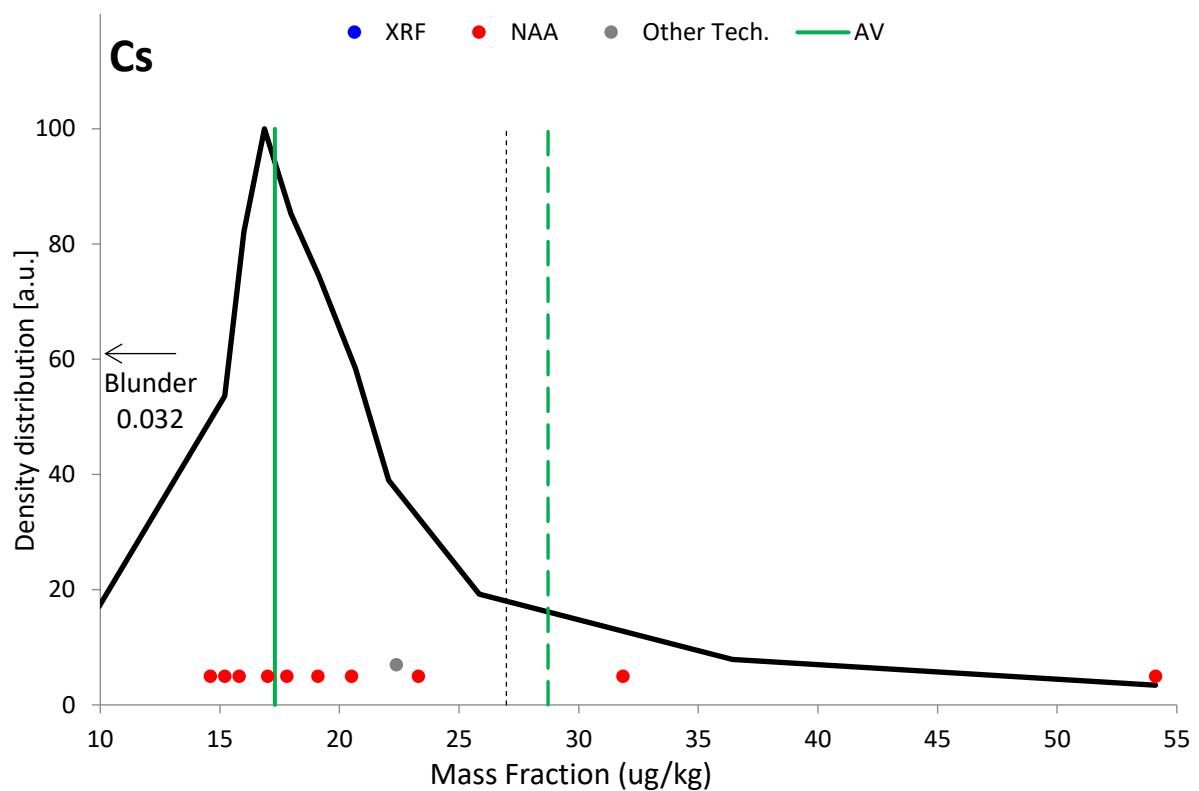


FIG. 118. Density distribution function for the measurand Cs (Plant sample).

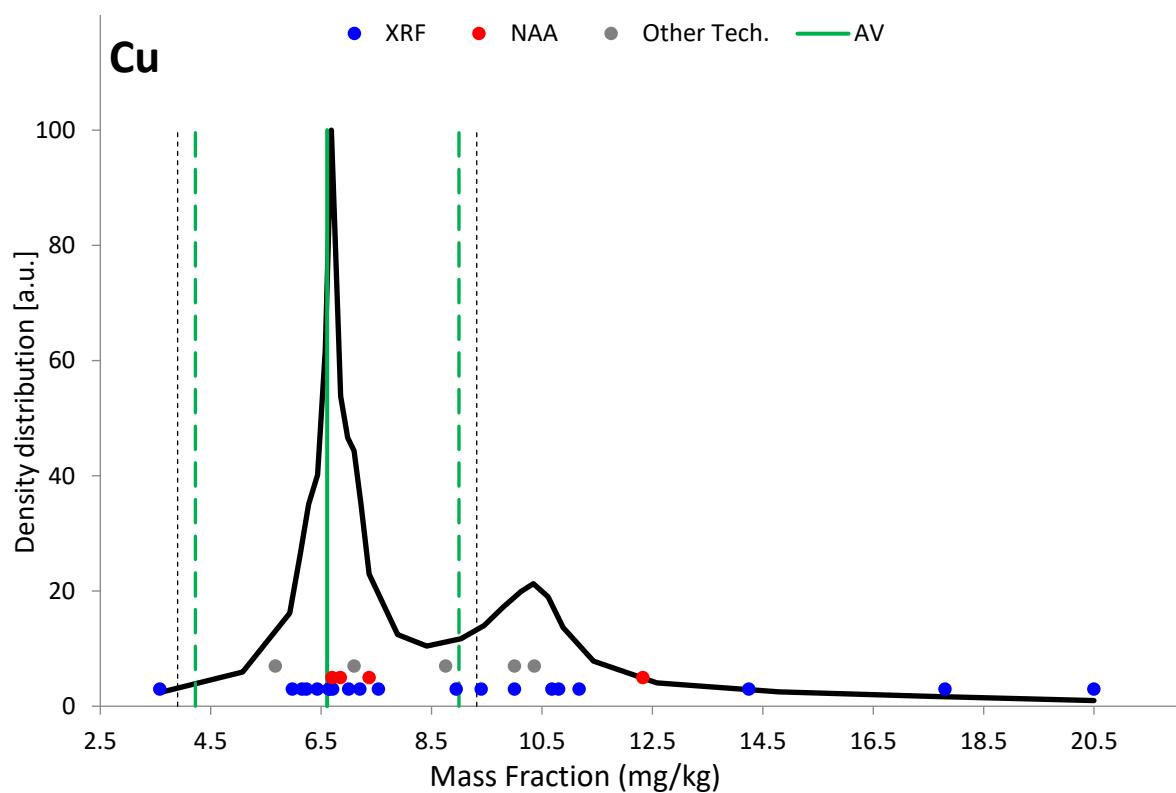


FIG. 119. Density distribution function for the measurand Cu (Plant sample).

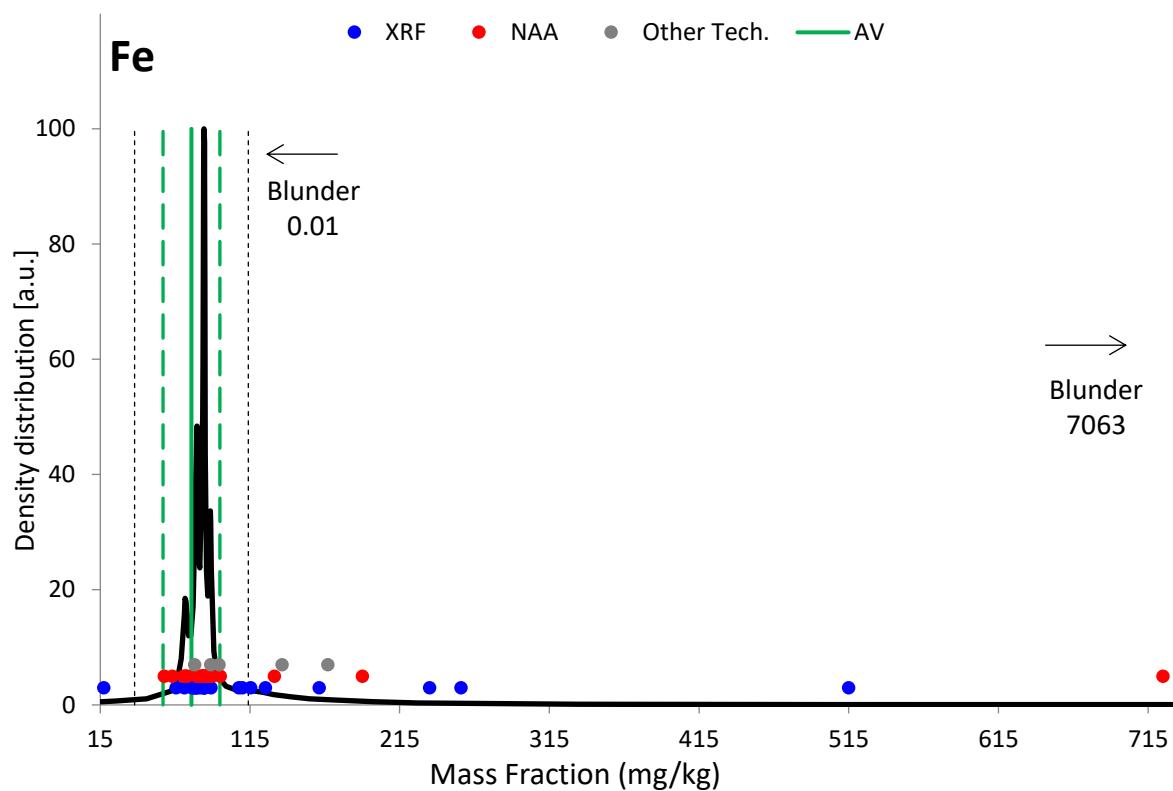


FIG. 120. Density distribution function for the measurand Fe (Plant sample).

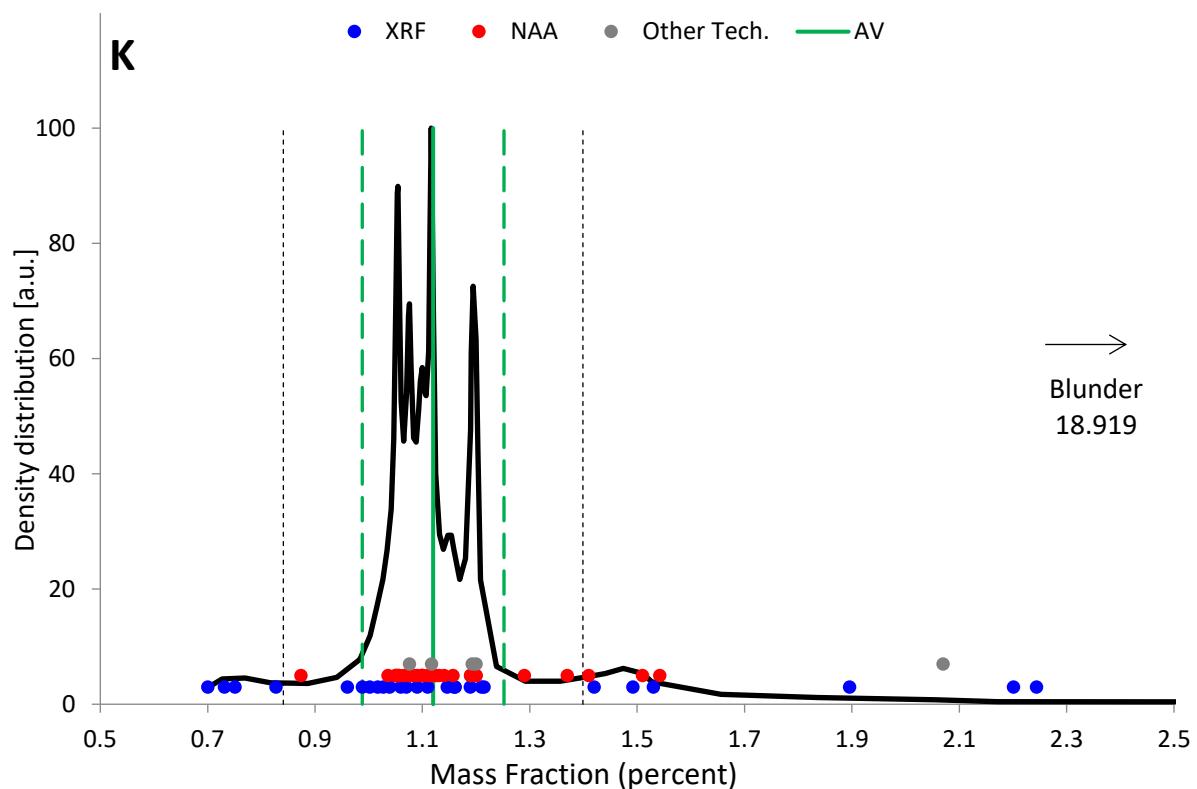


FIG. 121. Density distribution function for the measurand K (Plant sample).

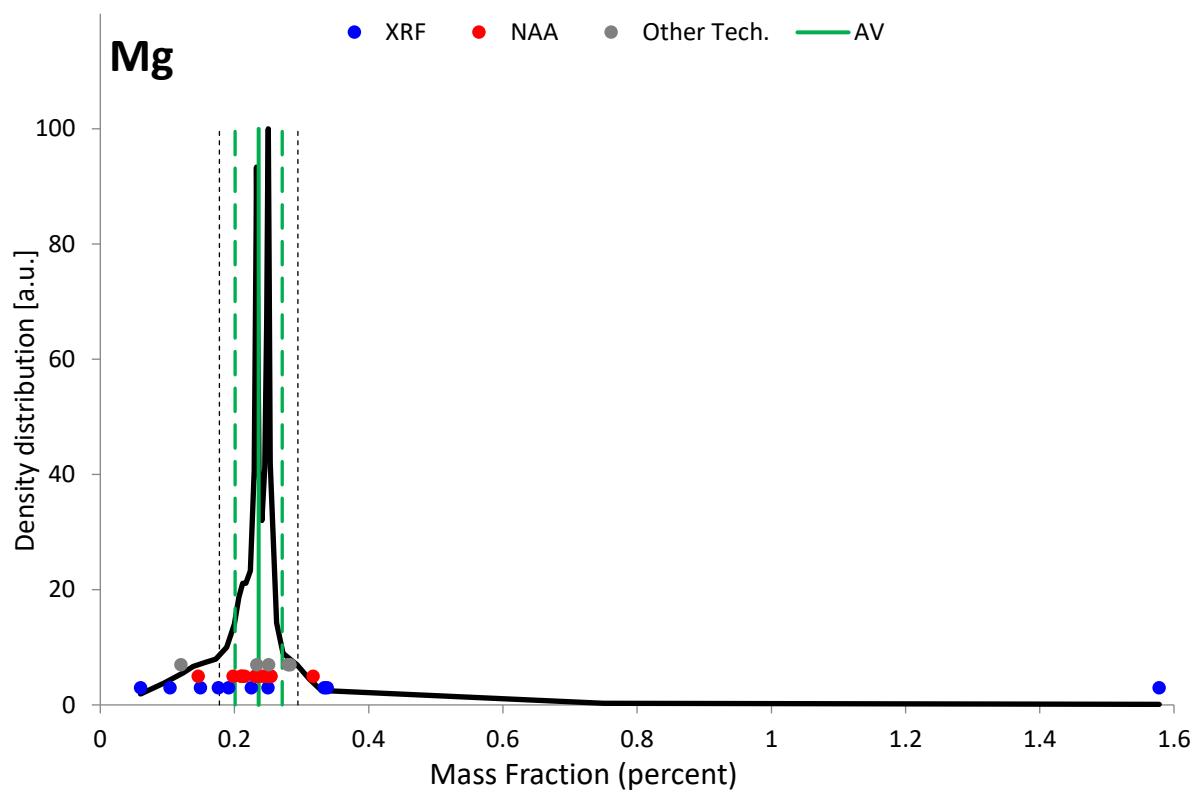


FIG. 122. Density distribution function for the measurand Mg (Plant sample).

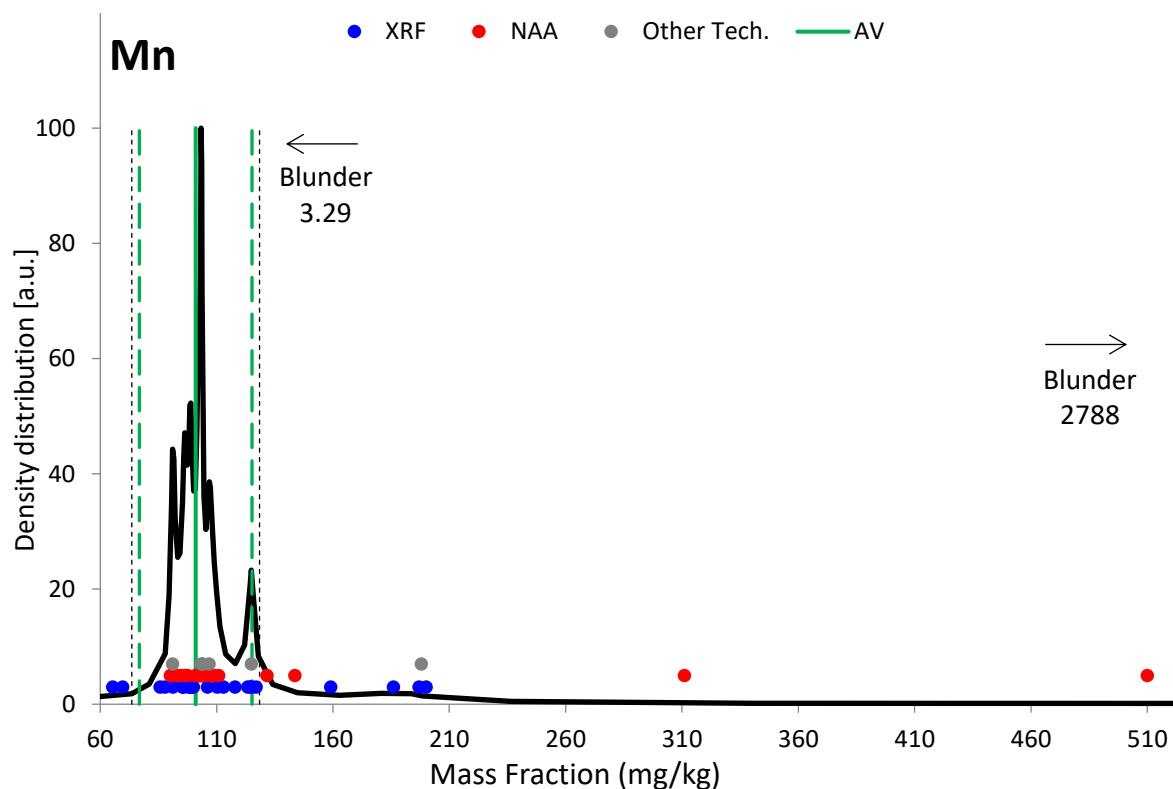


FIG. 123. Density distribution function for the measurand Mn (Plant sample).

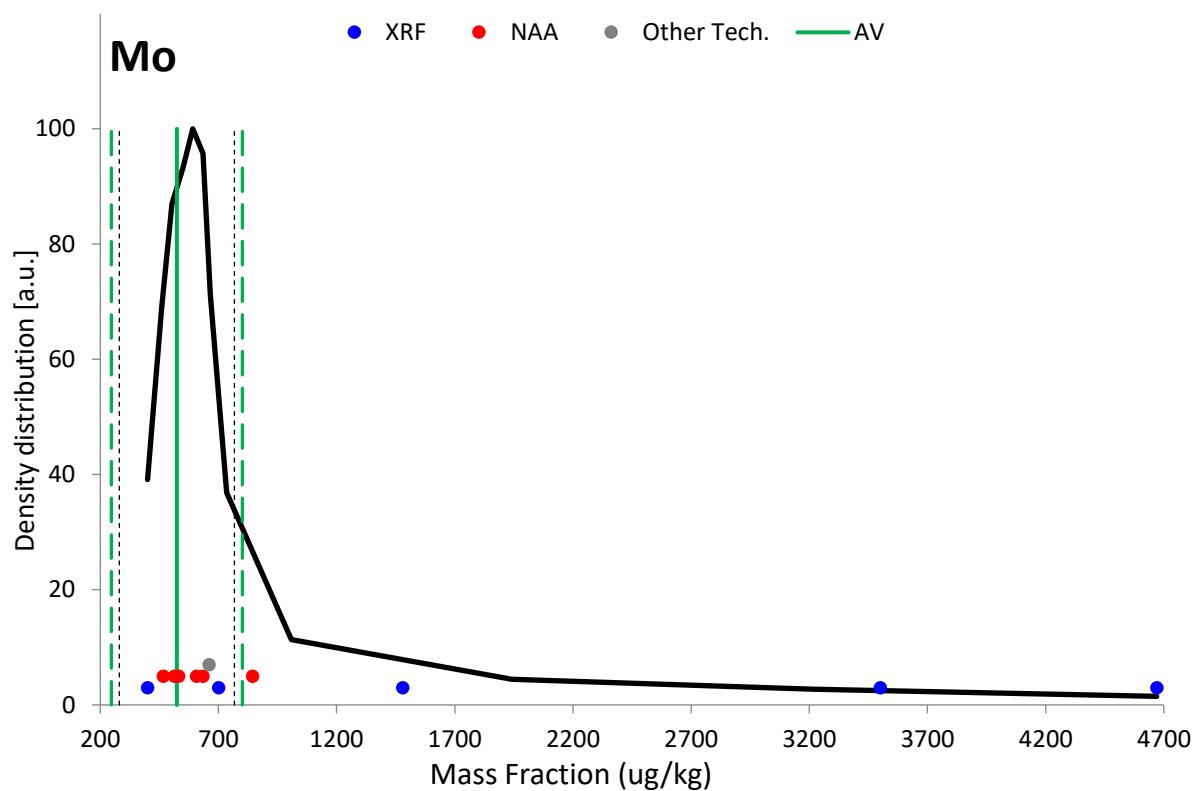


FIG. 124. Density distribution function for the measurand Mo (Plant sample).

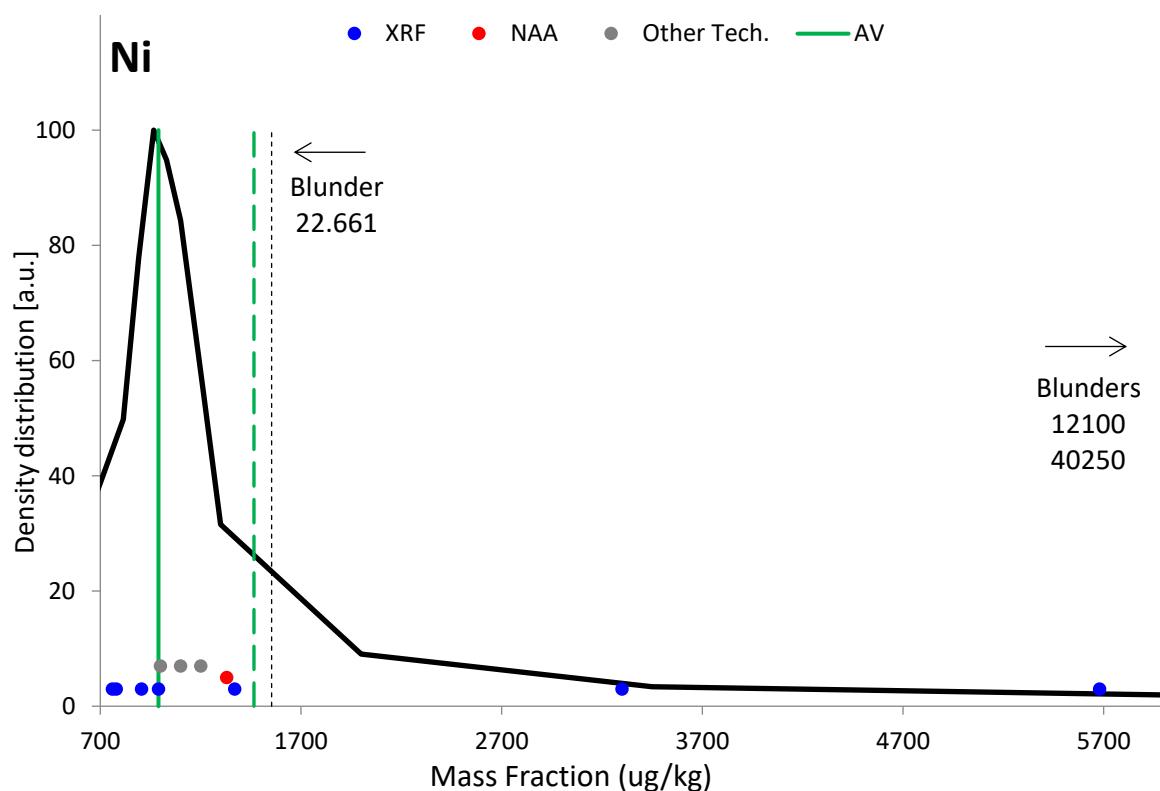


FIG. 125. Density distribution function for the measurand Ni (Plant sample).

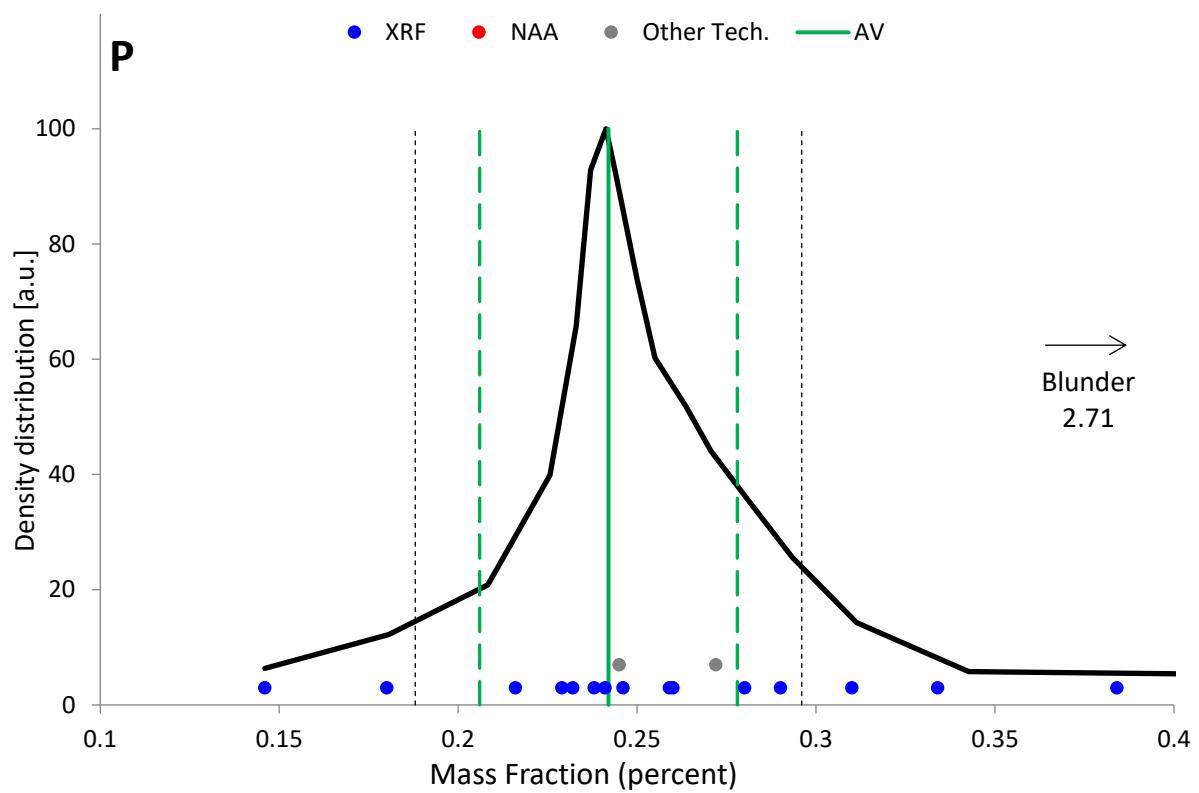


FIG. 126. Density distribution function for the measurand P (Plant sample).

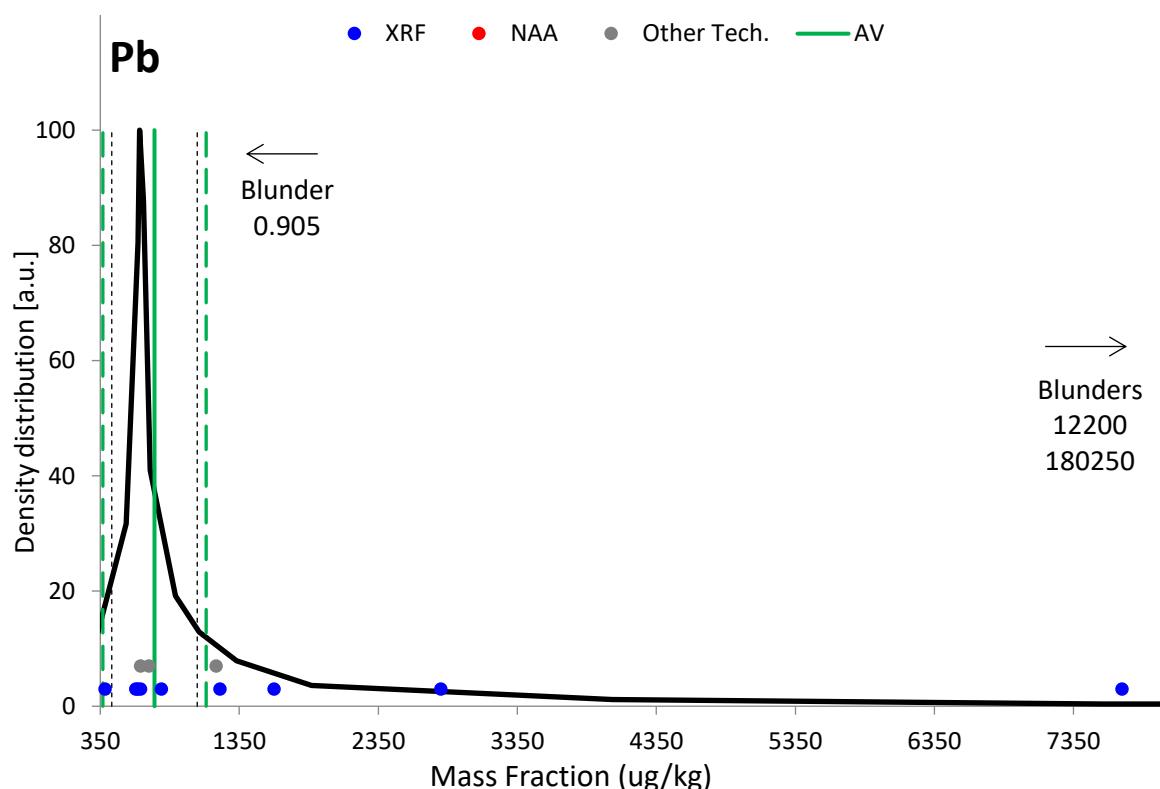


FIG. 127. Density distribution function for the measurand Pb (Plant sample).

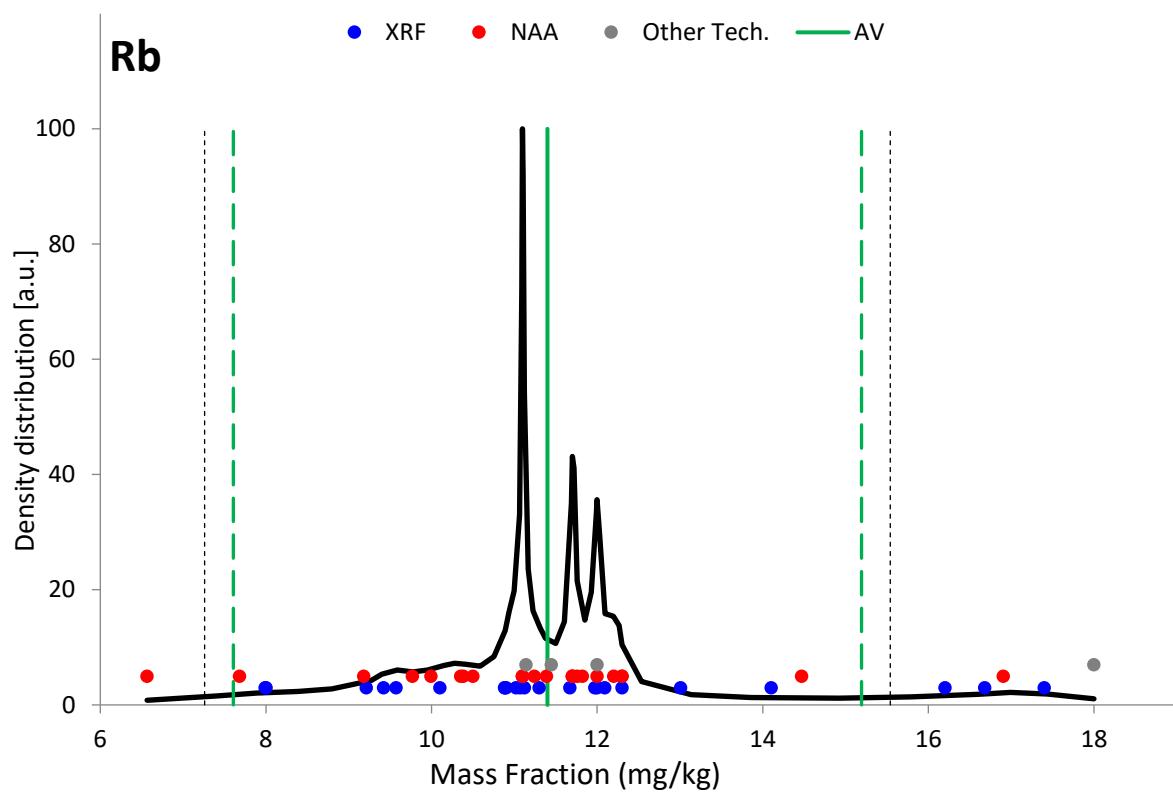


FIG. 128. Density distribution function for the measurand Rb (Plant sample).

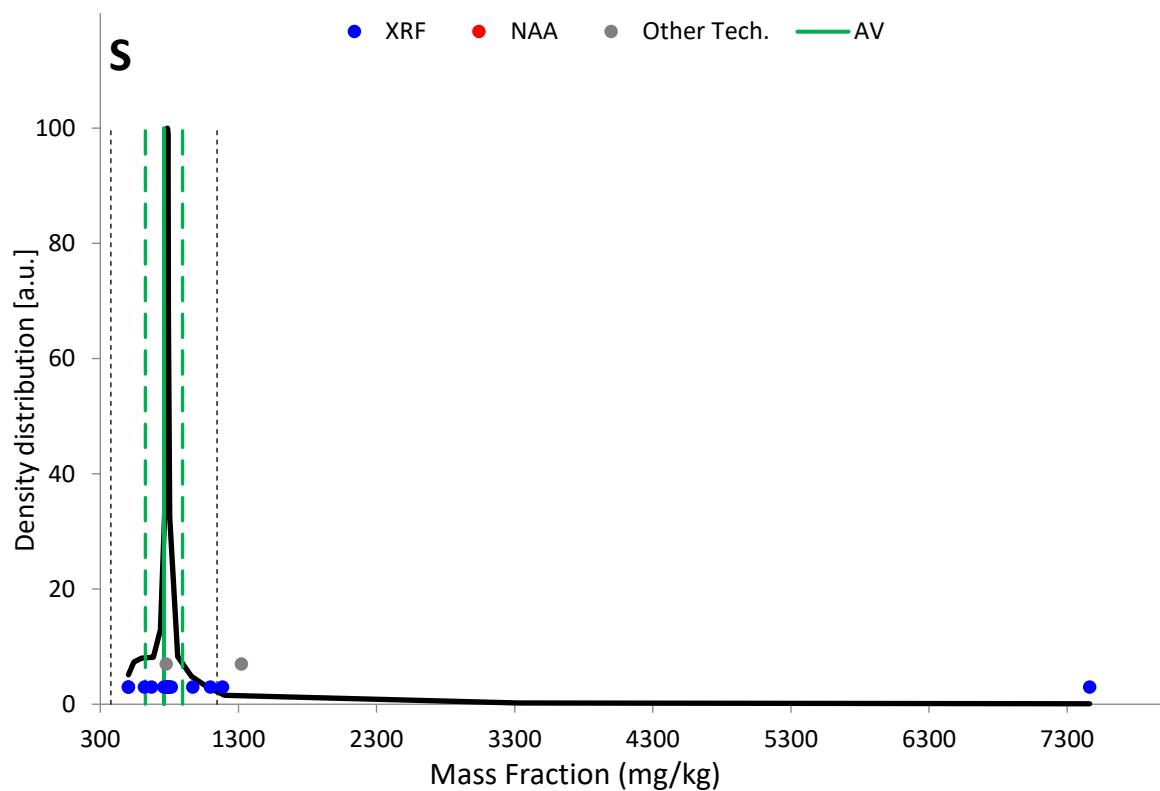


FIG. 129. Density distribution function for the measurand S (Plant sample).

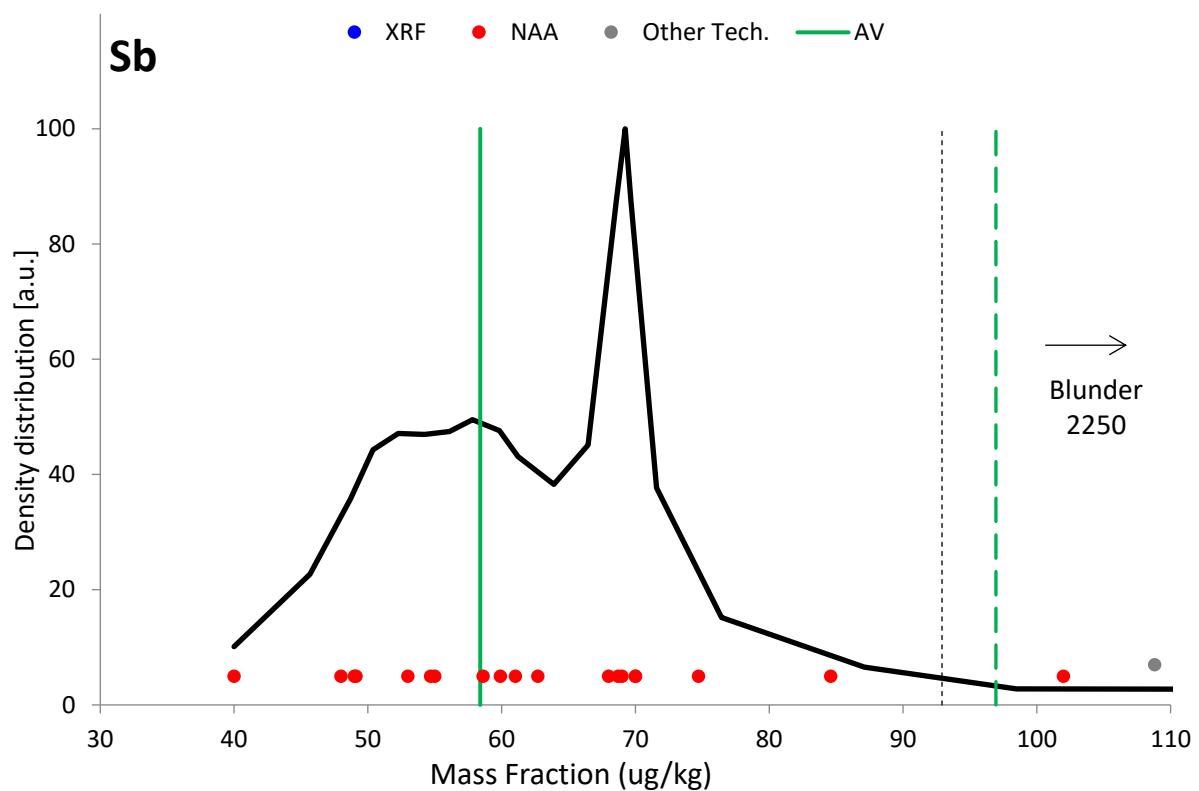


FIG. 130. Density distribution function for the measurand Sb (Plant sample).

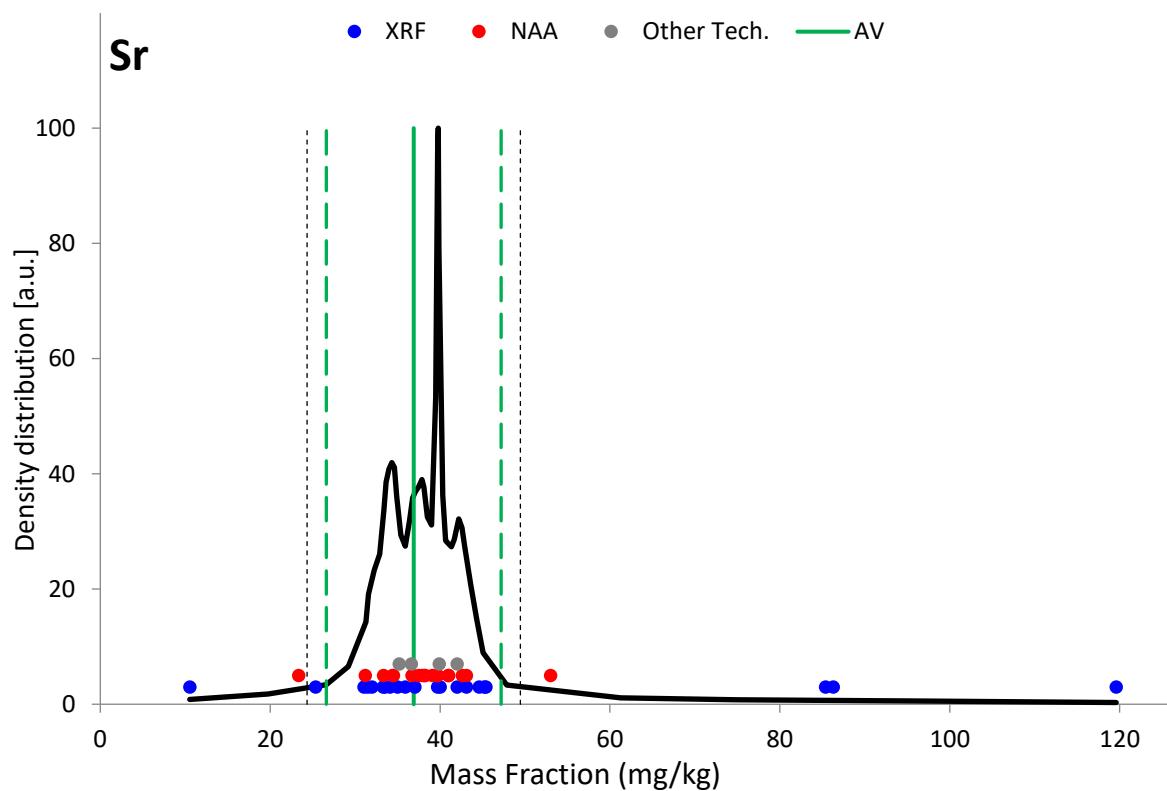


FIG. 131. Density distribution function for the measurand Sr (Plant sample).

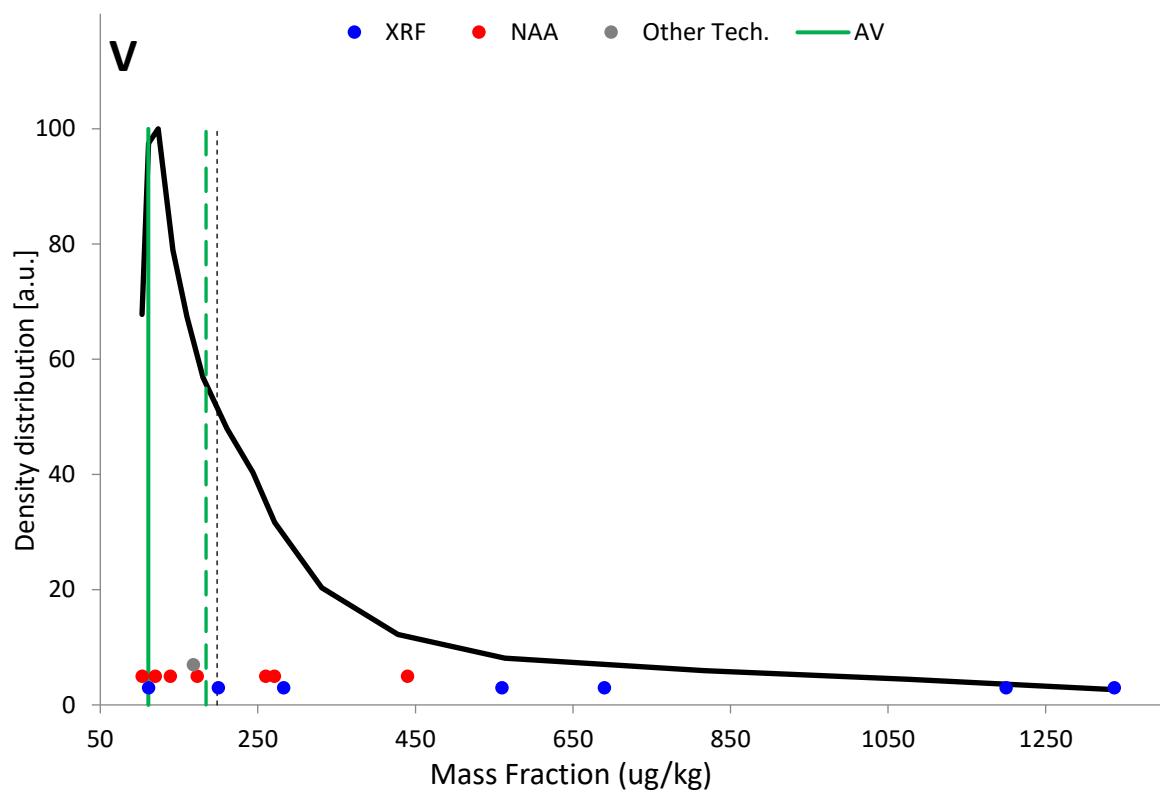


FIG. 132. Density distribution function for the measurand V (Plant sample).

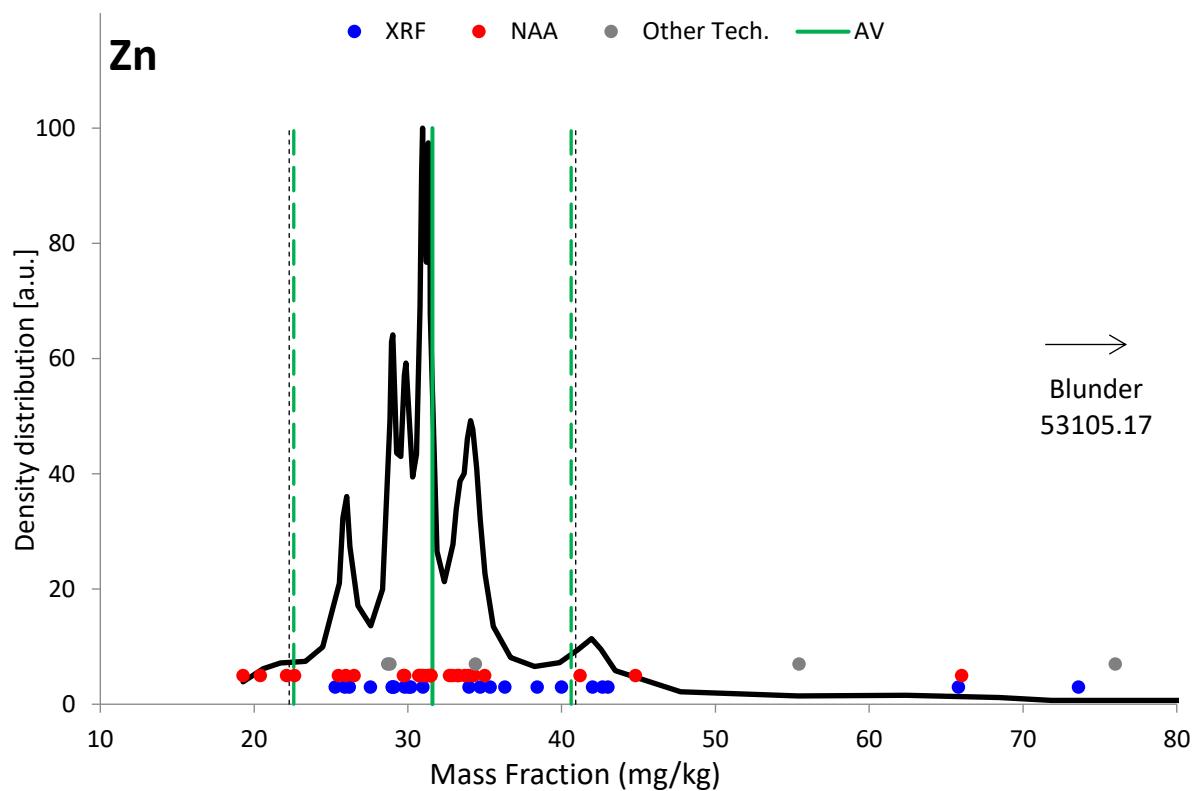


FIG. 133. Density distribution function for the measurand Zn (Plant sample).

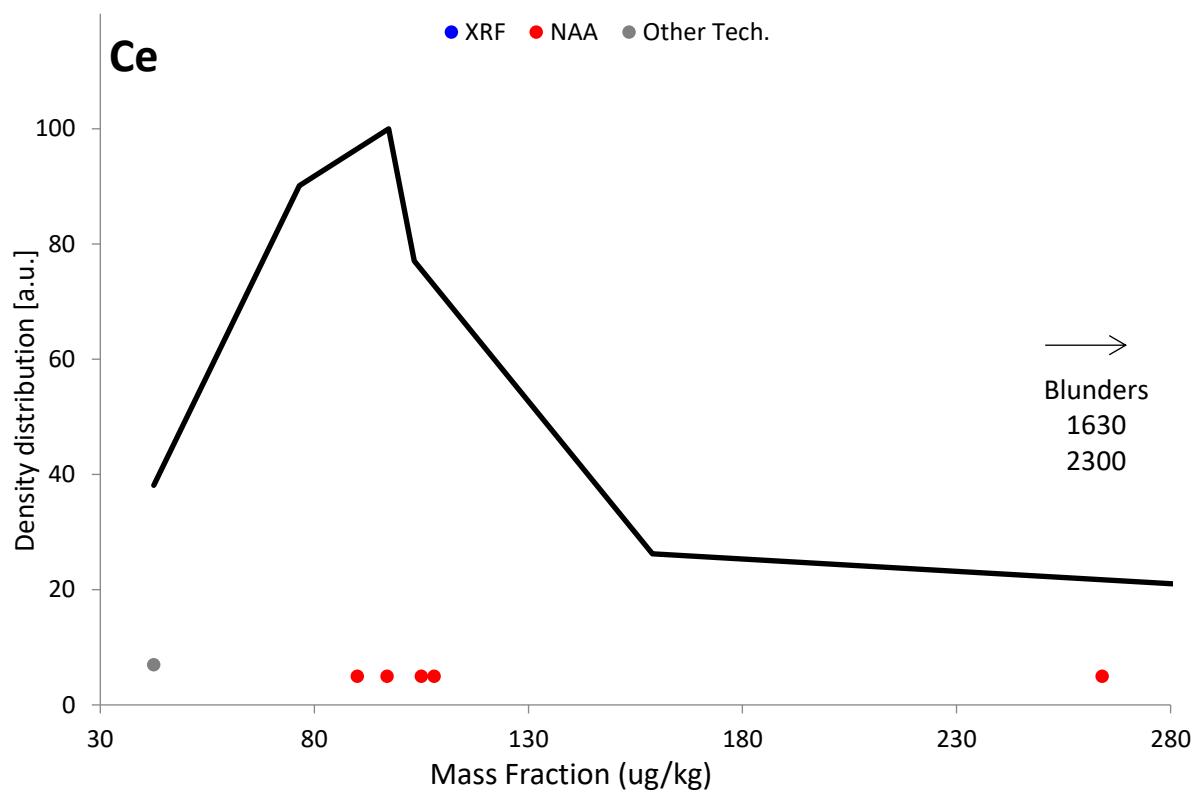


FIG. 134. Density distribution function for the measurand Ce (Plant sample).

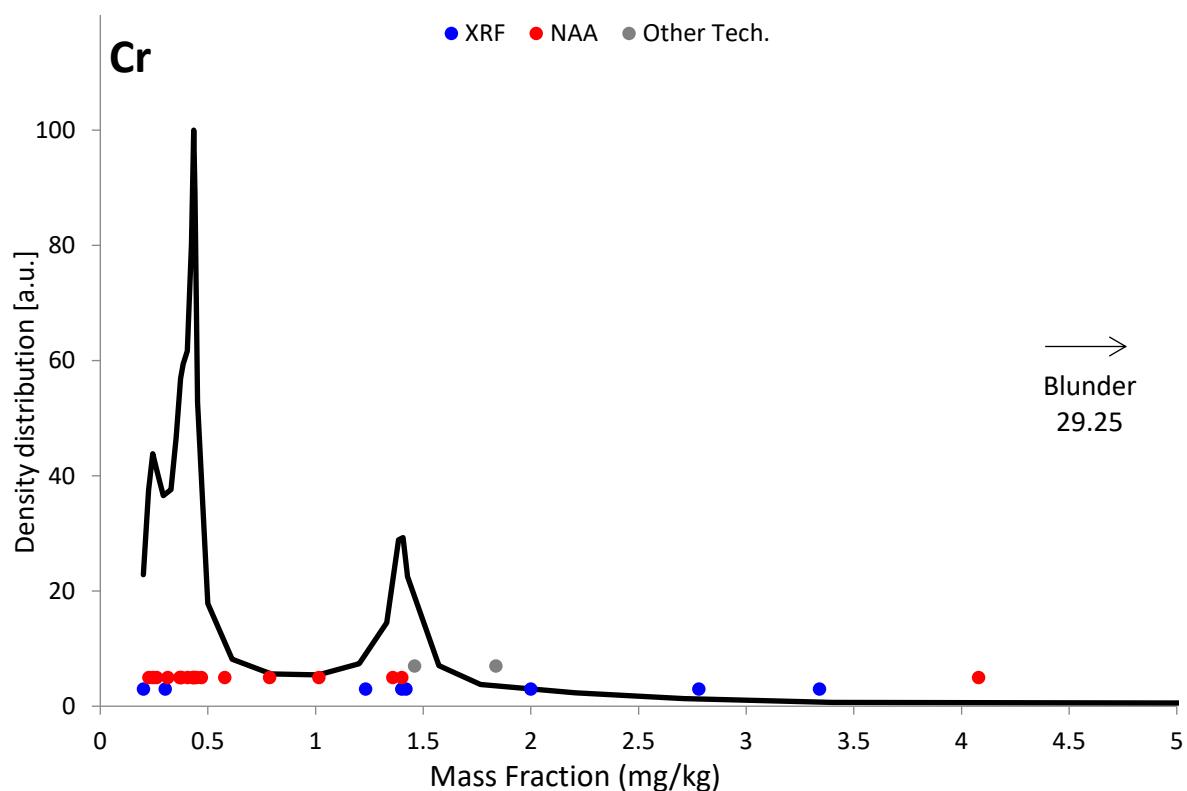


FIG. 135. Density distribution function for the measurand Cr (Plant sample).

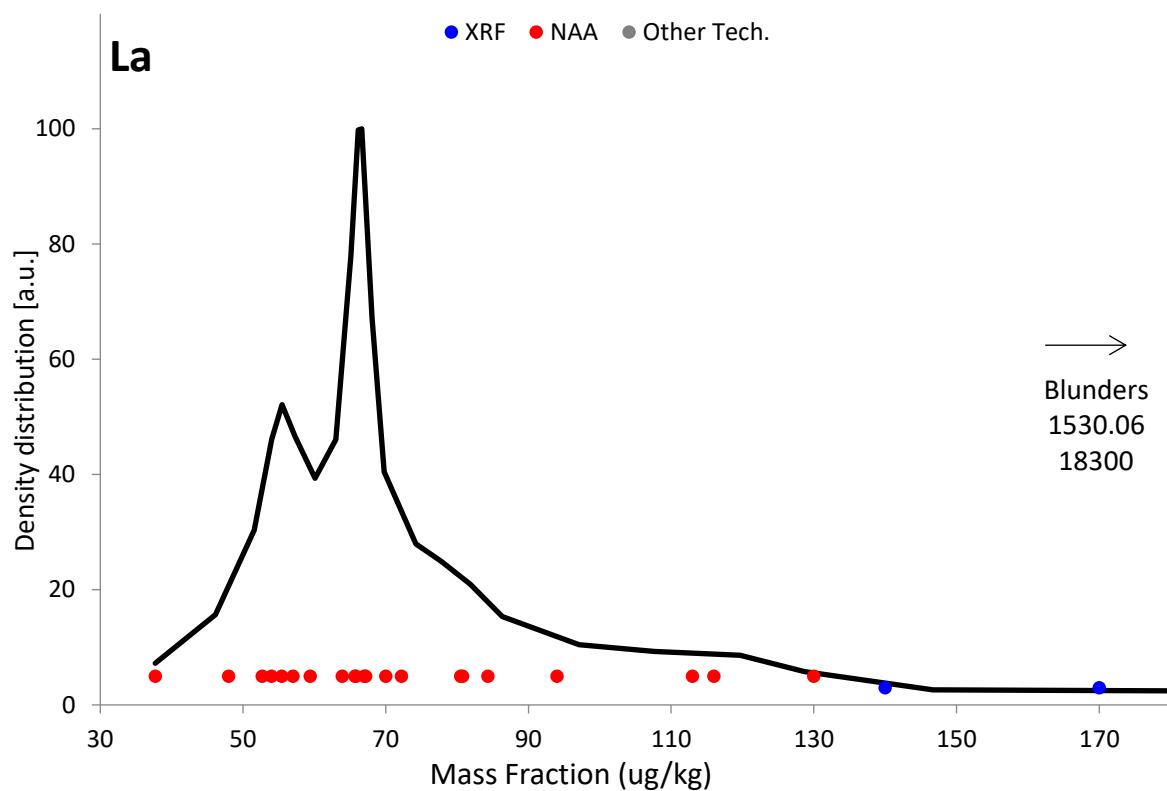


FIG. 136. Density distribution function for the measurand La (Plant sample).

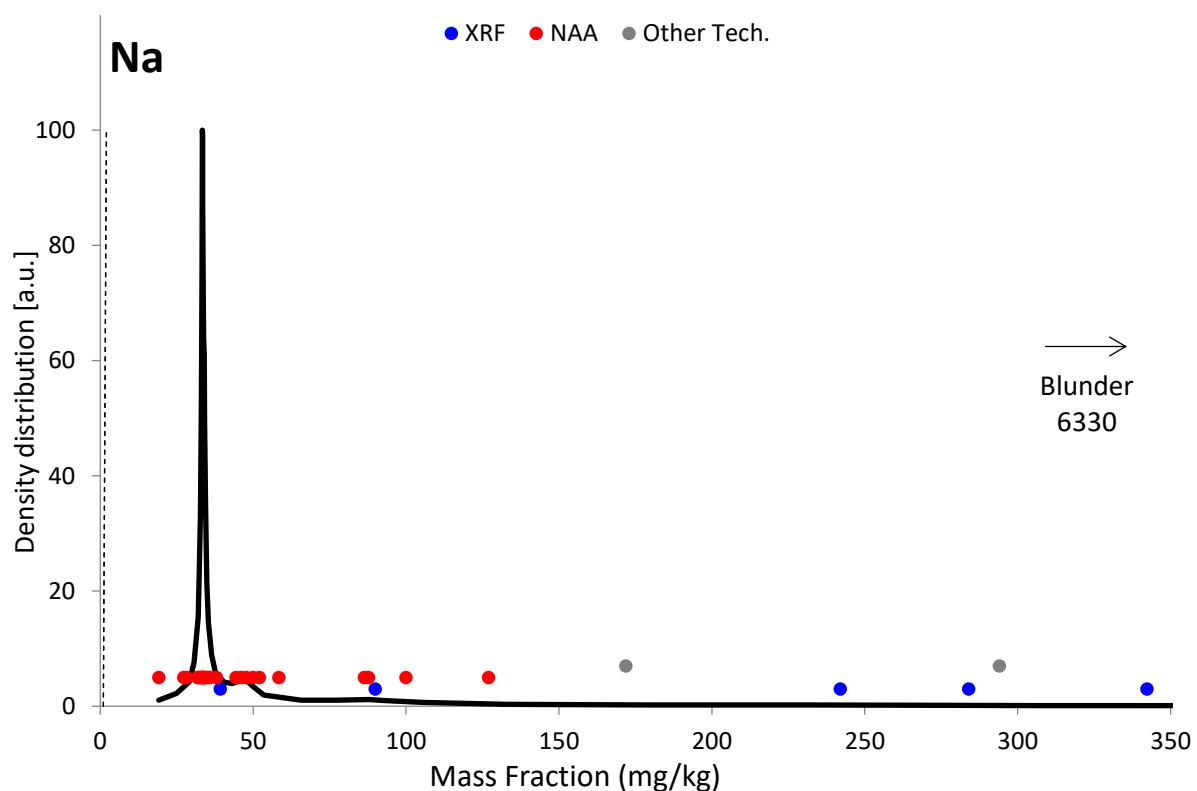


FIG. 137. Density distribution function for the measurand Na (Plant sample).

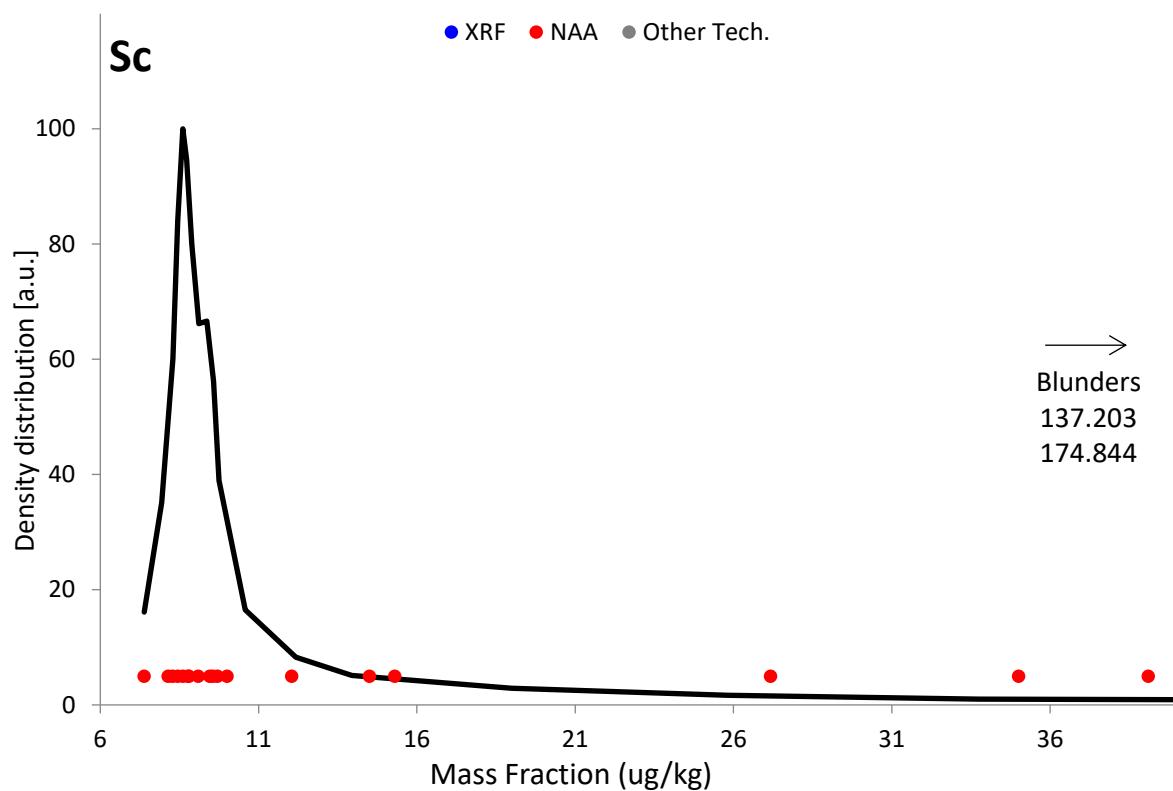


FIG. 138. Density distribution function for the measurand Sc (Plant sample).

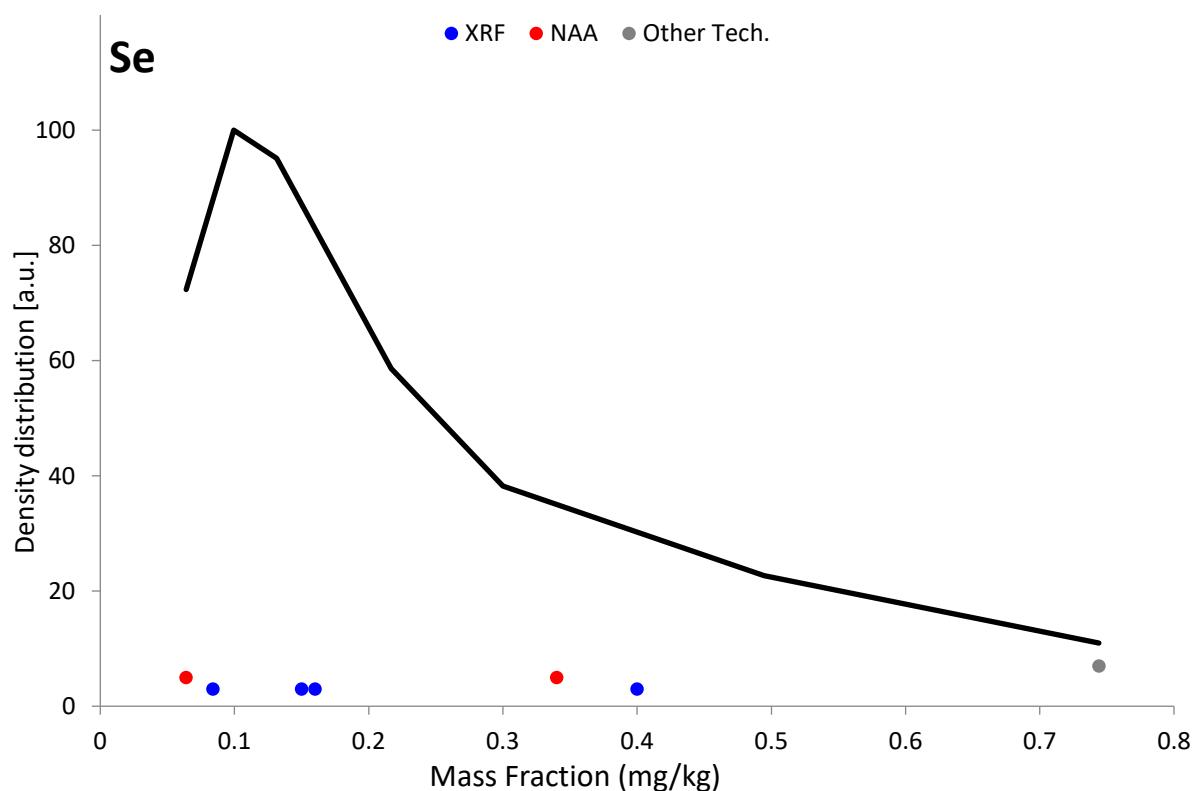


FIG. 139. Density distribution function for the measurand Se (Plant sample).

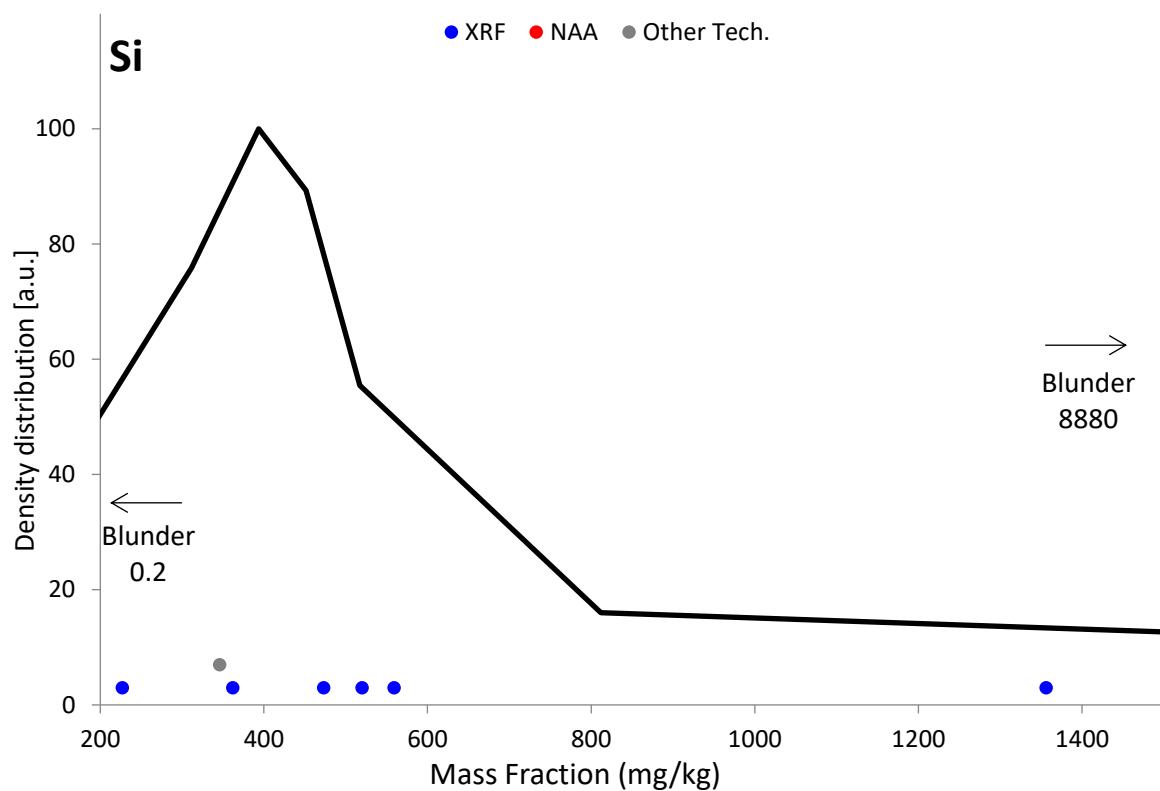


FIG. 140. Density distribution function for the measurand Si (Plant sample).

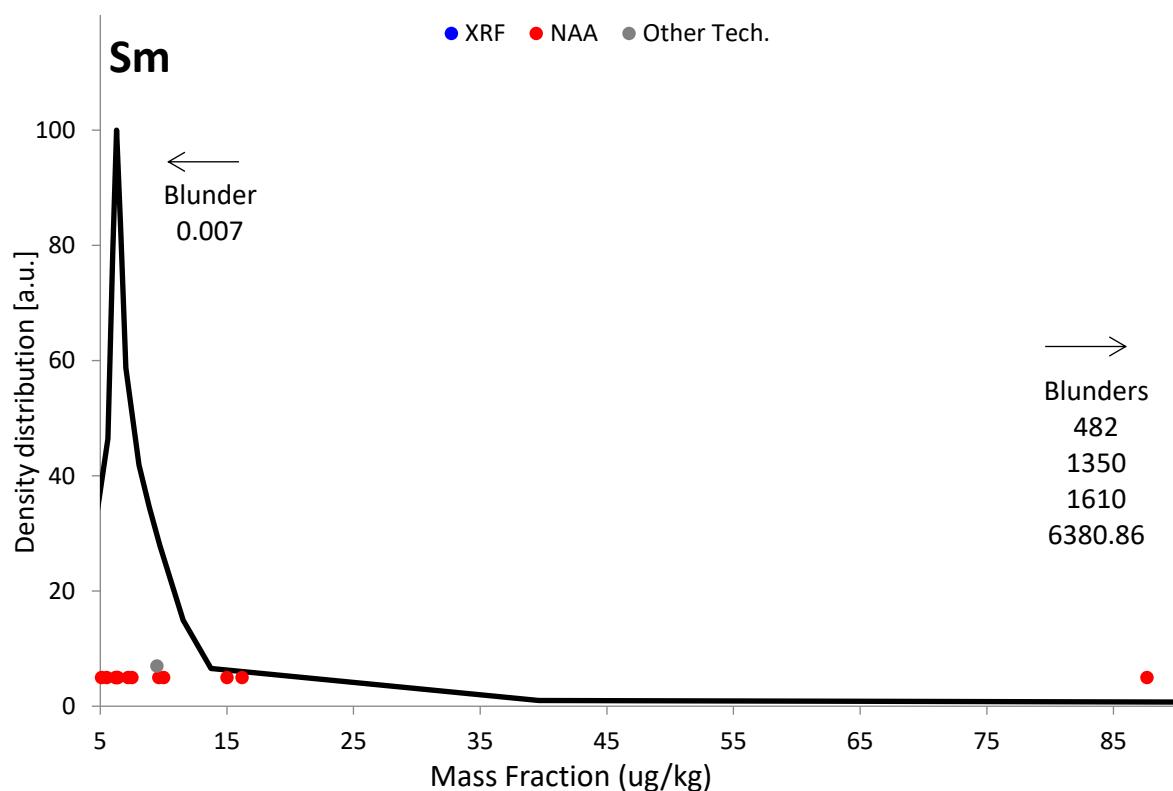


FIG. 141. Density distribution function for the measurand Sm (Plant sample).

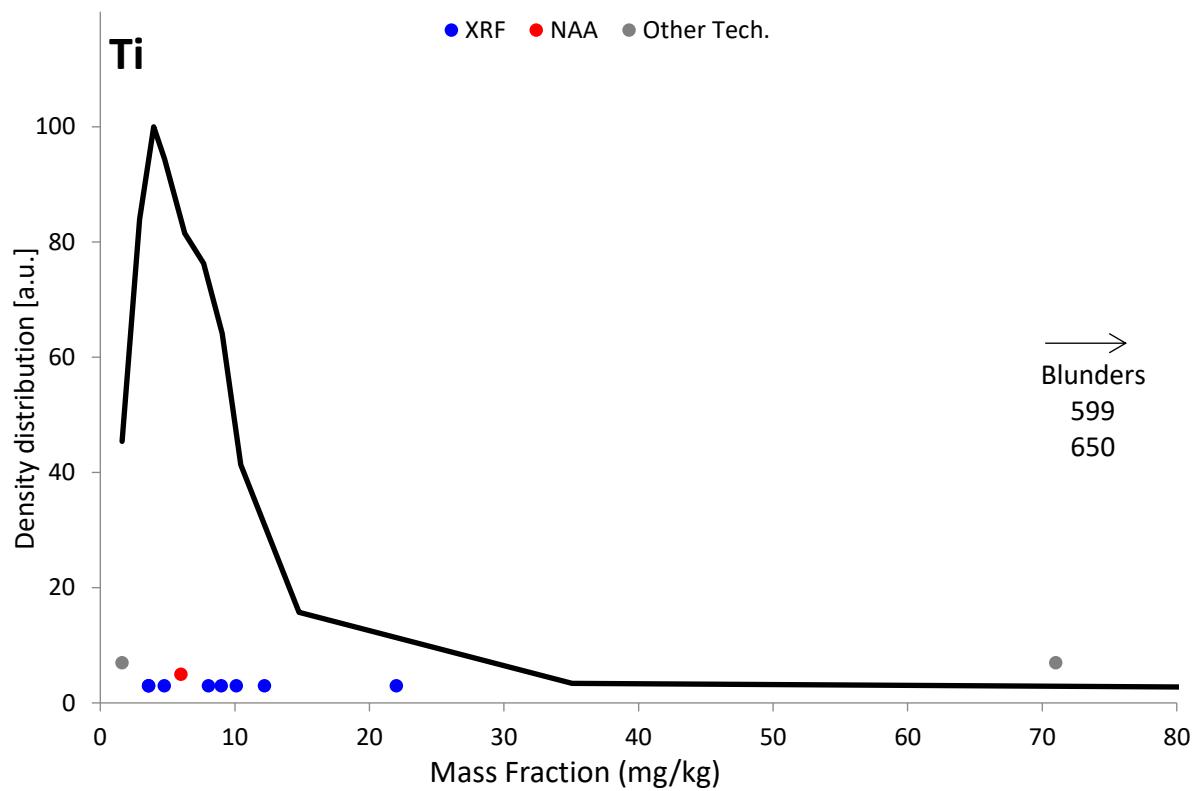


FIG. 142. Density distribution function for the measurand Ti (Plant sample).

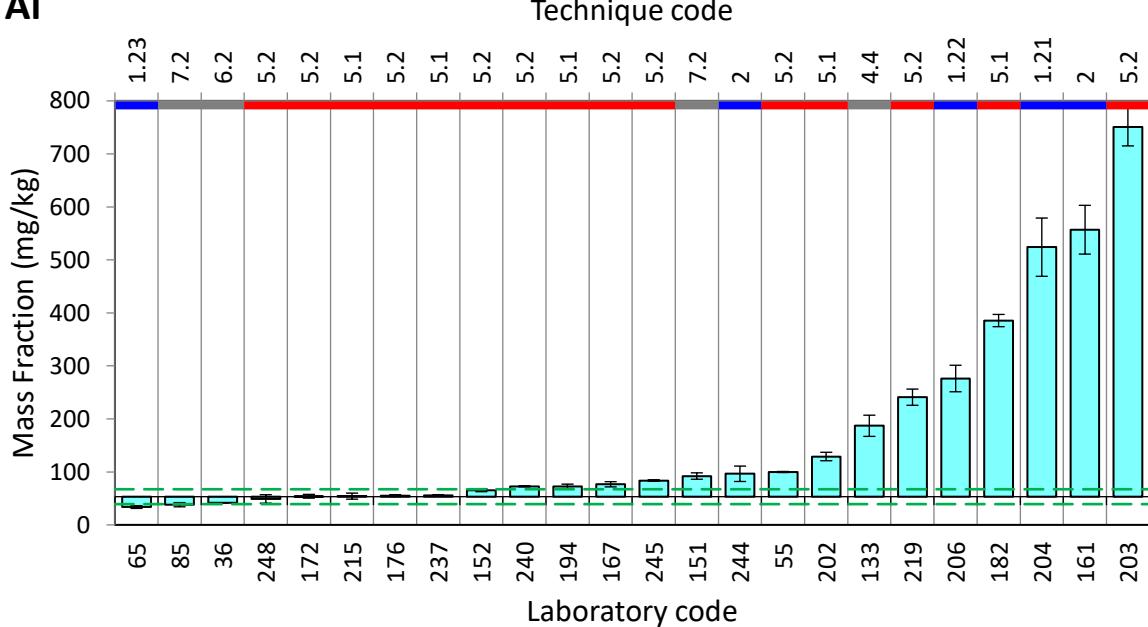
Al

FIG. 143. Bar chart distributions of results for measurand Al (Plant sample).

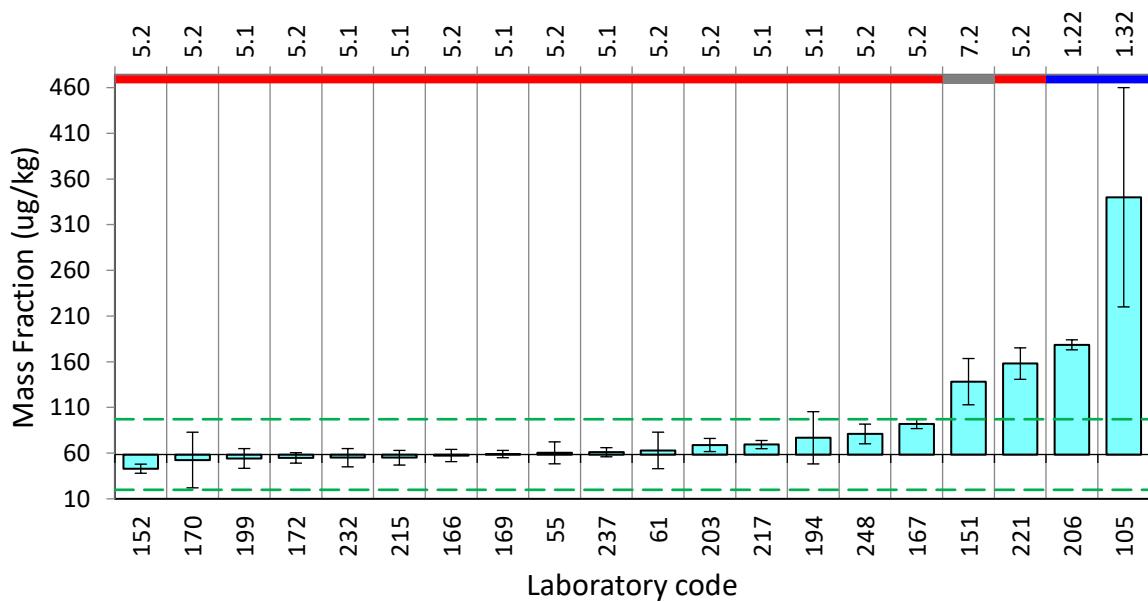
As

FIG. 144. Bar chart distributions of results for measurand As (Plant sample).

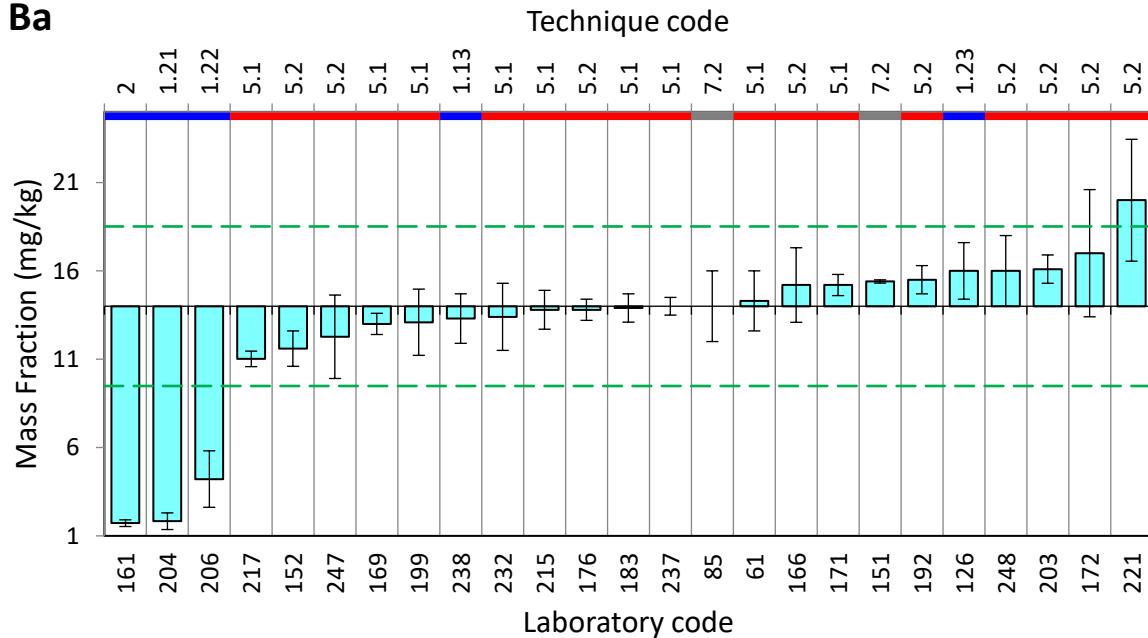
Ba

FIG. 145. Bar chart distributions of results for measurand Ba (Plant sample).

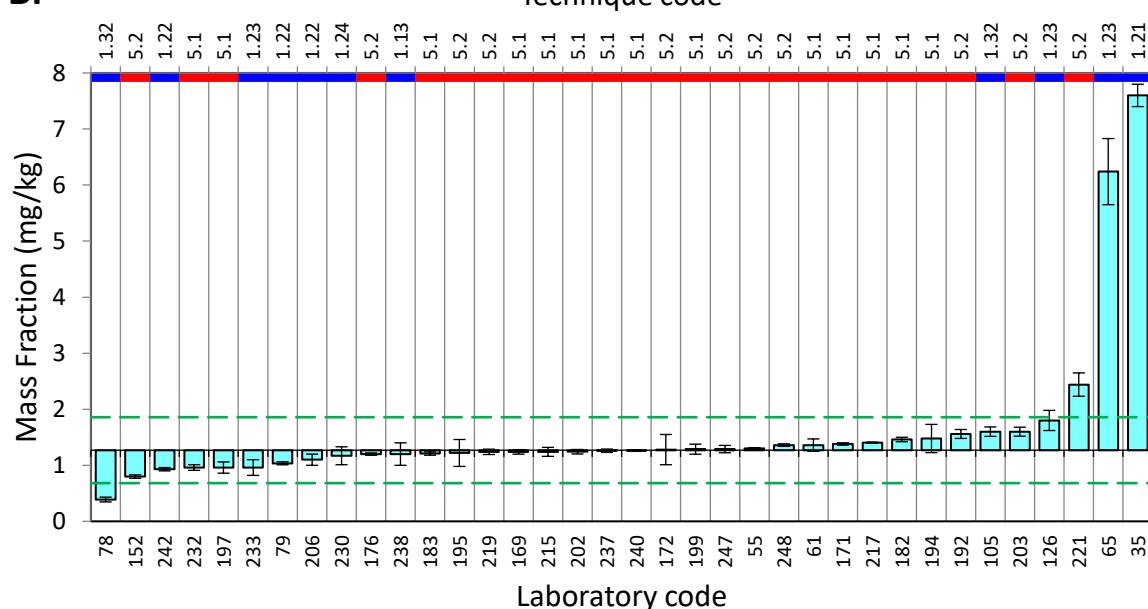
Br

FIG. 146. Bar chart distributions of results for measurand Br (Plant sample).

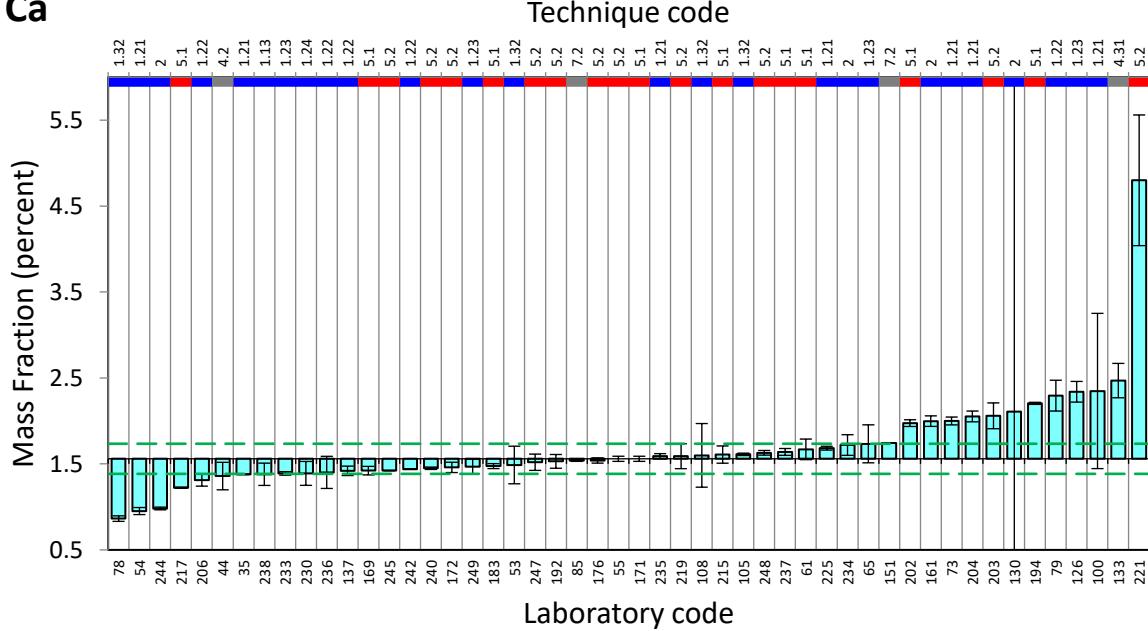
Ca

FIG. 147. Bar chart distributions of results for measurand Ca (Plant sample).

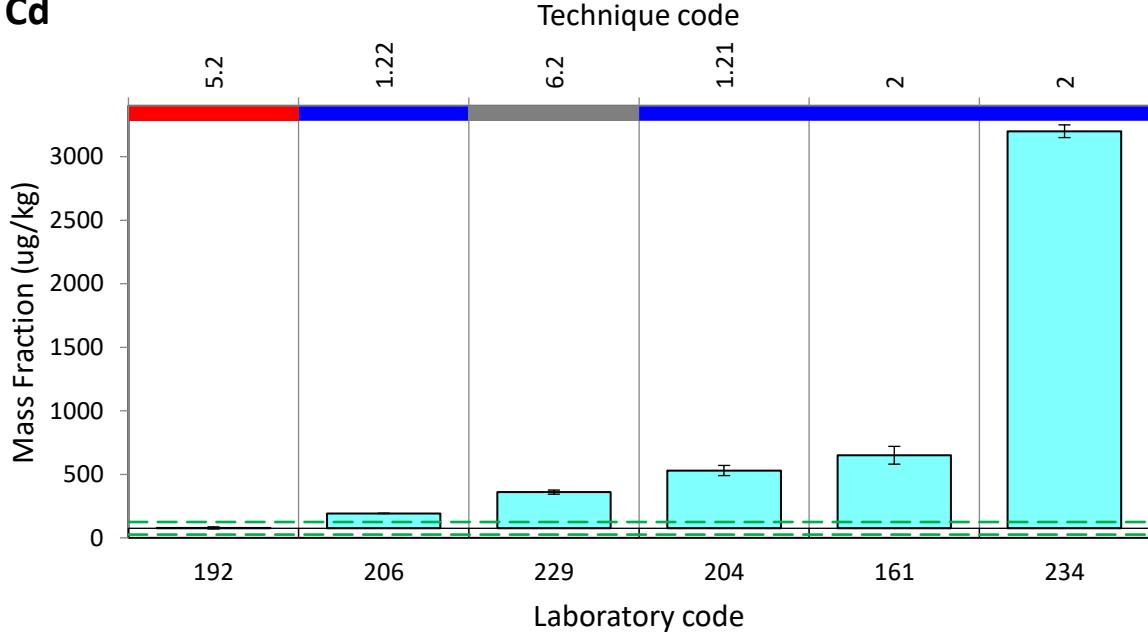
Cd

FIG. 148. Bar chart distributions of results for measurand Cd (Plant sample).

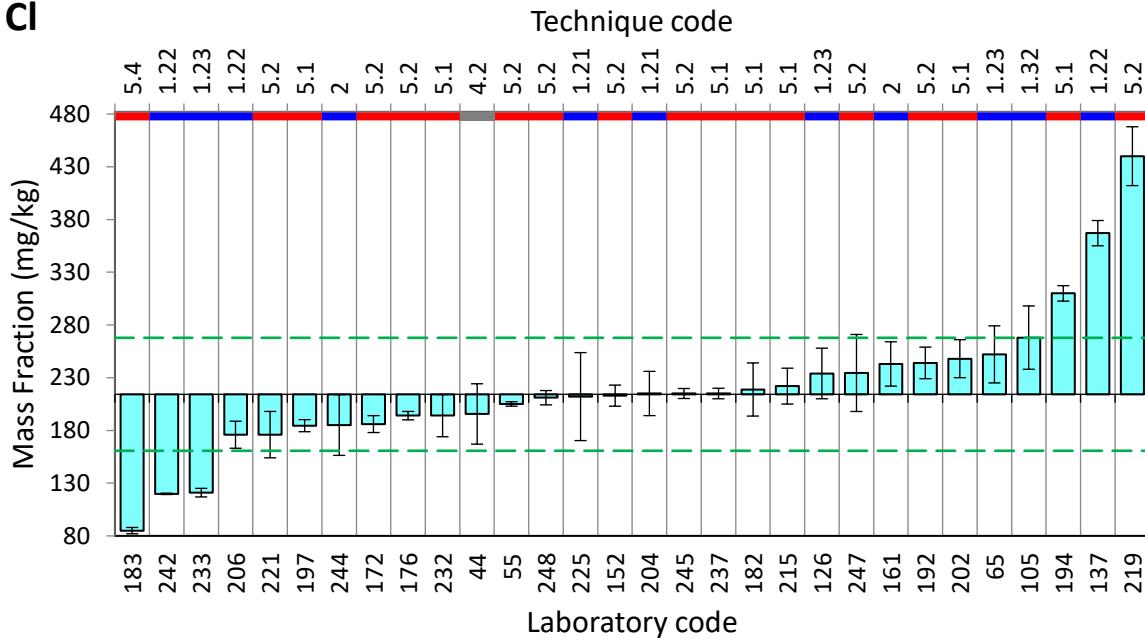
C

FIG. 149. Bar chart distributions of results for measurand Cl (Plant sample).

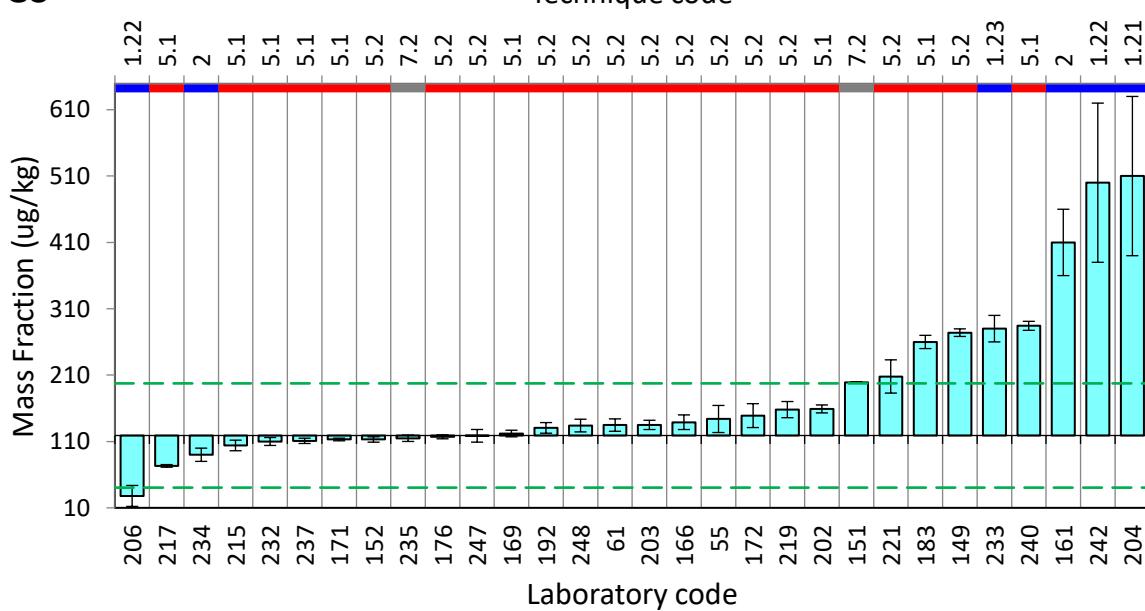
Co

FIG. 150. Bar chart distributions of results for measurand Co (Plant sample).

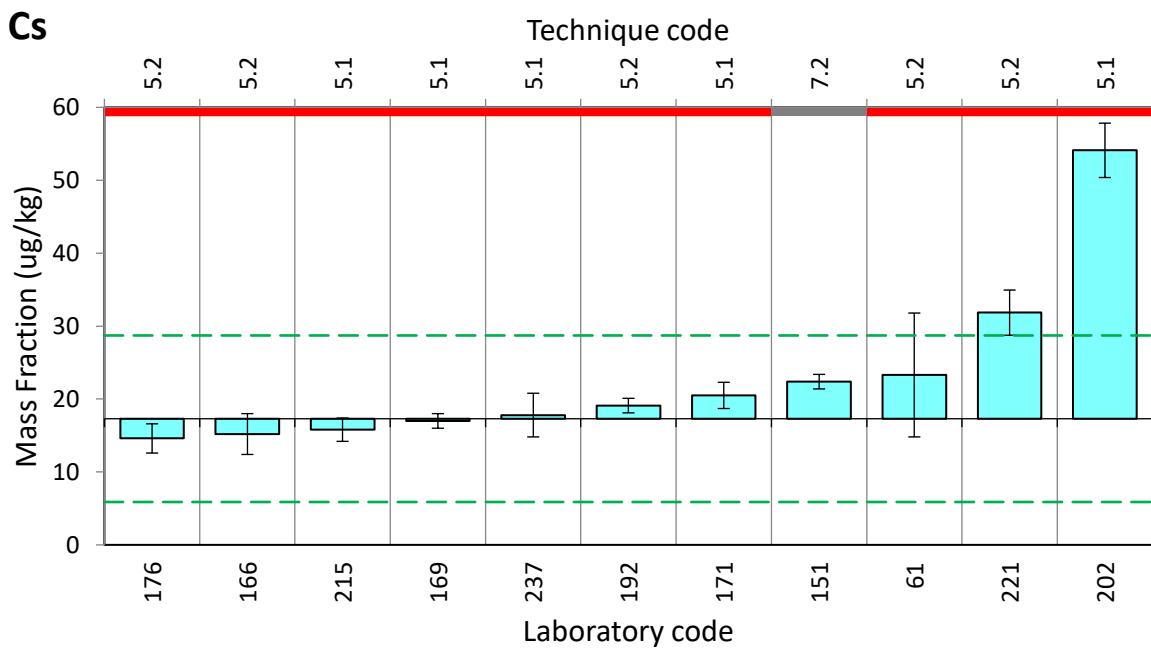


FIG. 151. Bar chart distributions of results for measurand Cs (Plant sample).

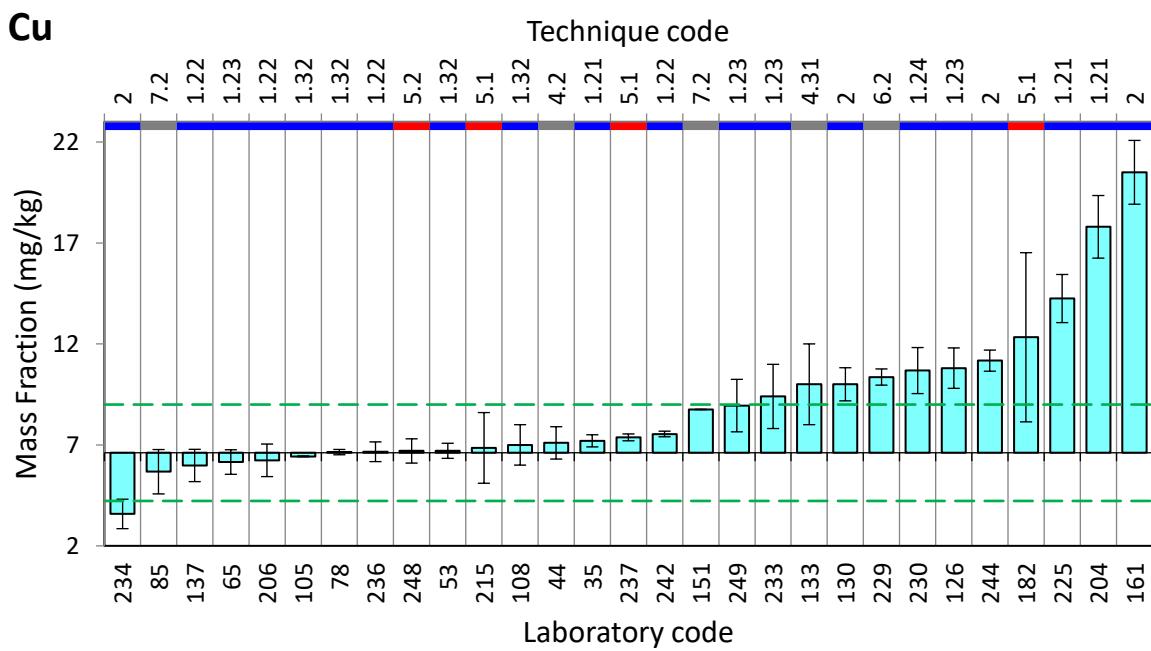


FIG. 152. Bar chart distributions of results for measurand Cu (Plant sample).

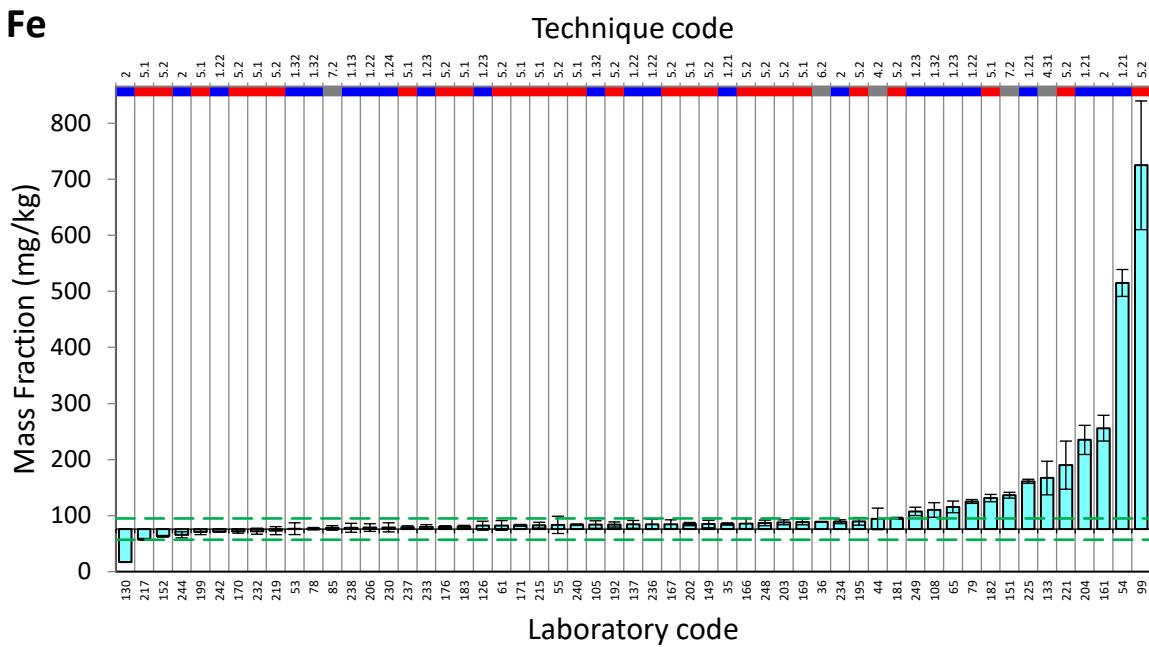


FIG. 153. Bar chart distributions of results for measurand Fe (Plant sample).

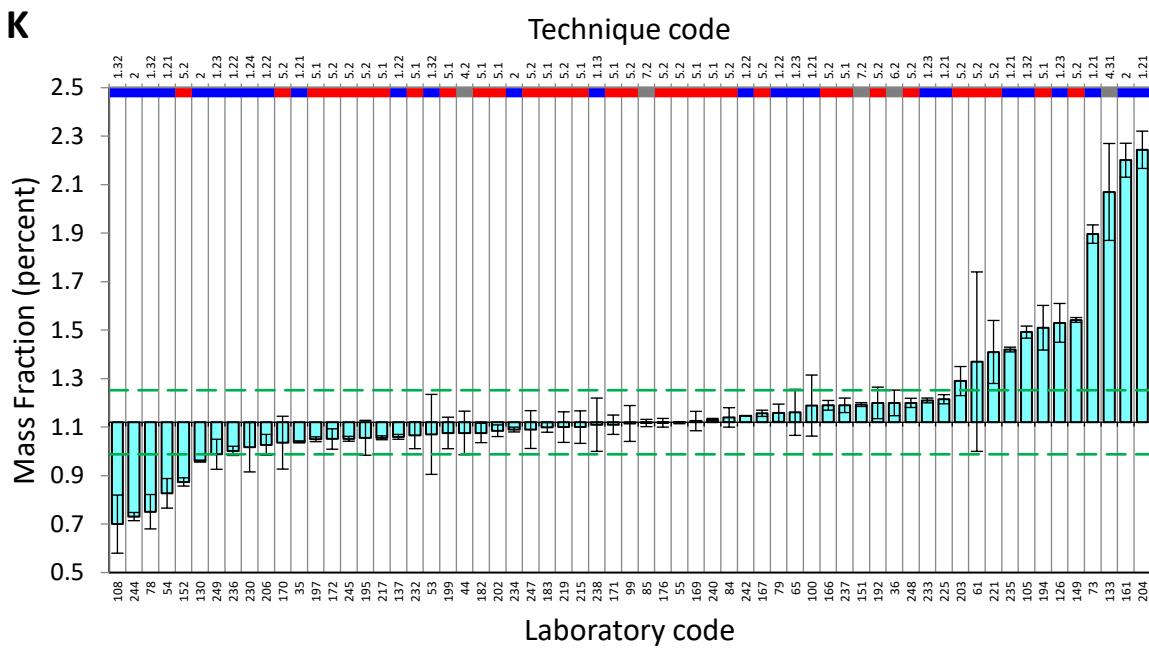


FIG. 154. Bar chart distributions of results for measurand K (Plant sample).

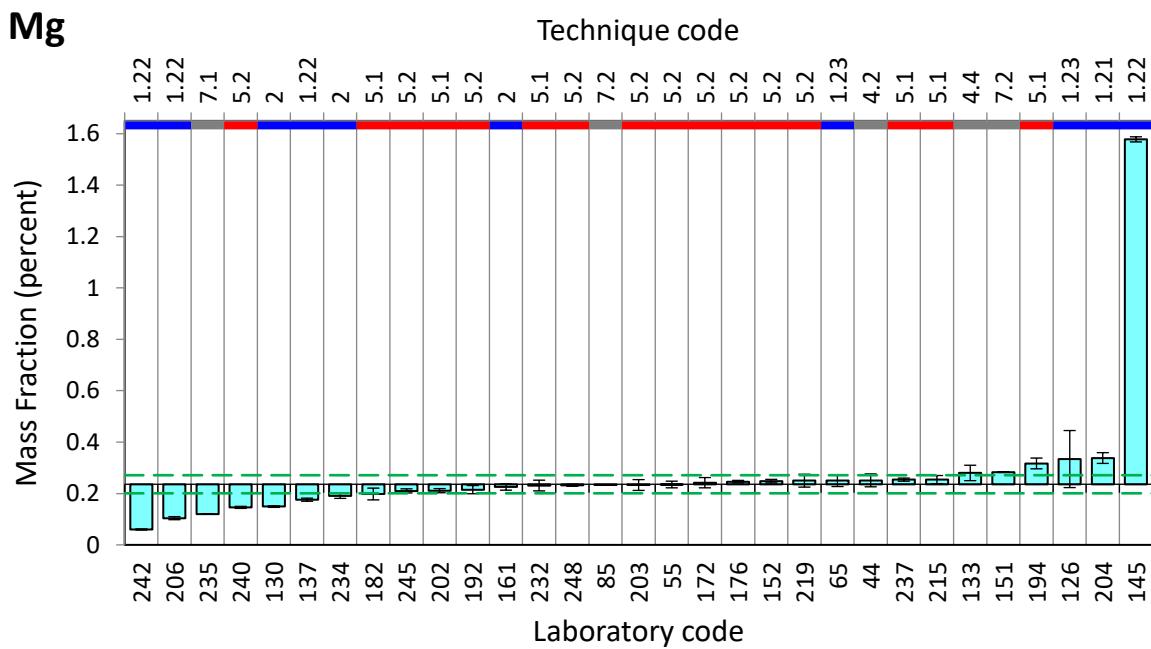


FIG. 155. Bar chart distributions of results for measurand Mg (Plant sample).

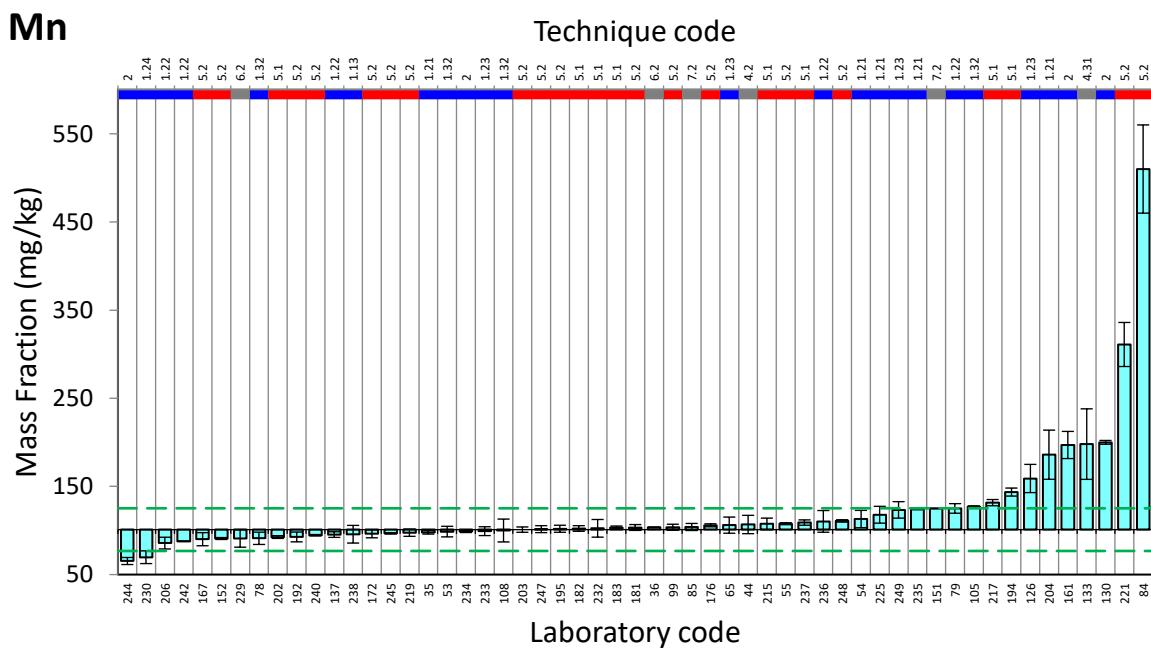


FIG. 156. Bar chart distributions of results for measurand Mn (Plant sample).

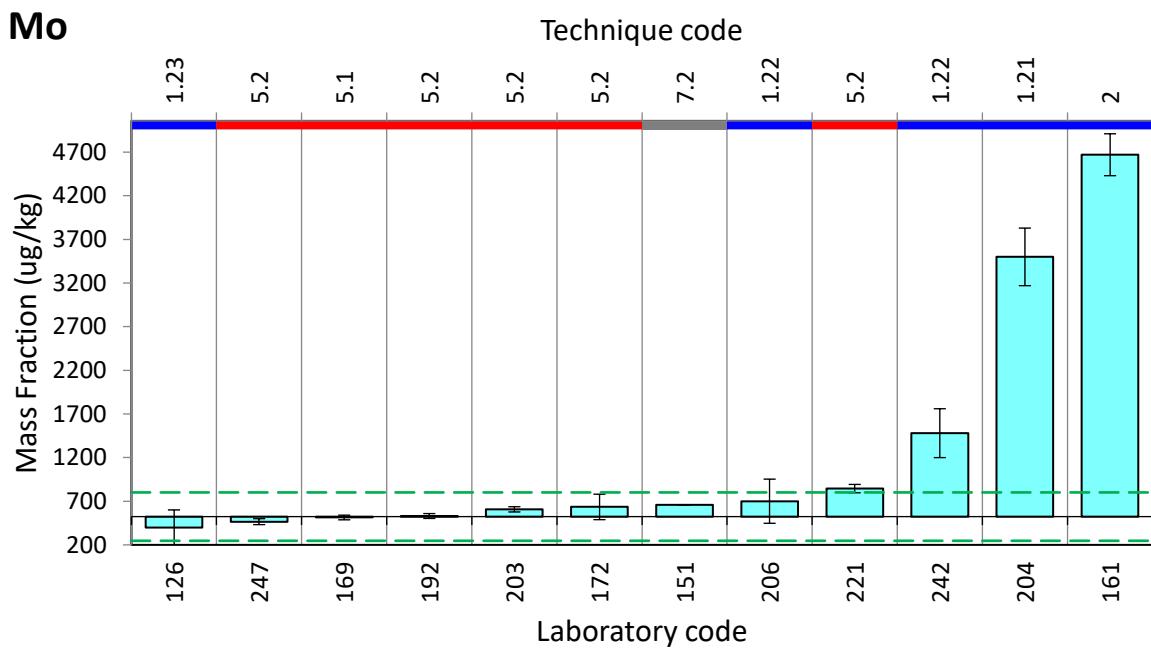


FIG. 157. Bar chart distributions of results for measurand Mo (Plant sample).

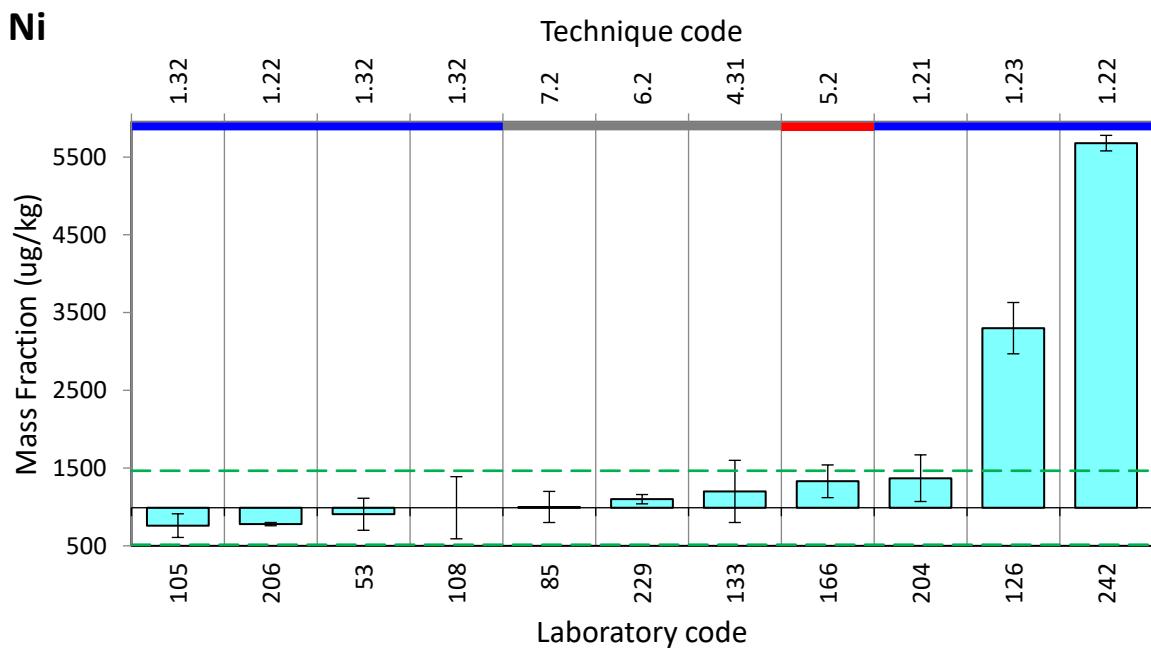


FIG. 158. Bar chart distributions of results for measurand Ni (Plant sample).

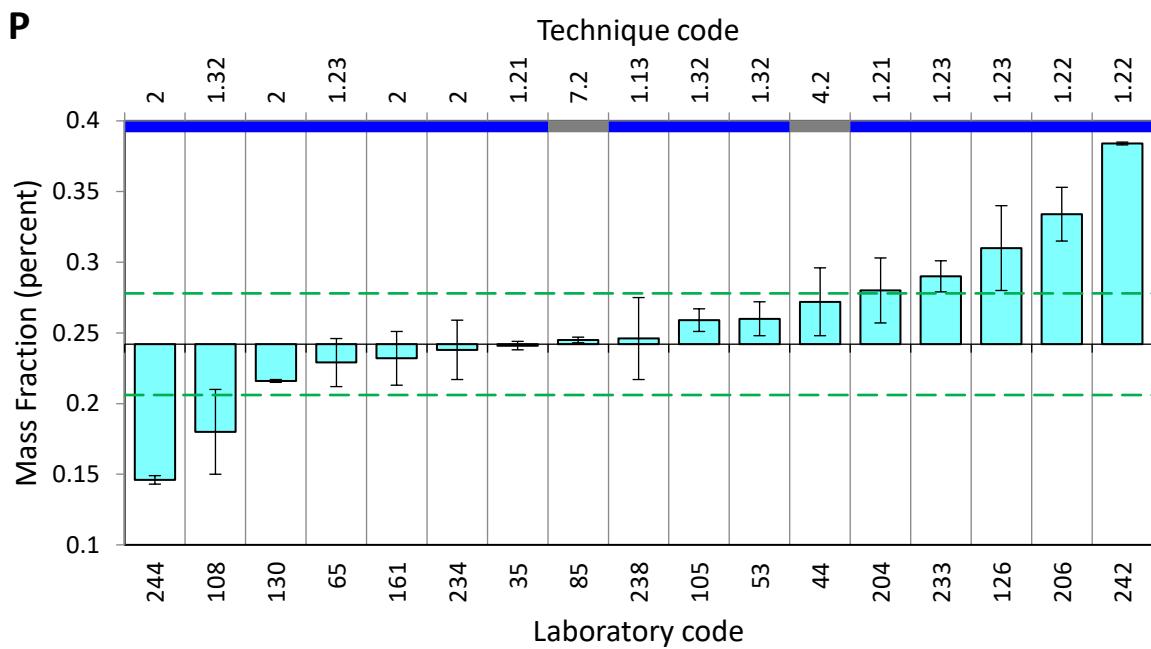


FIG. 159. Bar chart distributions of results for measurand P (Plant sample).

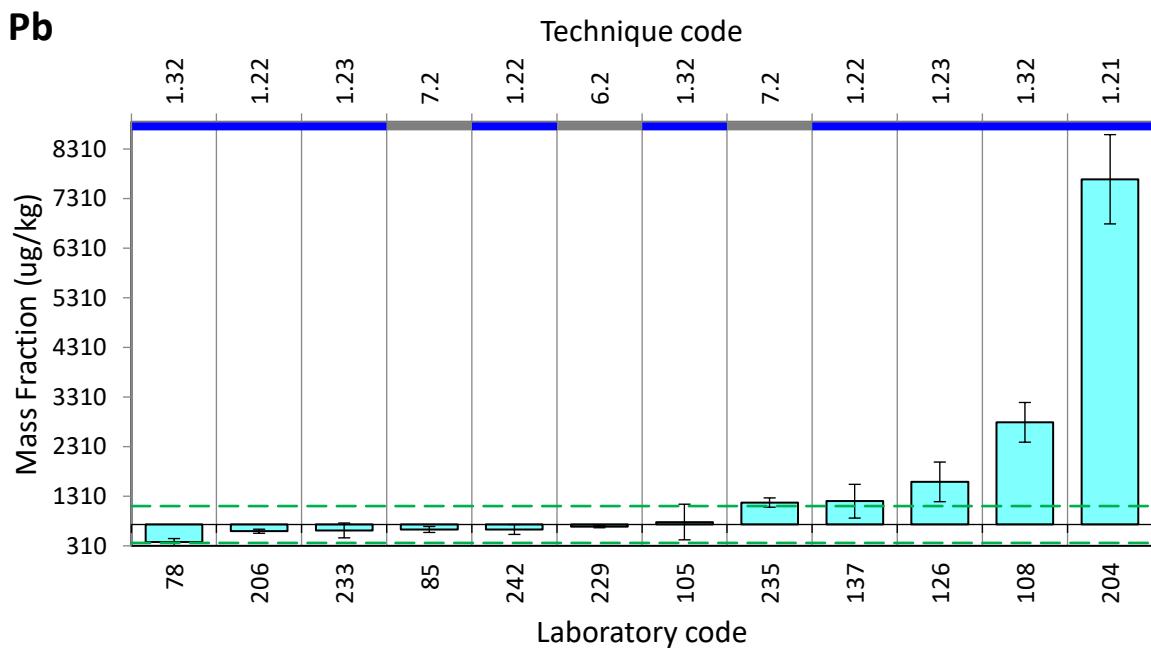


FIG. 160. Bar chart distributions of results for measurand Pb (Plant sample).

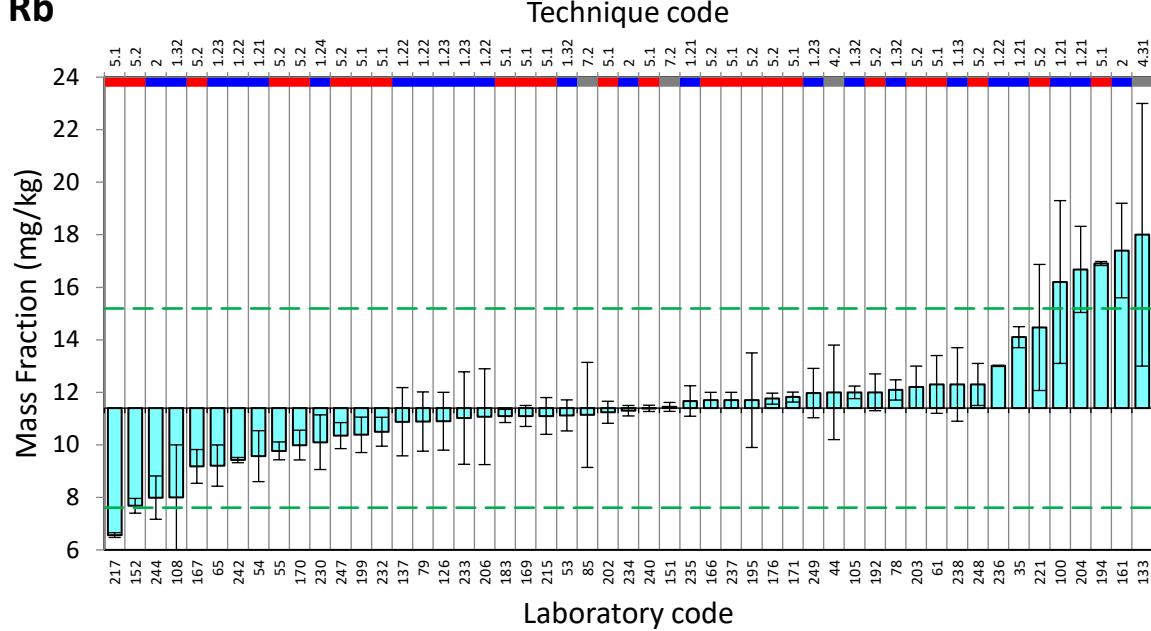
Rb

FIG. 161. Bar chart distributions of results for measurand Rb (Plant sample).

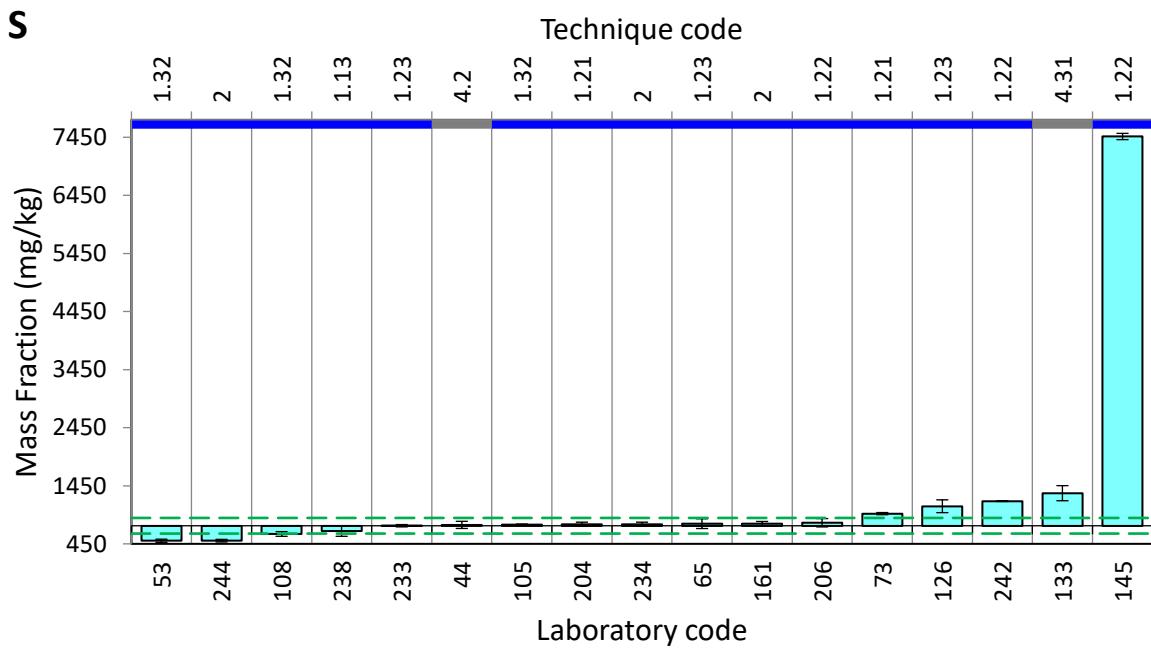
S

FIG. 162. Bar chart distributions of results for measurand S (Plant sample).

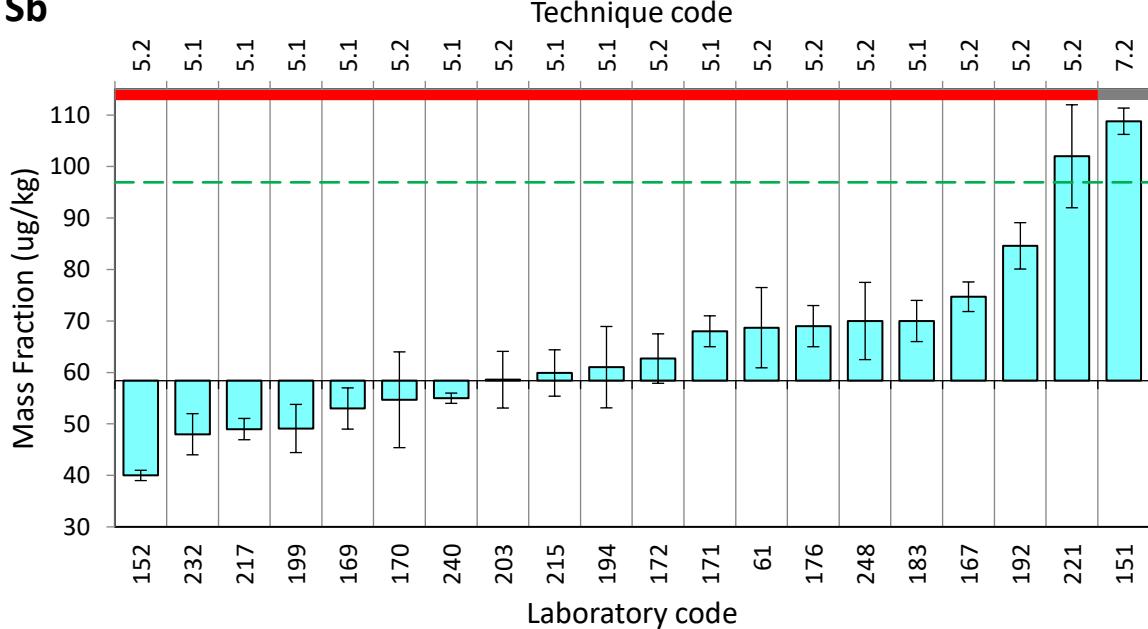
Sb

FIG. 163. Bar chart distributions of results for measurand Sb (Plant sample).

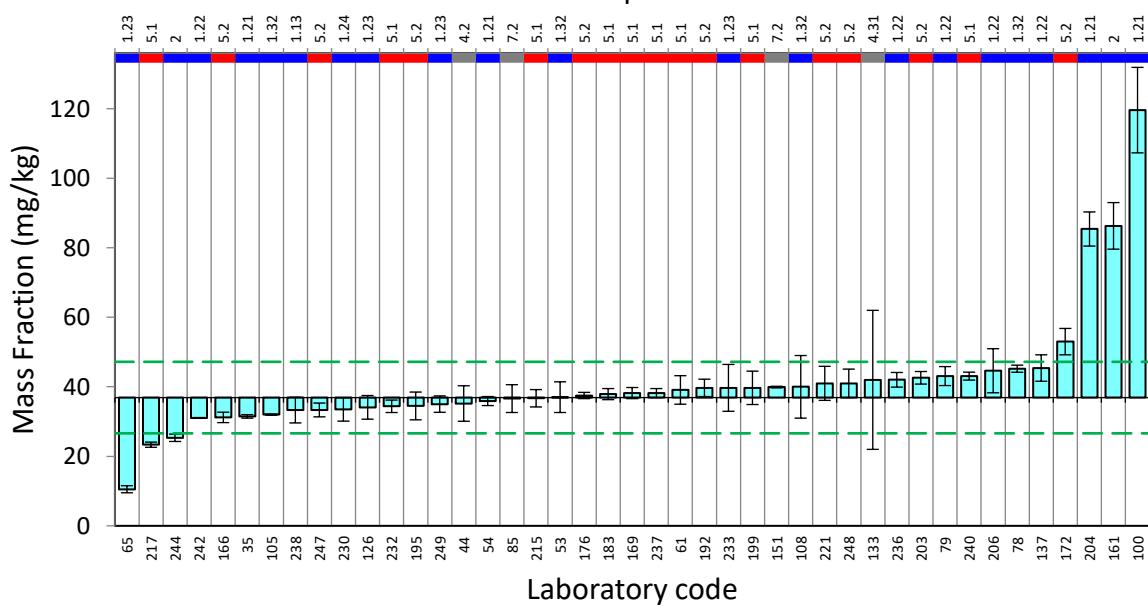
Sr

FIG. 164. Bar chart distributions of results for measurand Sr (Plant sample).

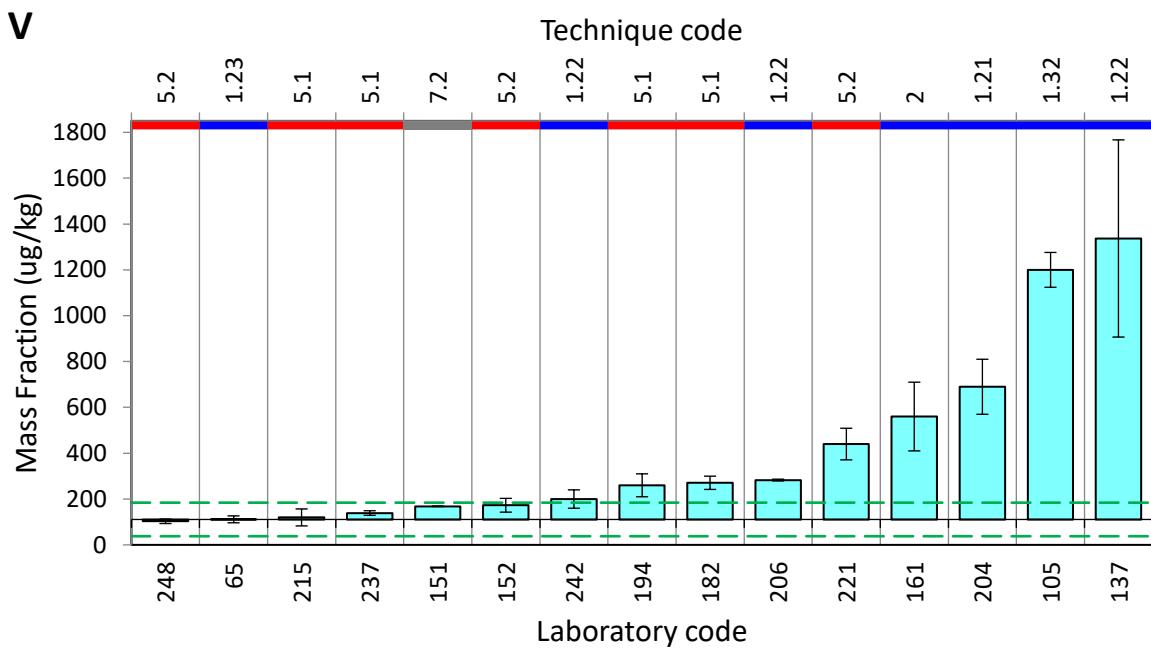


FIG. 165. Bar chart distributions of results for measurand V (Plant sample).

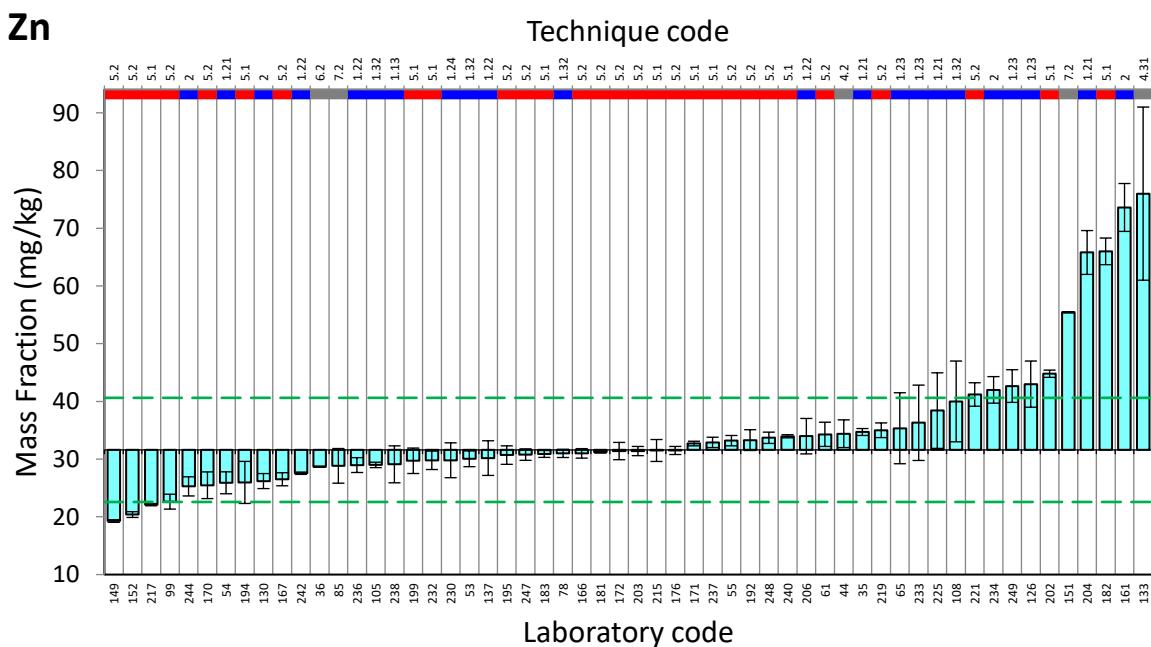


FIG. 166. Bar chart distributions of results for measurand Zn (Plant sample).

Ce

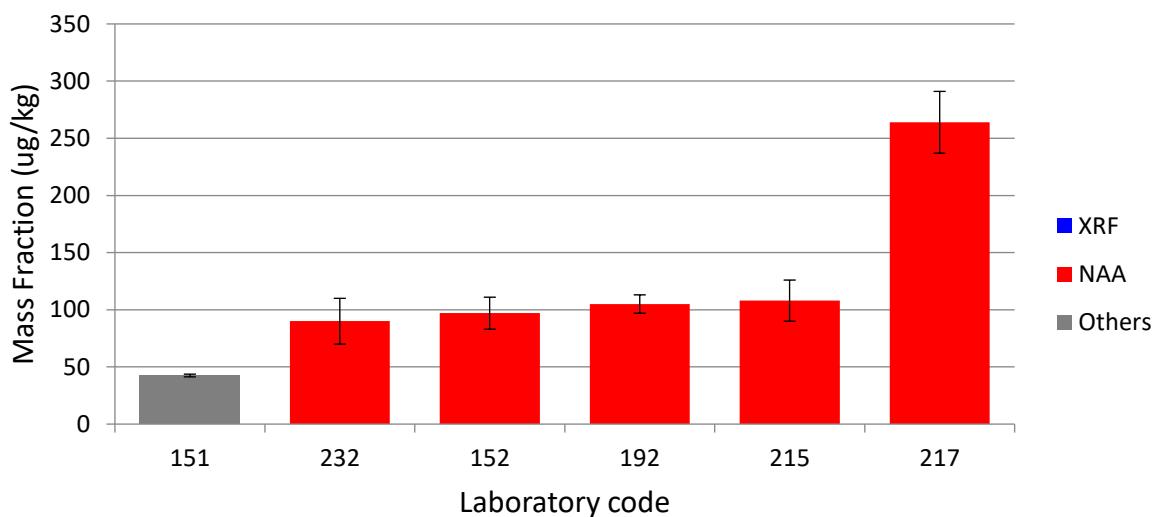


FIG. 167. Bar chart distributions of results for measurand Ce (Plant sample).

Cr

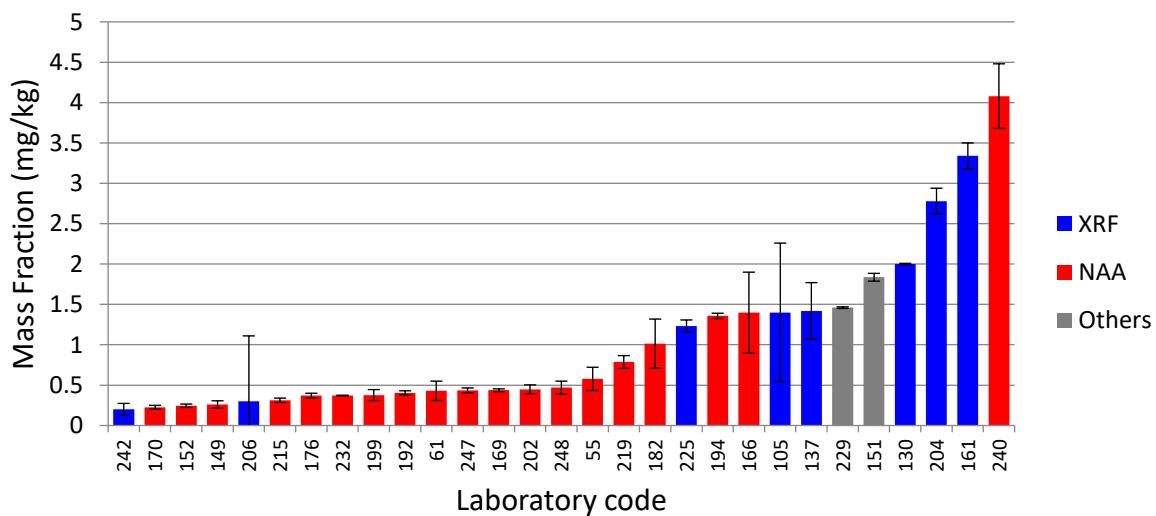


FIG. 168. Bar chart distributions of results for measurand Cr (Plant sample).

La

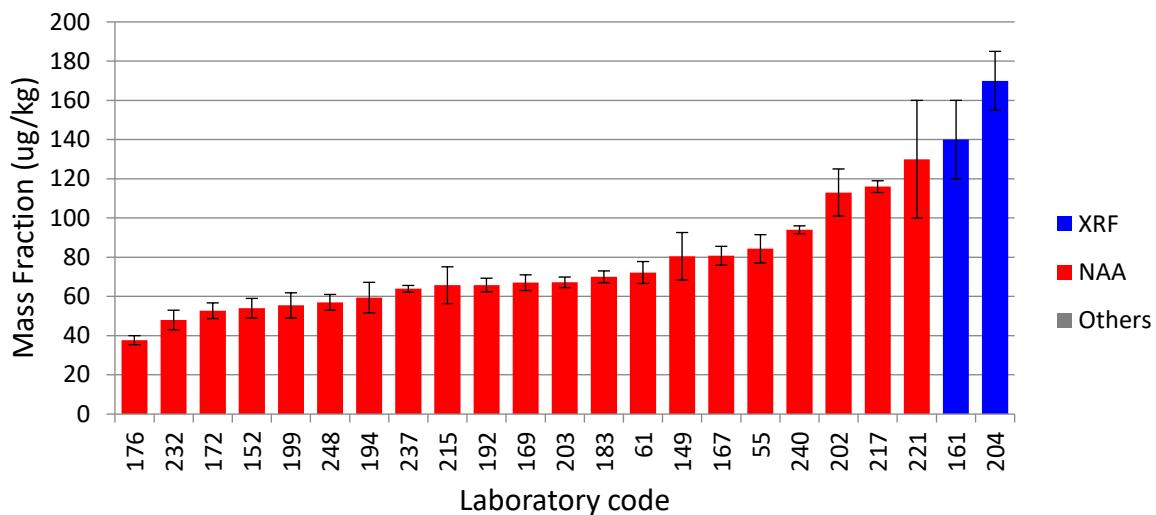


FIG. 169. Bar chart distributions of results for measurand La (Plant sample).

Na

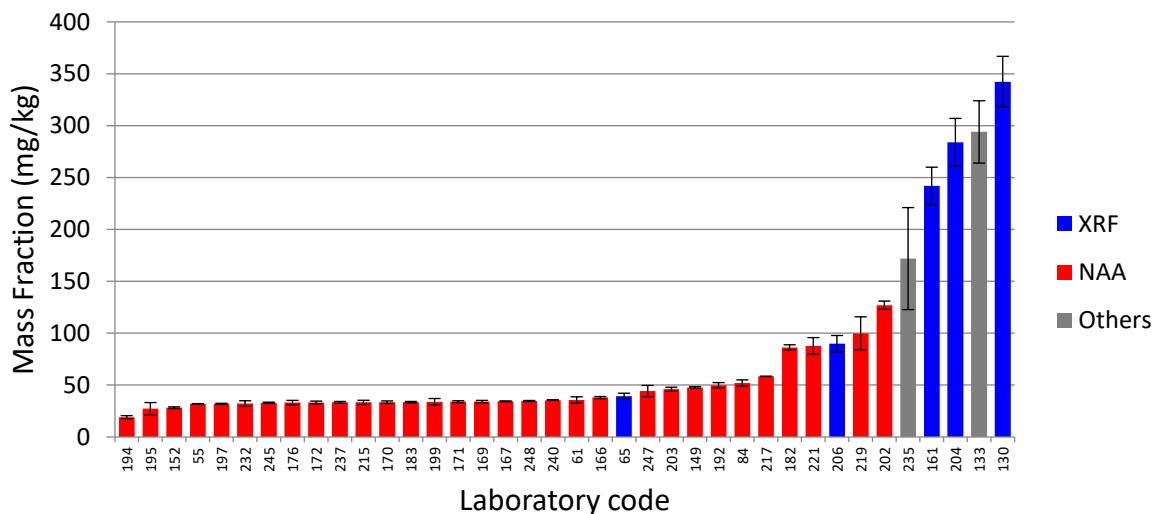


FIG. 170. Bar chart distributions of results for measurand Na (Plant sample).

Sc

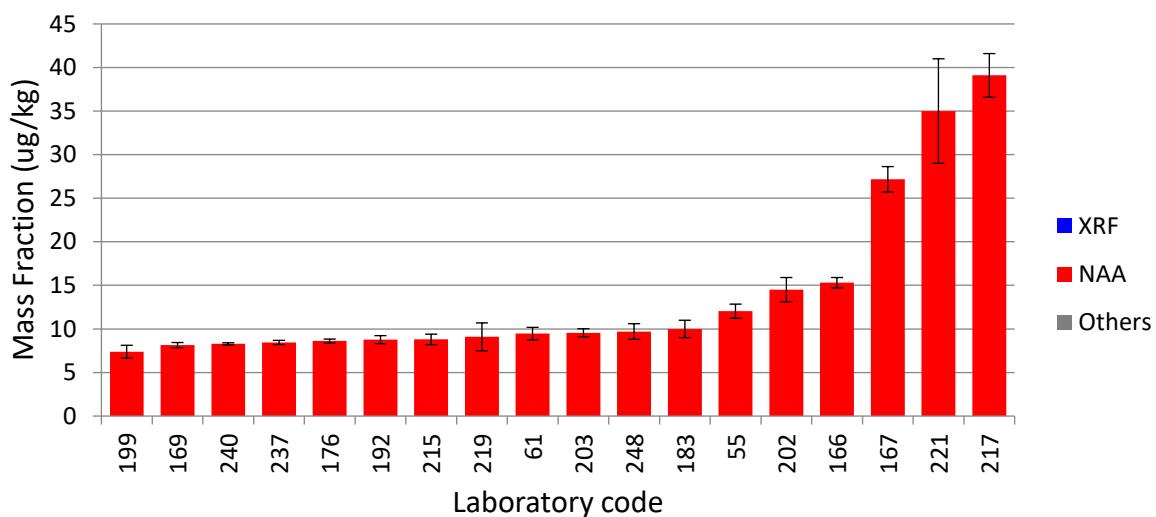


FIG. 171. Bar chart distributions of results for measurand Sc (Plant sample).

Se

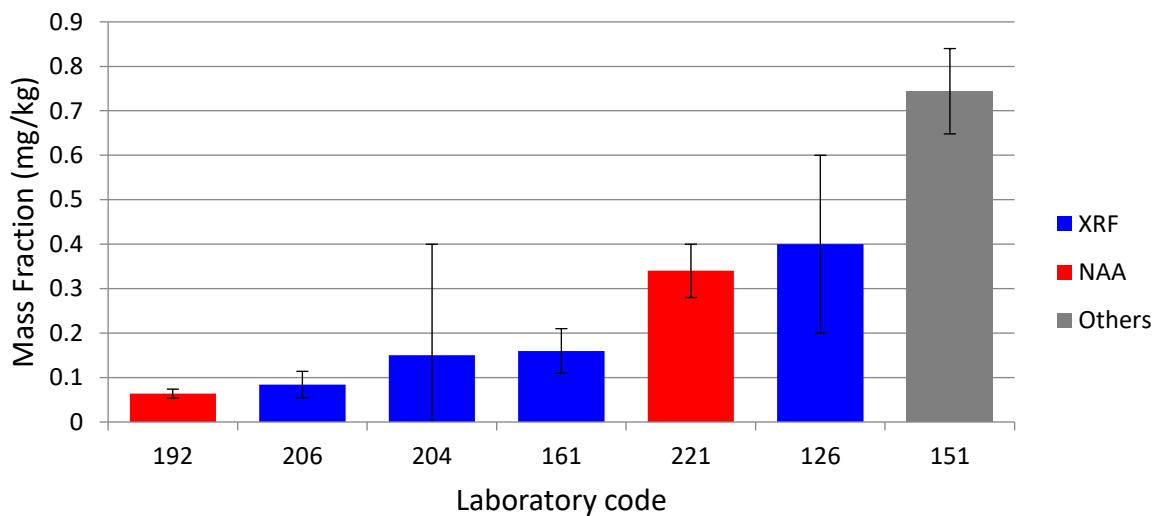


FIG. 172. Bar chart distributions of results for measurand Se (Plant sample).

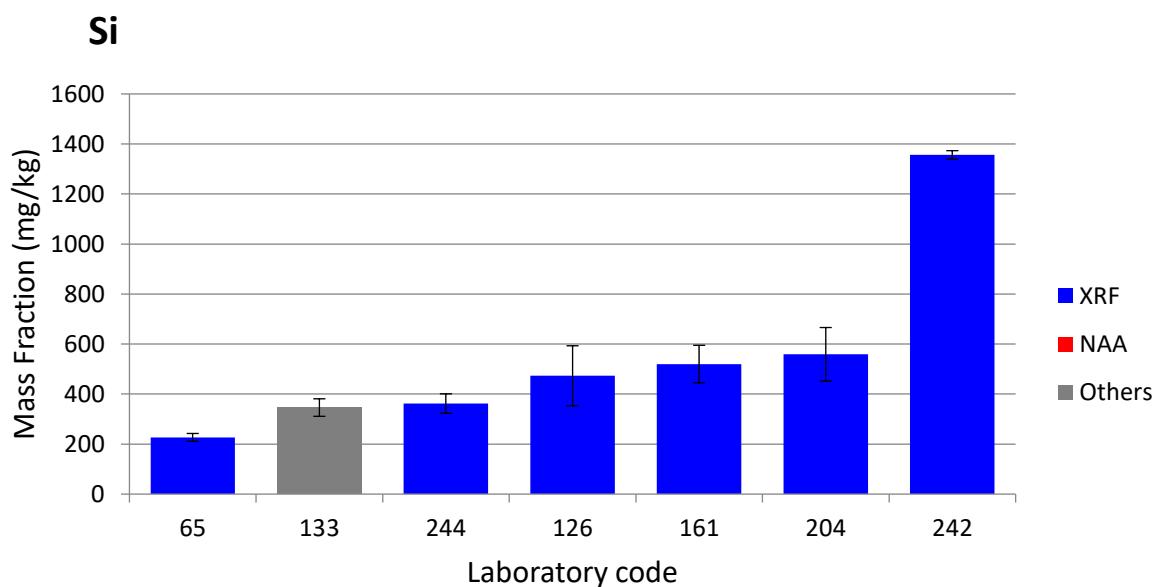


FIG. 173. Bar chart distributions of results for measurand Si (Plant sample).

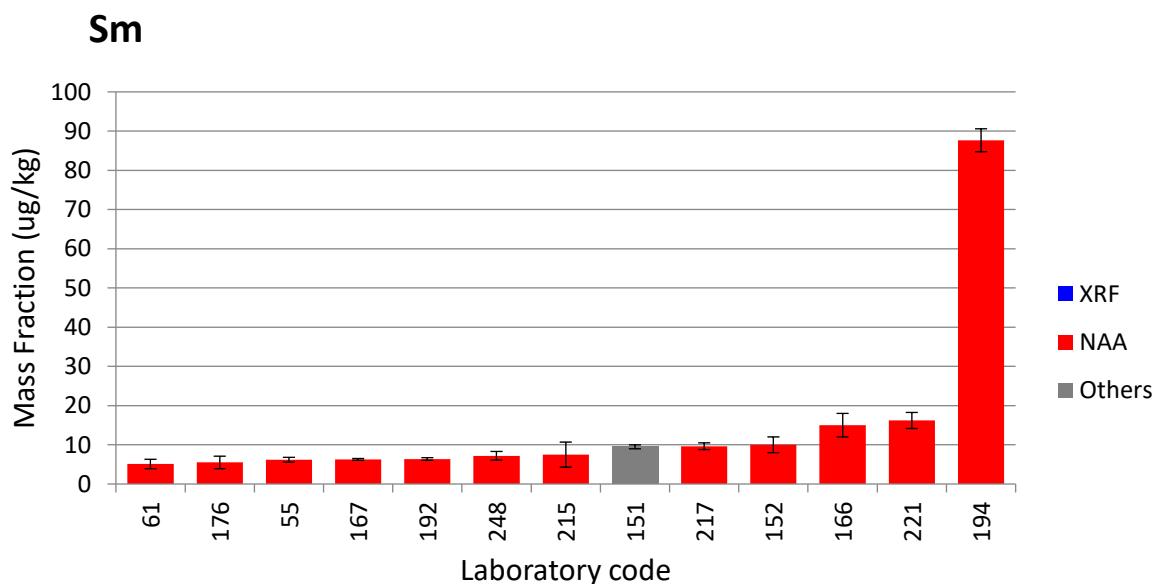


FIG. 174. Bar chart distributions of results for measurand Sm (Plant sample).

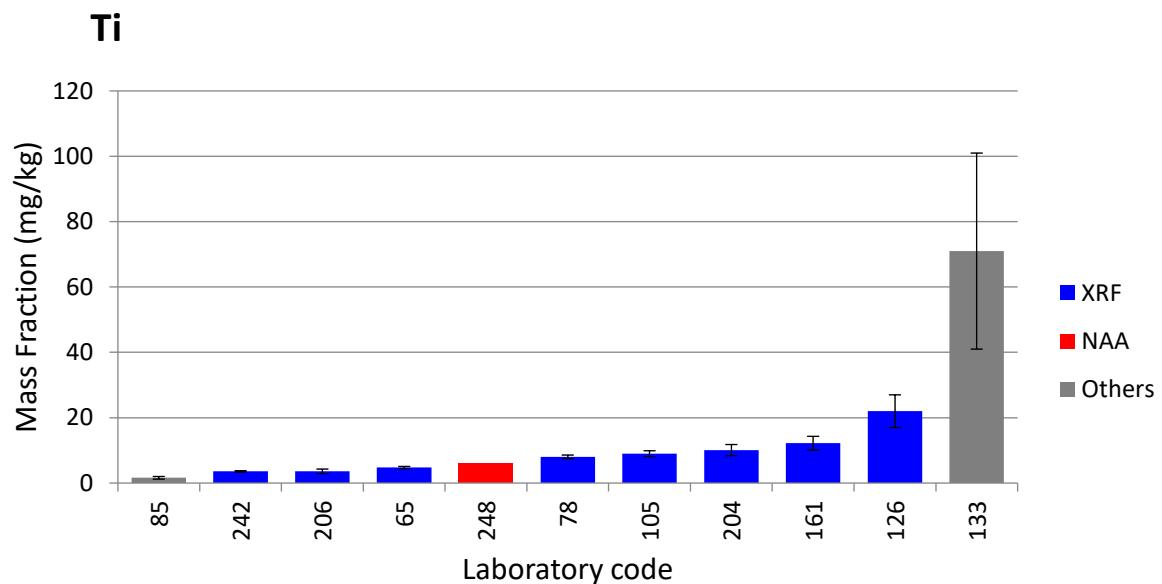


FIG. 175. Bar chart distributions of results for measurand Ti (Plant sample).

35

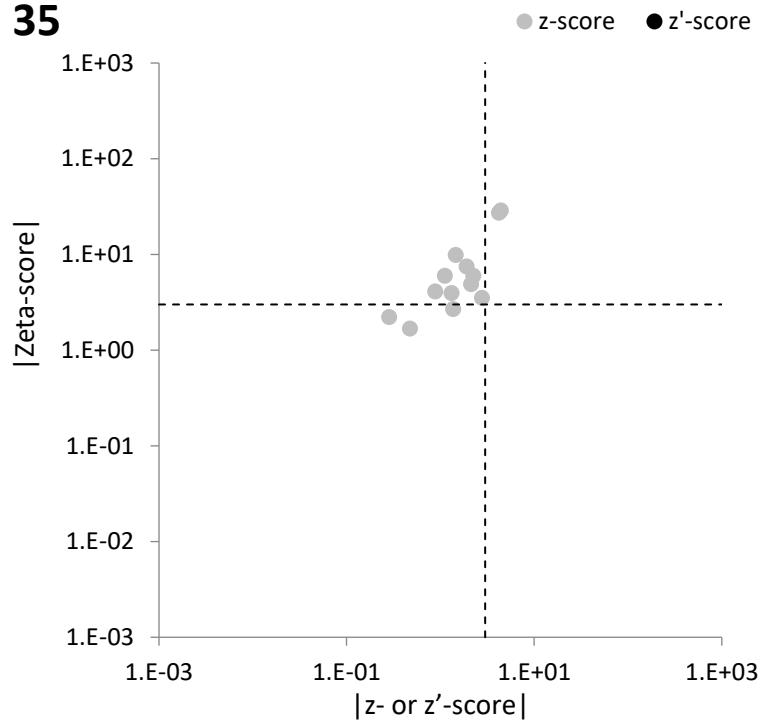


FIG. 176. Combined plots of z- or z'-scores and Zeta-scores for the laboratory with code 35 (Clay material).

35

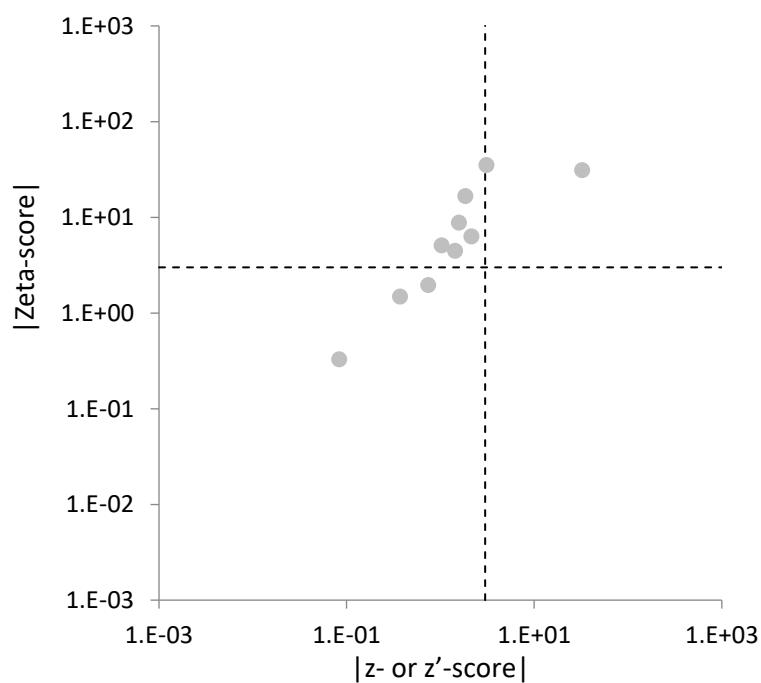


FIG. 177. Combined plots of z- or z'-scores and Zeta-scores for the laboratory with code 35 (Plant material).

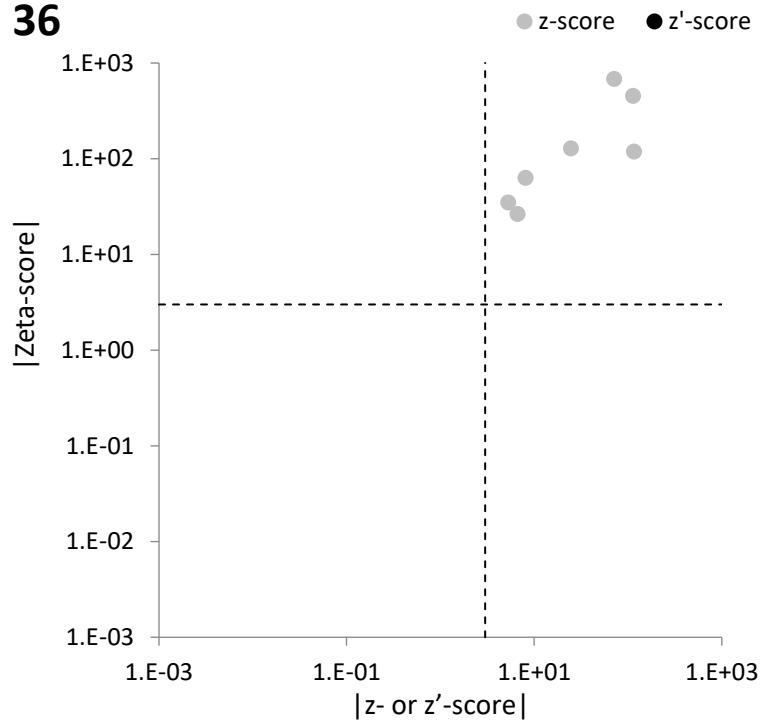
36

FIG. 178. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 36 (Clay material).

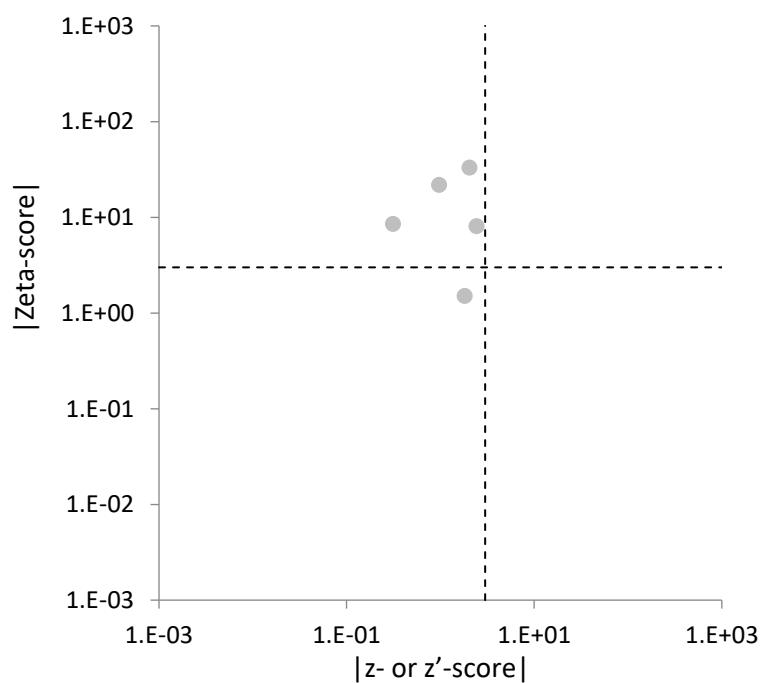
36

FIG. 179. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 36 (Plant material).

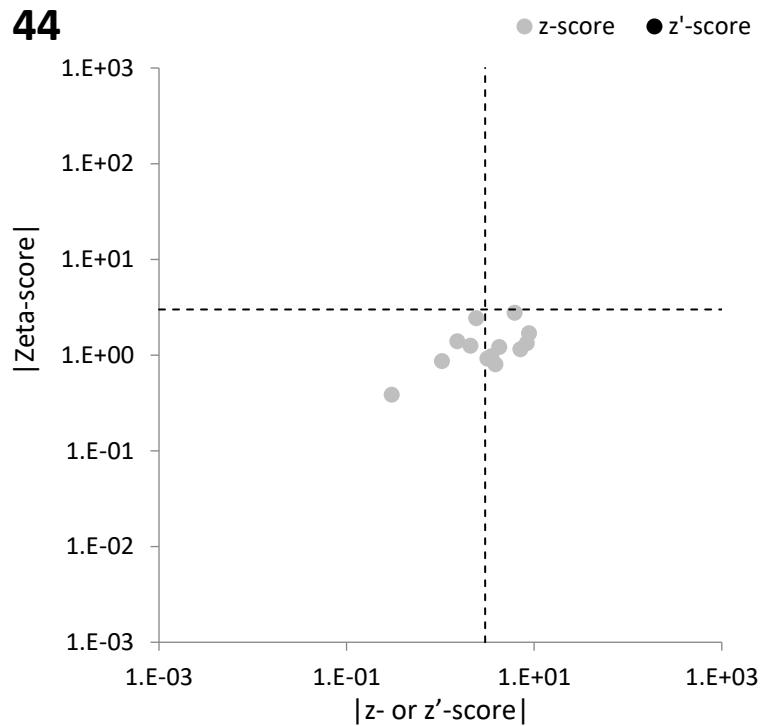
44

FIG. 180. Combined plots of z- or z'-scores and Zeta-scores for the laboratory with code 44 (Clay material).

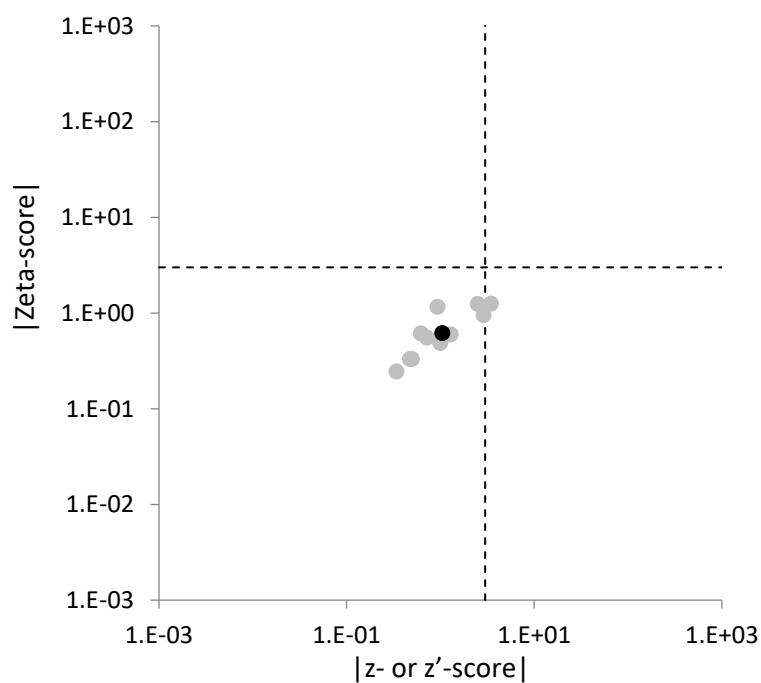
44

FIG. 181. Combined plots of z- or z'-scores and Zeta-scores for the laboratory with code 44 (Plant material).

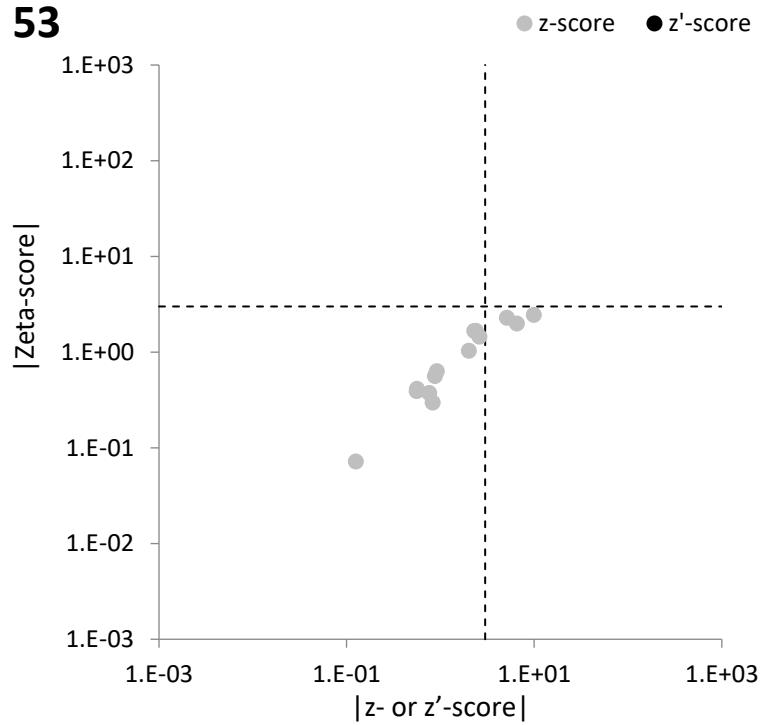
53

FIG. 182. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 53 (Clay material).

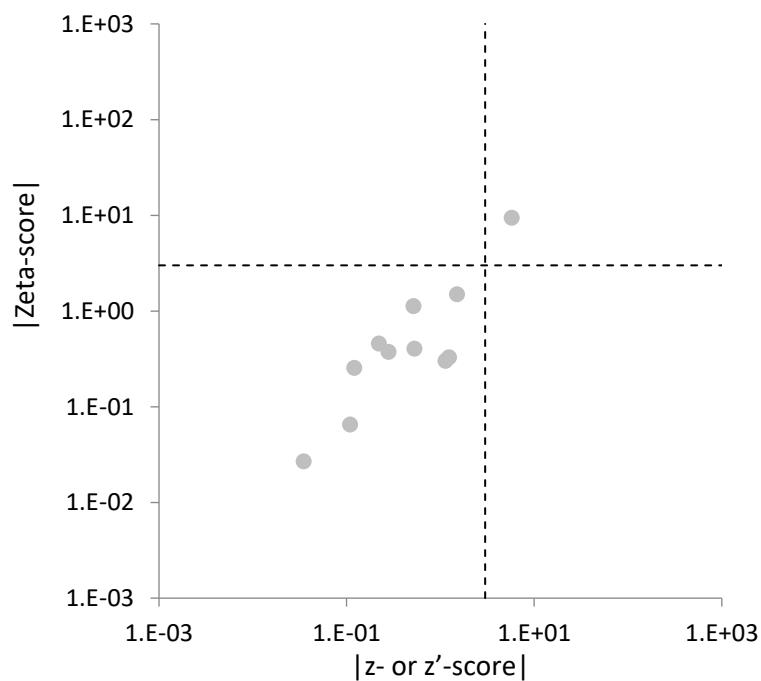
53

FIG. 183. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 53 (Plant material).

54

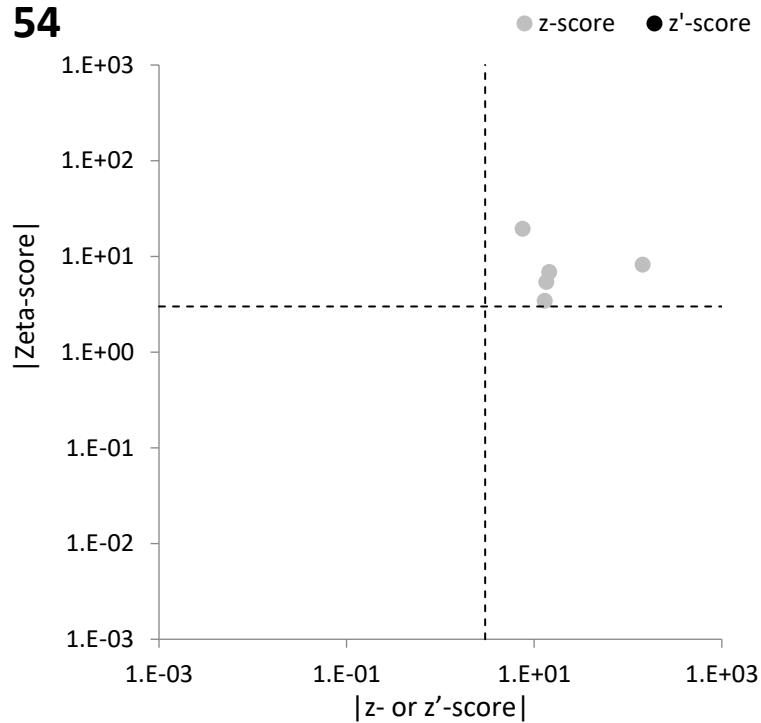


FIG. 184. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 54 (Clay material).

54

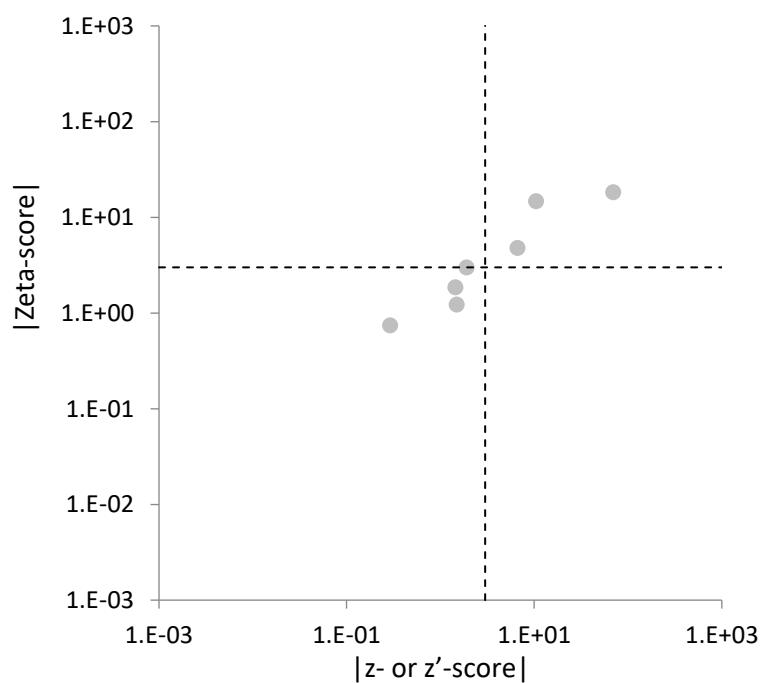


FIG. 185. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 54 (Plant material).

55

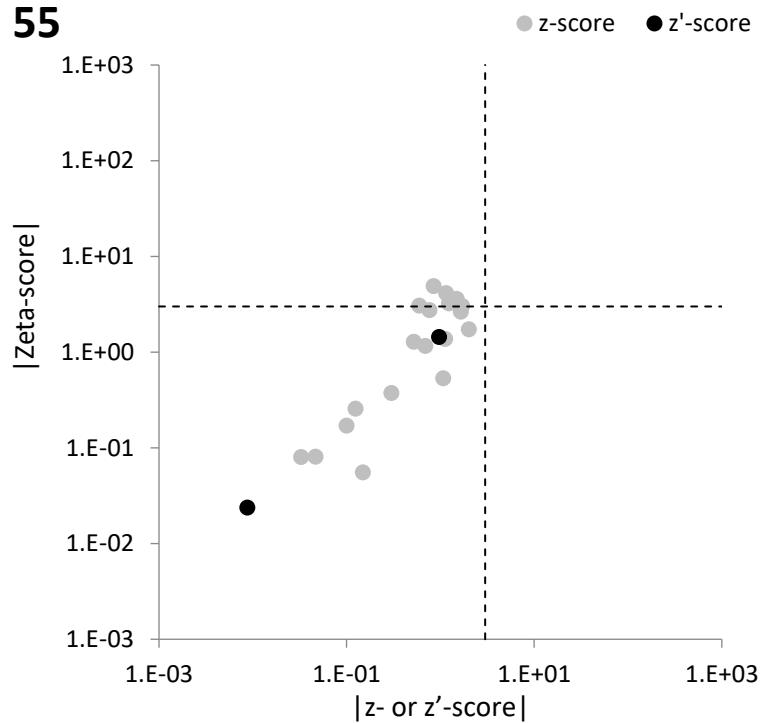


FIG. 186. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 55 (Clay material).

55

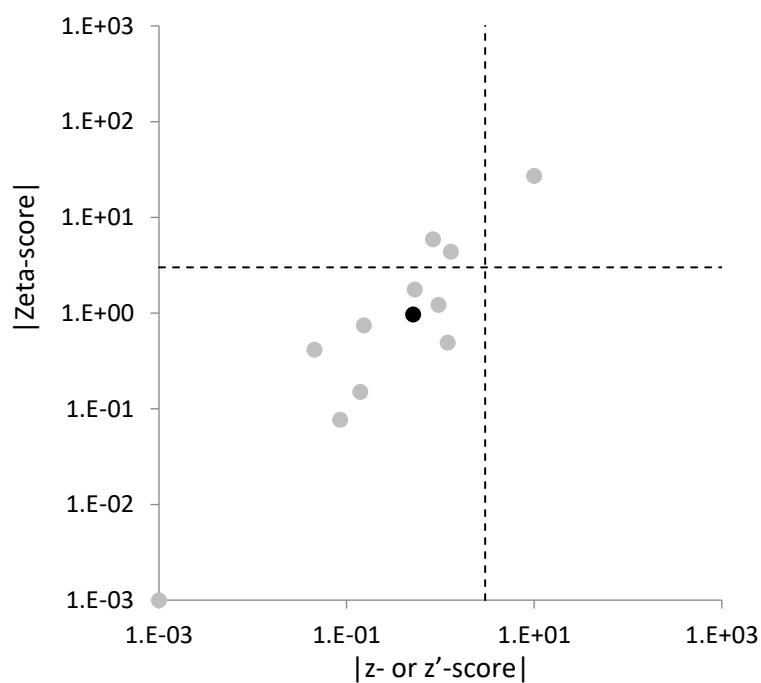


FIG. 187. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 55 (Plant material).

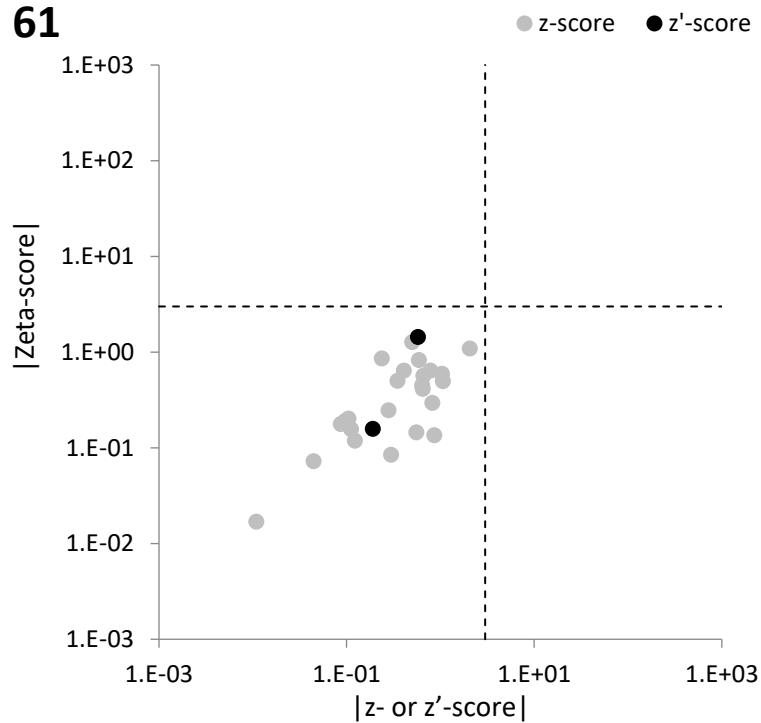
61

FIG. 188. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 61 (Clay material).

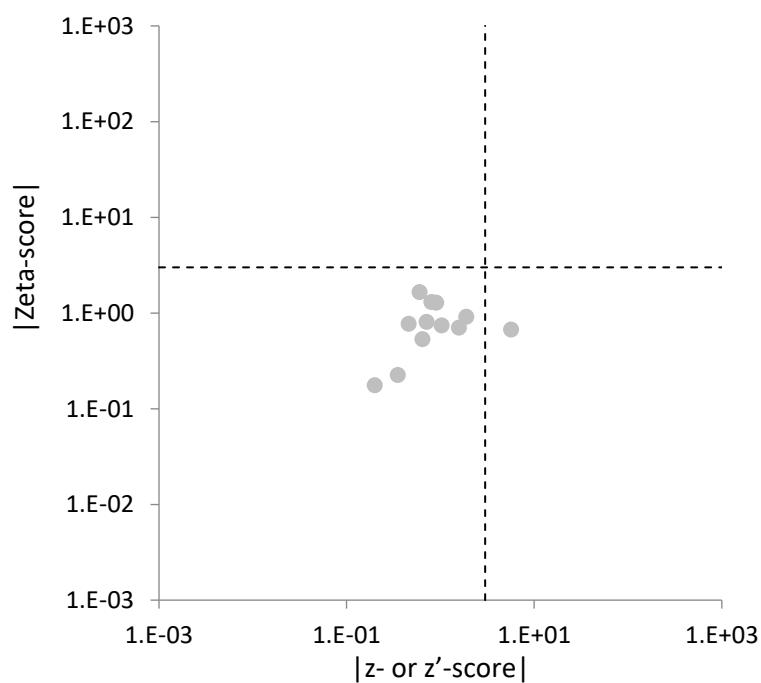
61

FIG. 189. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 61 (Plant material).

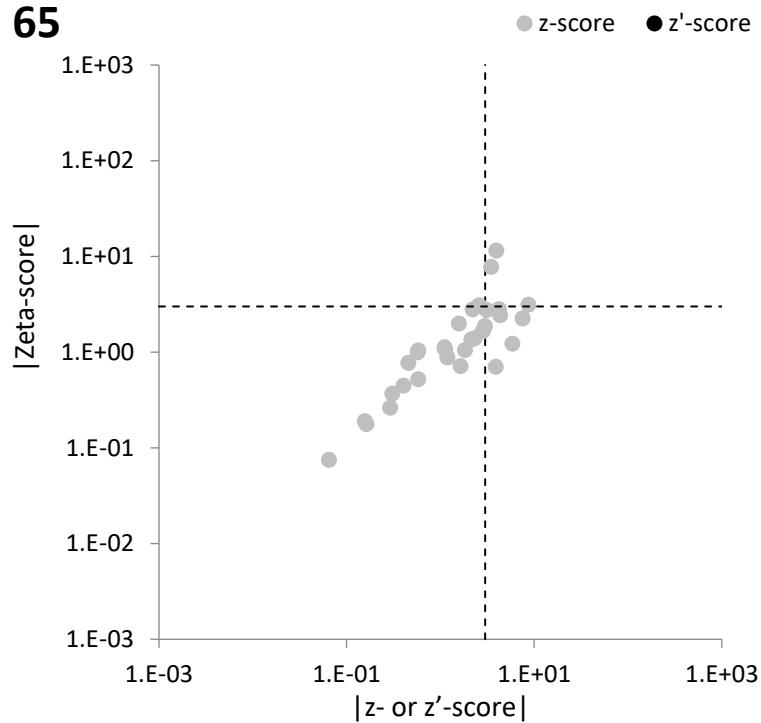
65

FIG. 190. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 65 (Clay material).

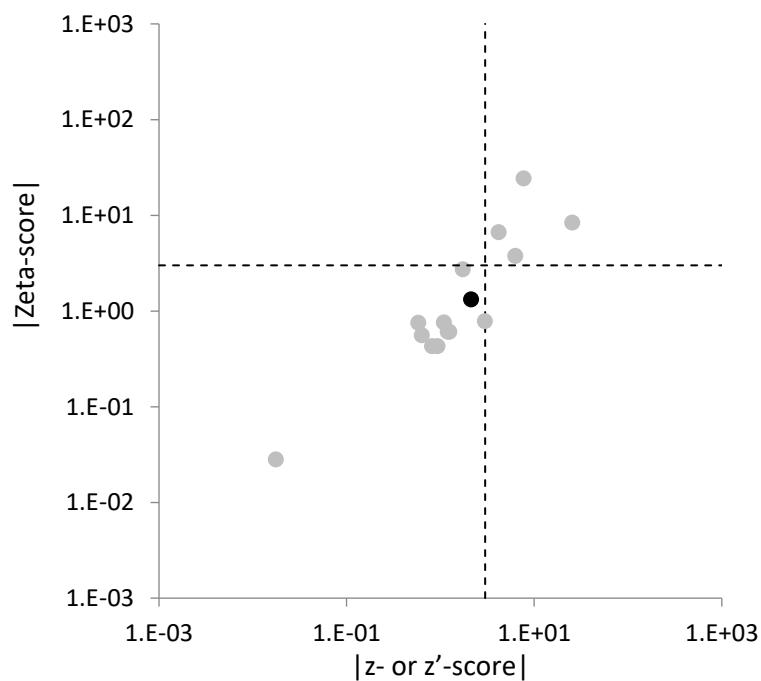
65

FIG. 191. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 65 (Plant material).

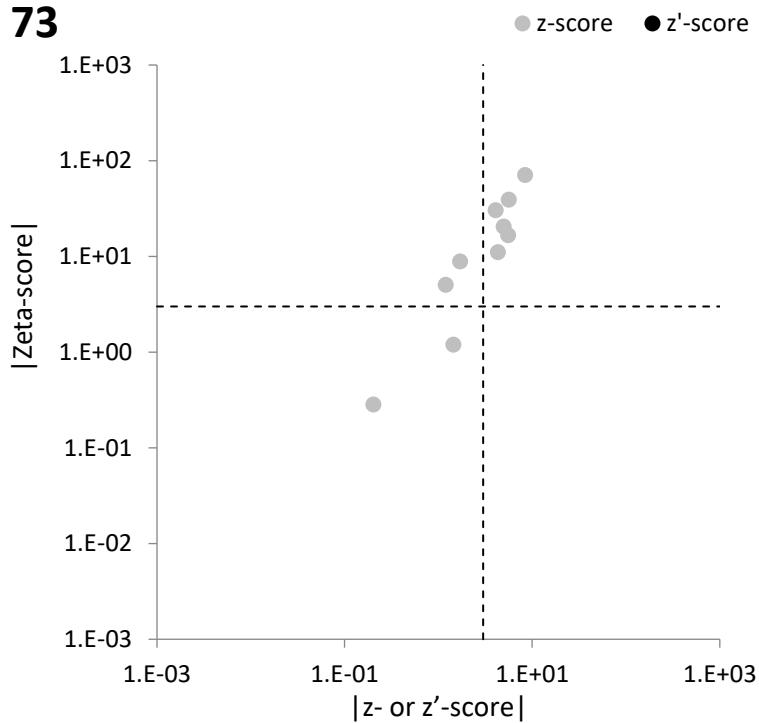
73

FIG. 192. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 73 (Clay material).

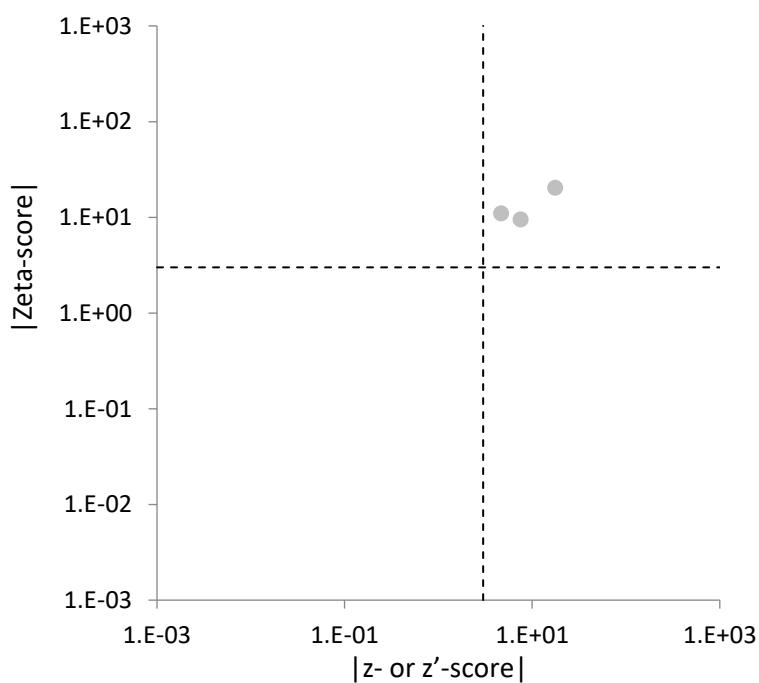
73

FIG. 193. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 73 (Plant material).

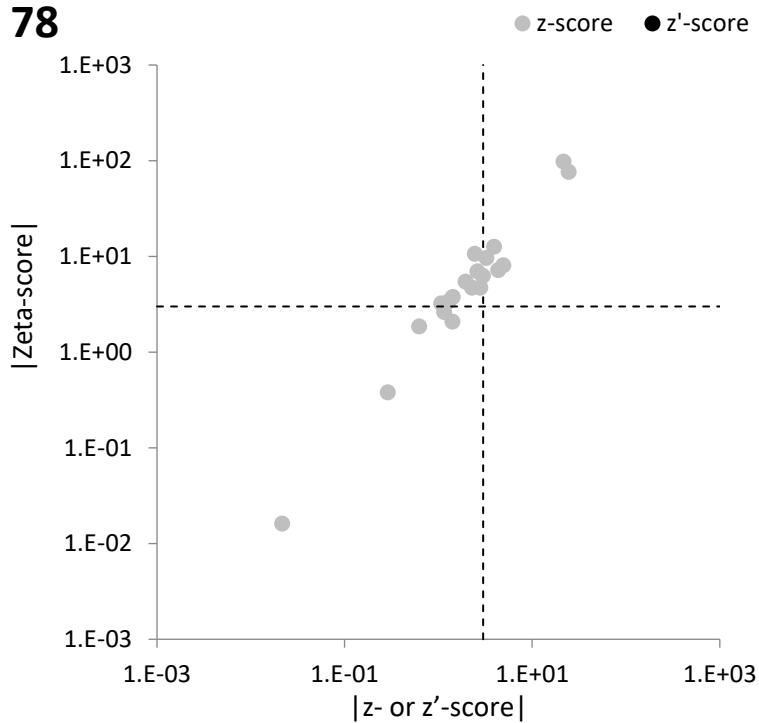
78

FIG. 194. Combined plots of z- or z'-scores and Zeta-scores for the laboratory with code 78 (Clay material).

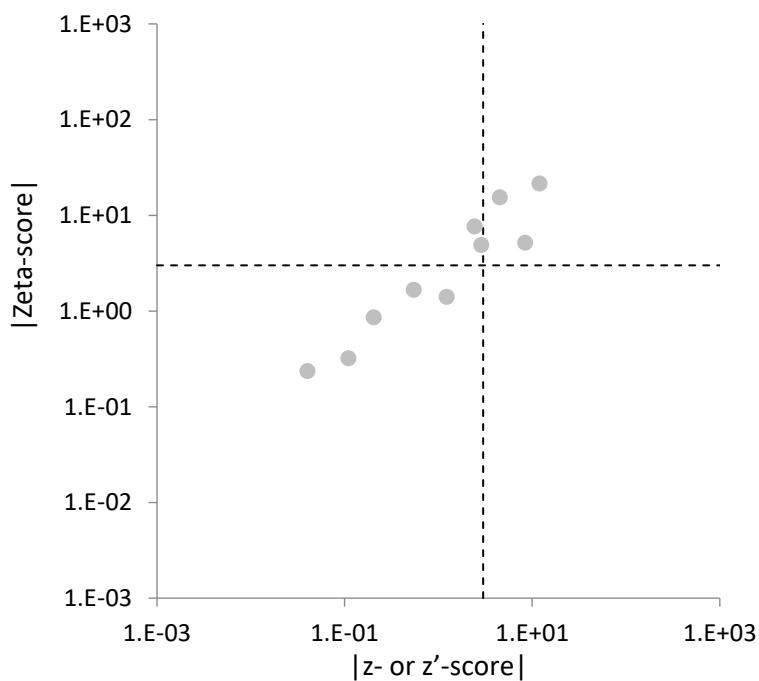
78

FIG. 195. Combined plots of z- or z'-scores and Zeta-scores for the laboratory with code 78 (Plant material).

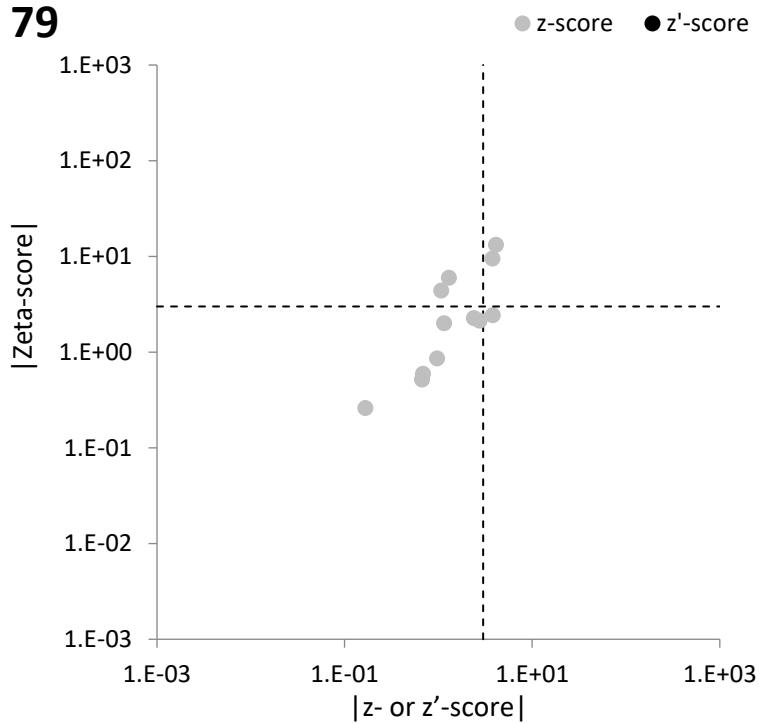
79

FIG. 196. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 79 (Clay material).

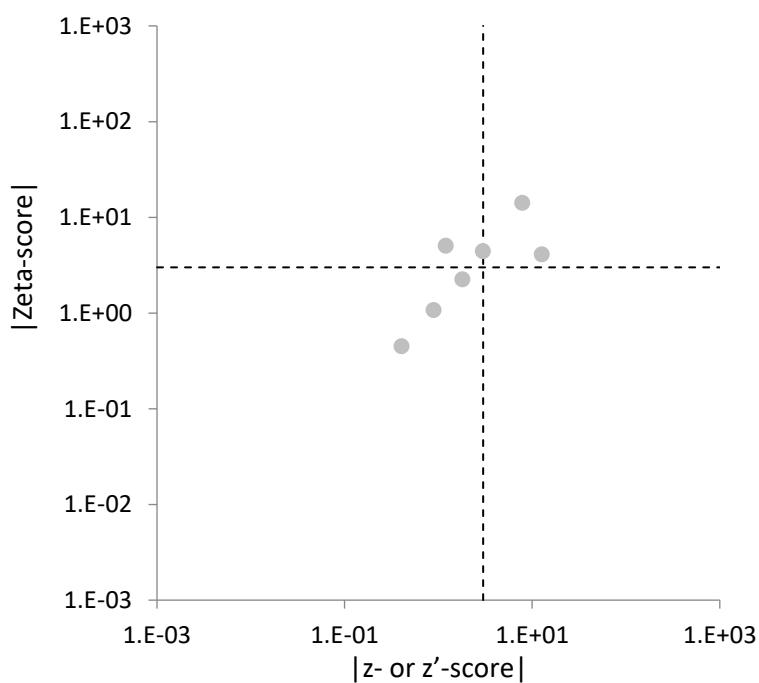
79

FIG. 197. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 79 (Plant material).

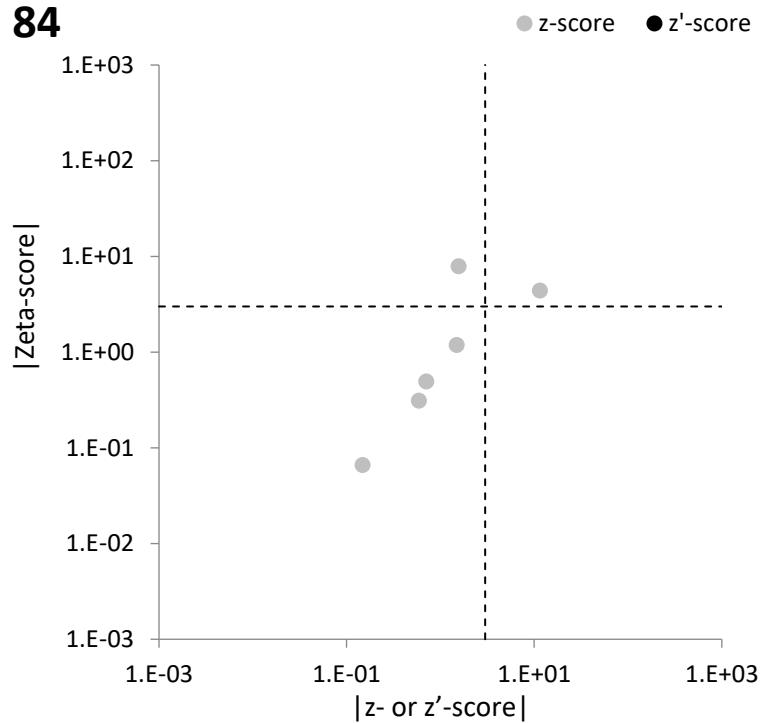
84

FIG. 198. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 84 (Clay material).

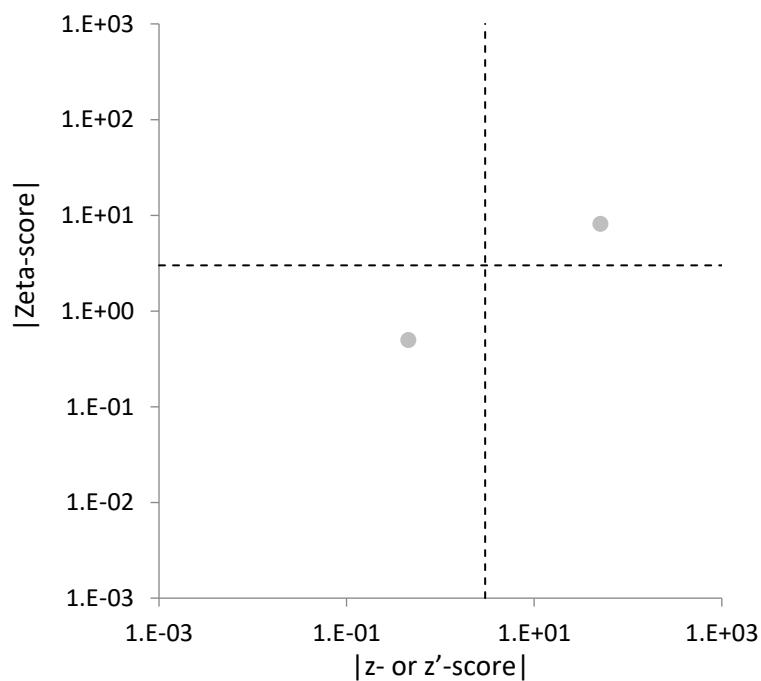
84

FIG. 199. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 84 (Plant material).

85

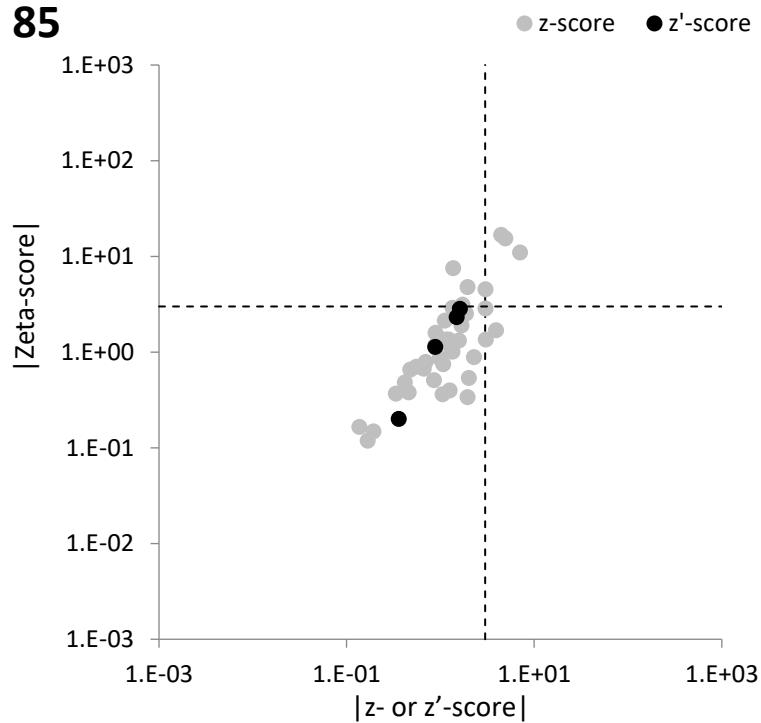


FIG. 200. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 85 (Clay material).

85

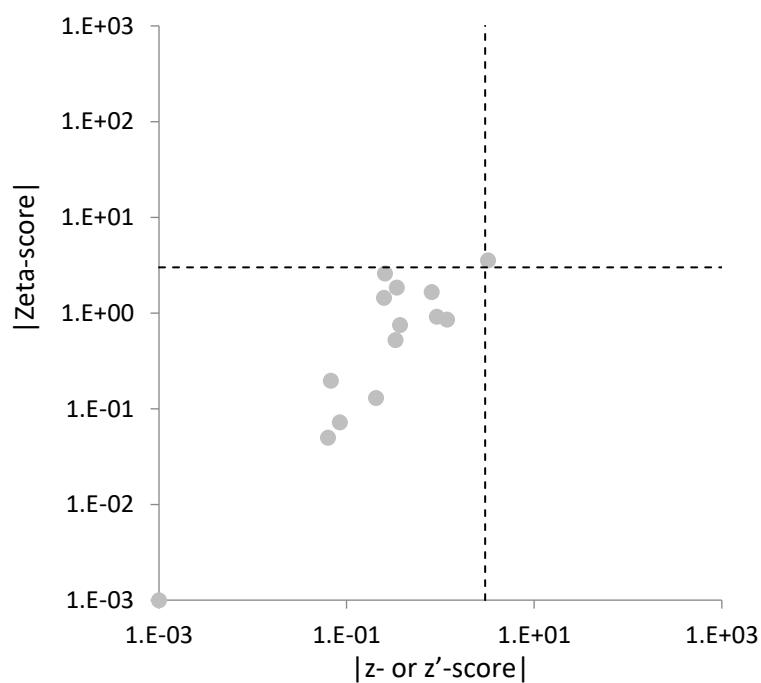


FIG. 201. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 85 (Plant material).

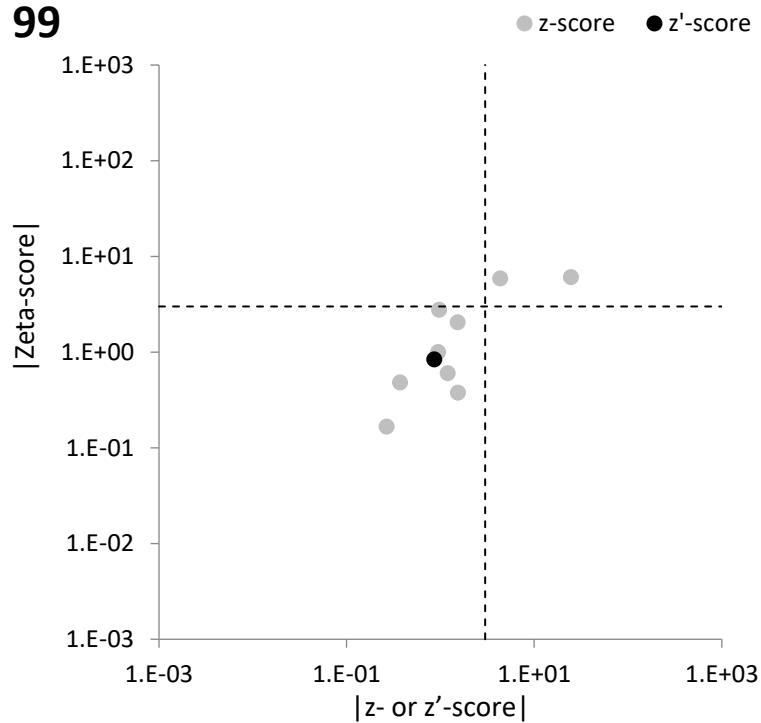
99

FIG. 202. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 99 (Clay material).

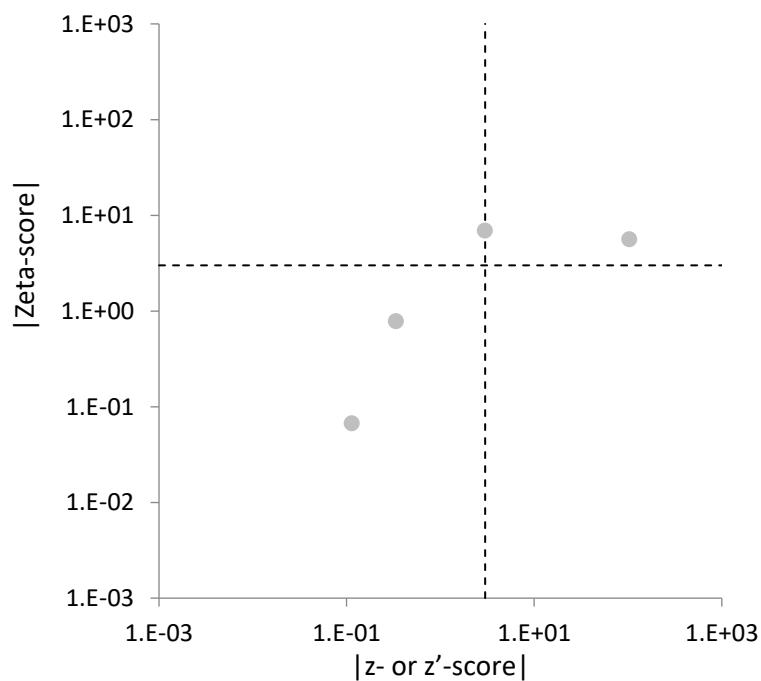
99

FIG. 203. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 99 (Plant material).

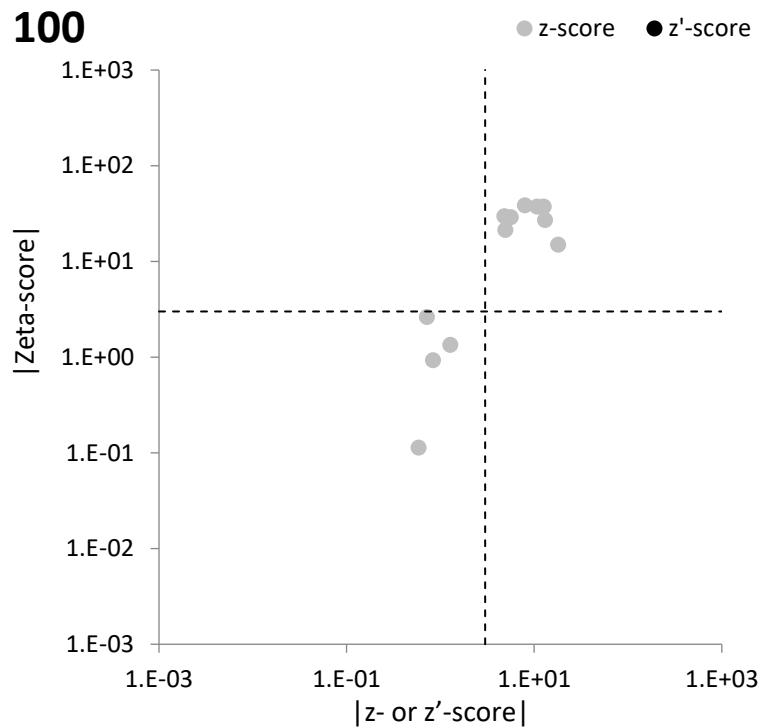


FIG. 204. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 100 (Clay material).

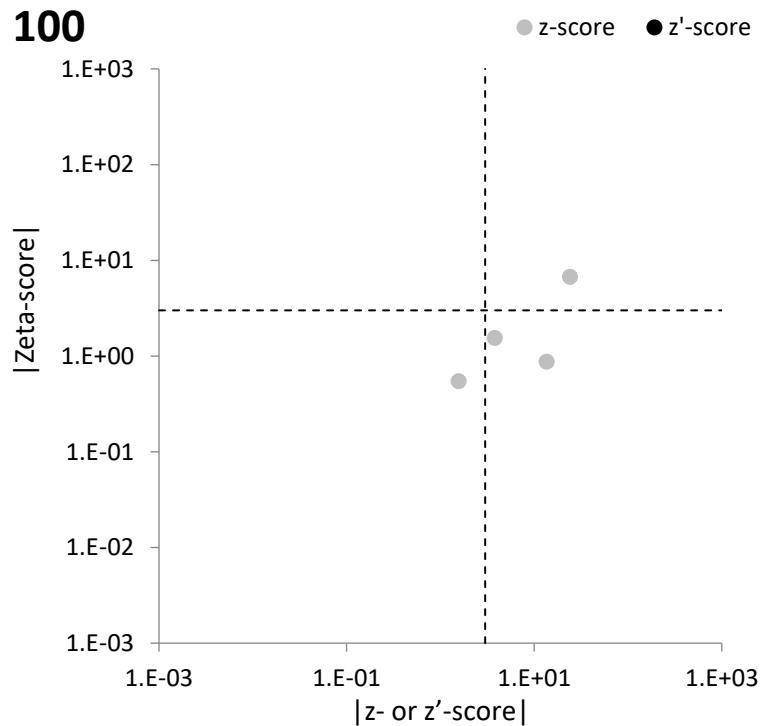


FIG. 205. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 100 (Plant material).

105

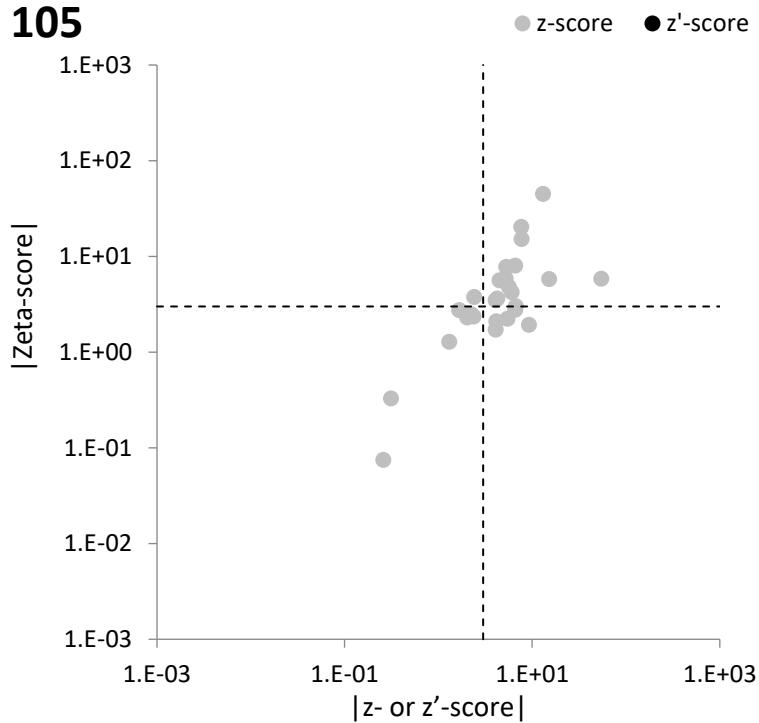


FIG. 206. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 105 (Clay material).

105

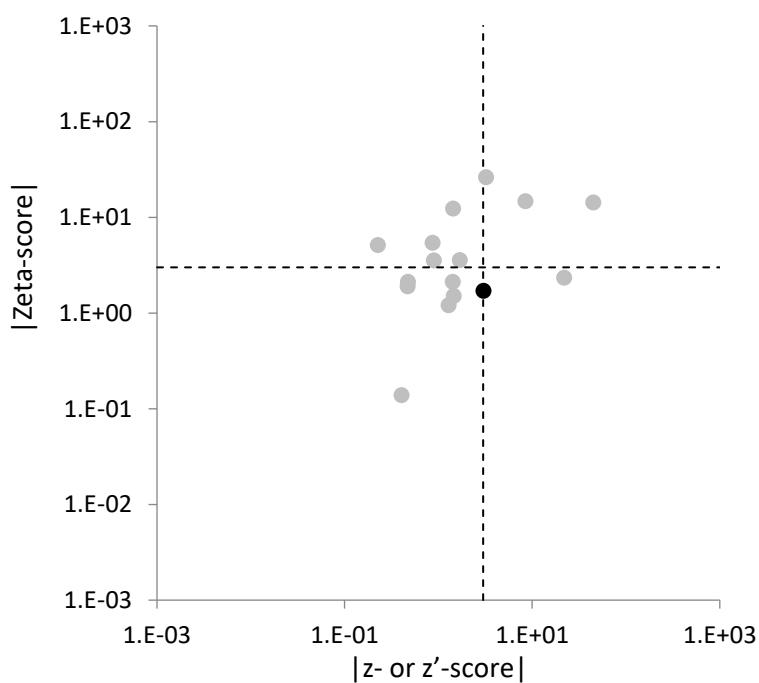


FIG. 207. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 105 (Plant material).

108

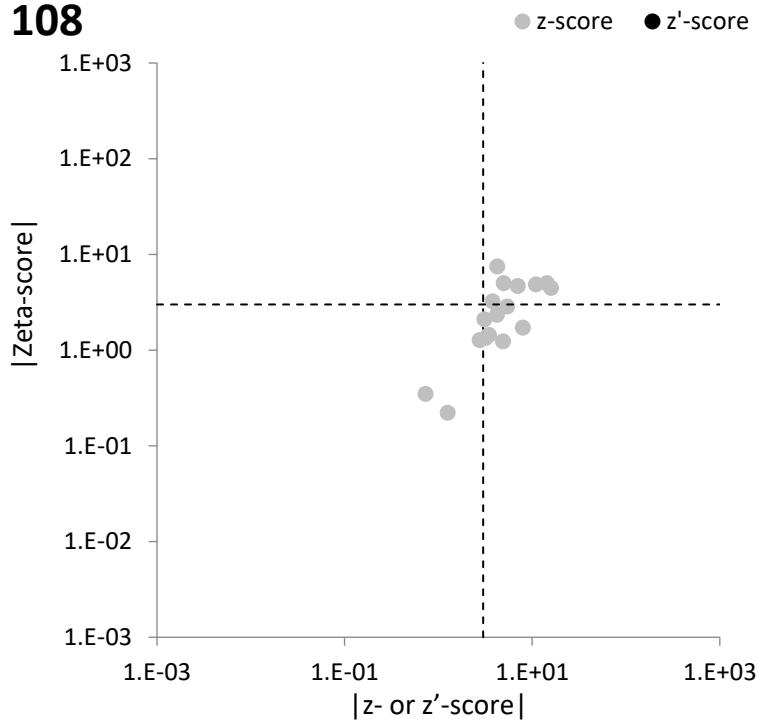


FIG. 208. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 108 (Clay material).

108

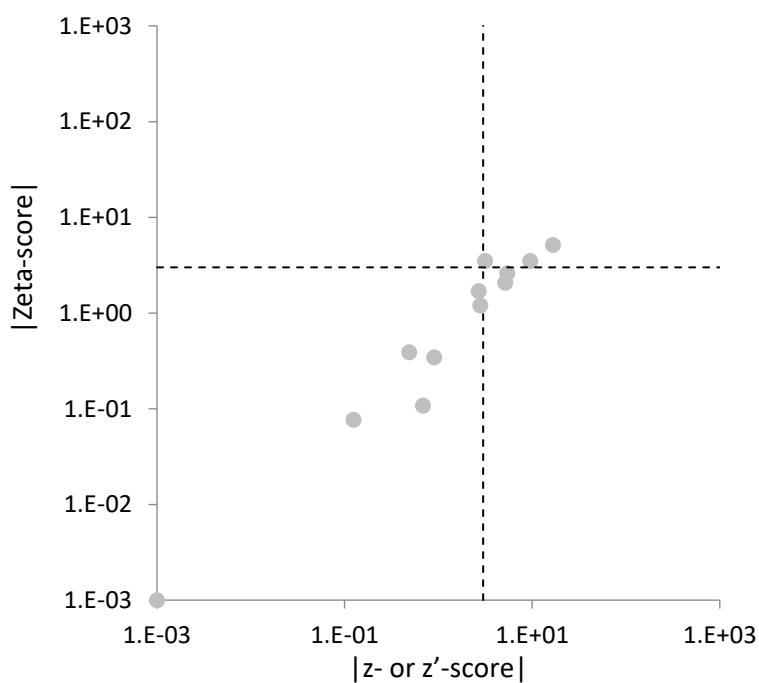
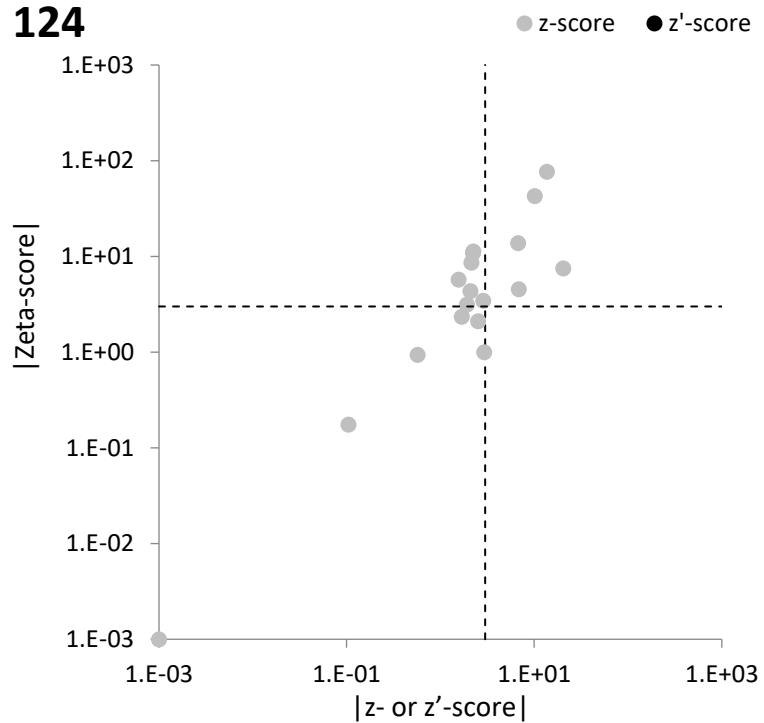


FIG. 209. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 108 (Plant material).

124



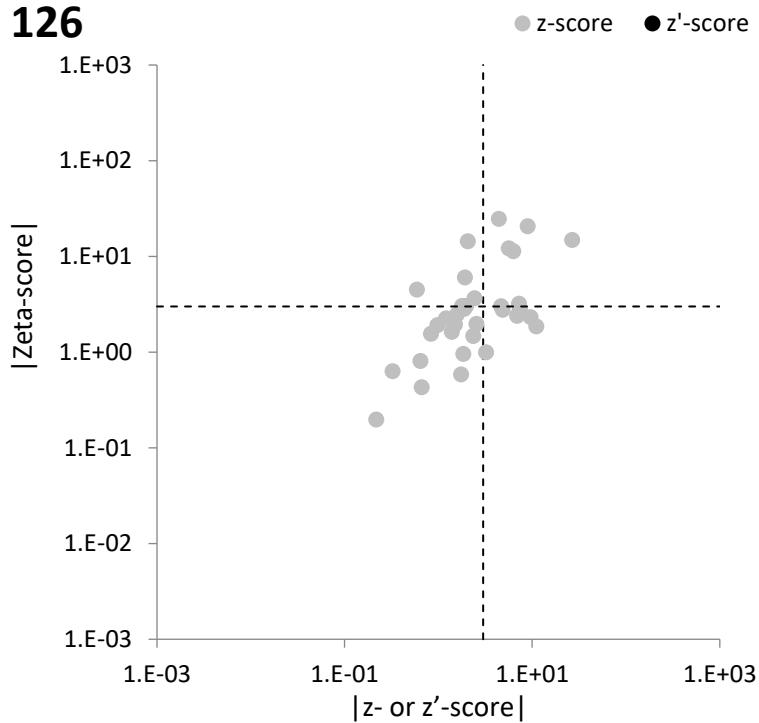
126

FIG. 211. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 126 (Clay material).

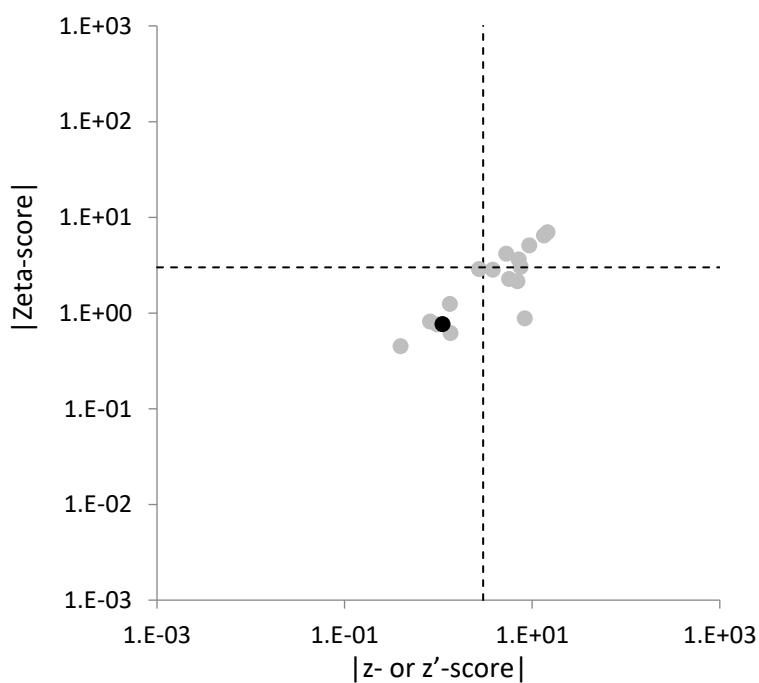
126

FIG. 212. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 126 (Plant material).

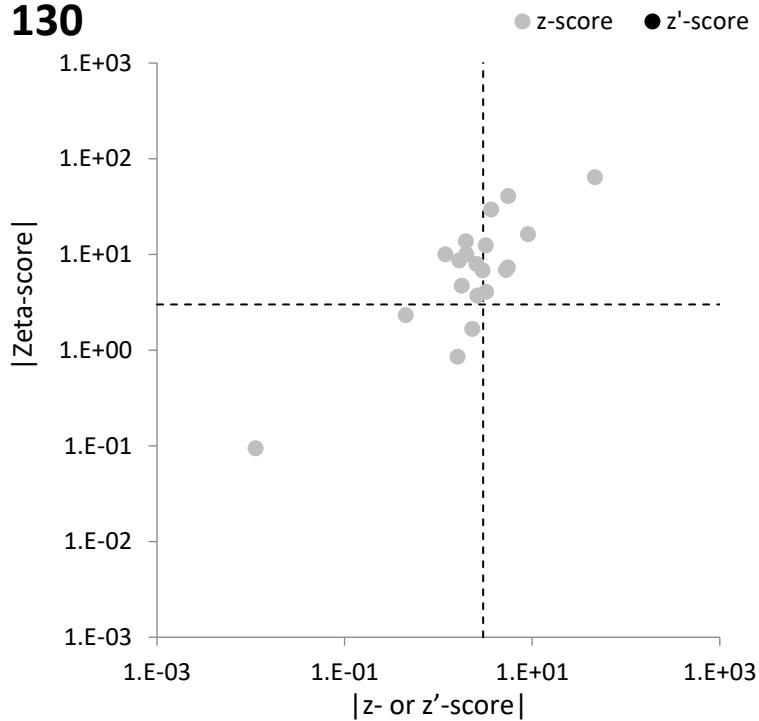
130

FIG. 213. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 130 (Clay material).

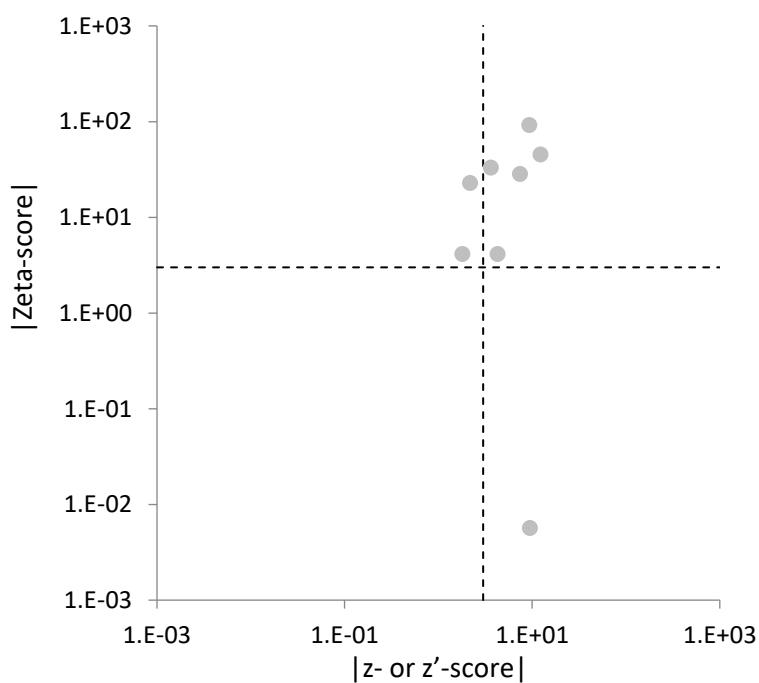
130

FIG. 214. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 130 (Plant material).

133

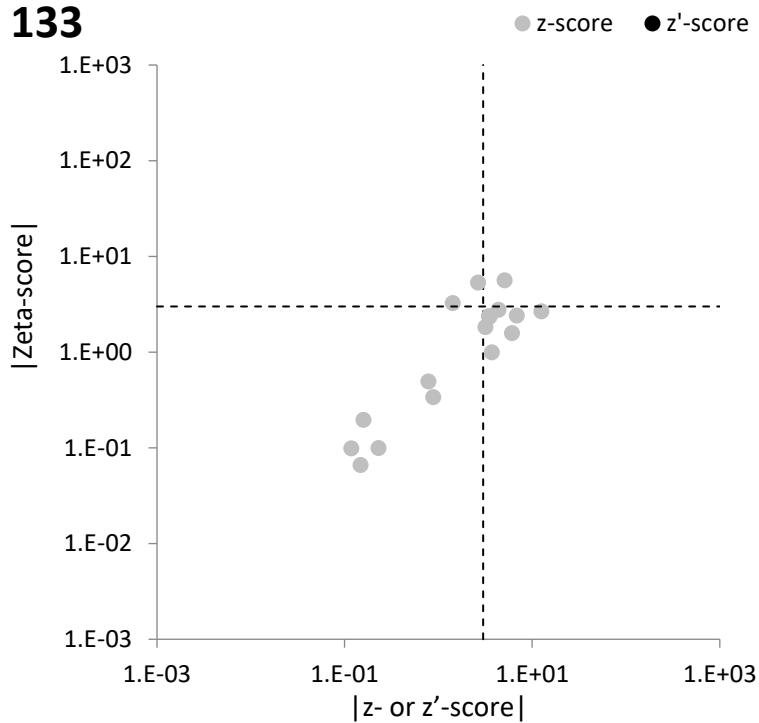


FIG. 215. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 133 (Clay material).

133

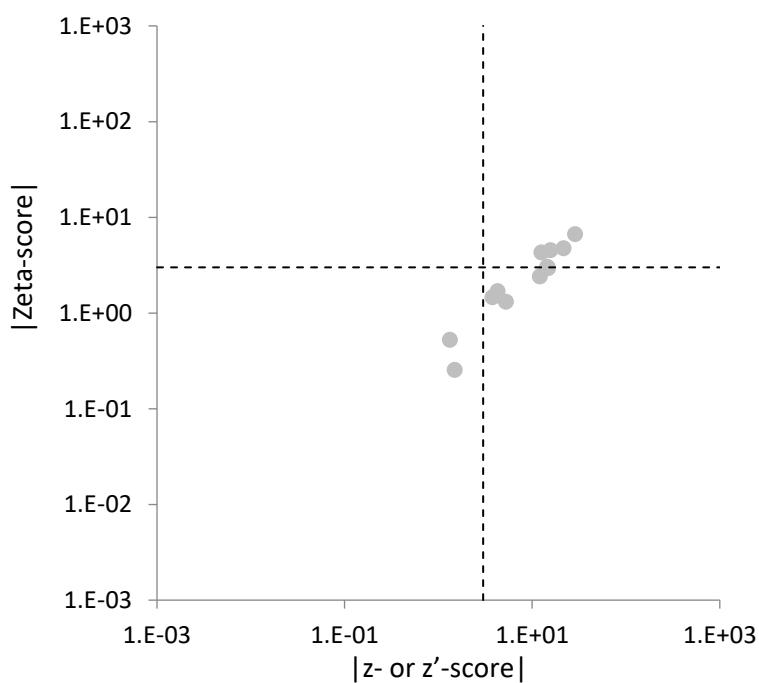
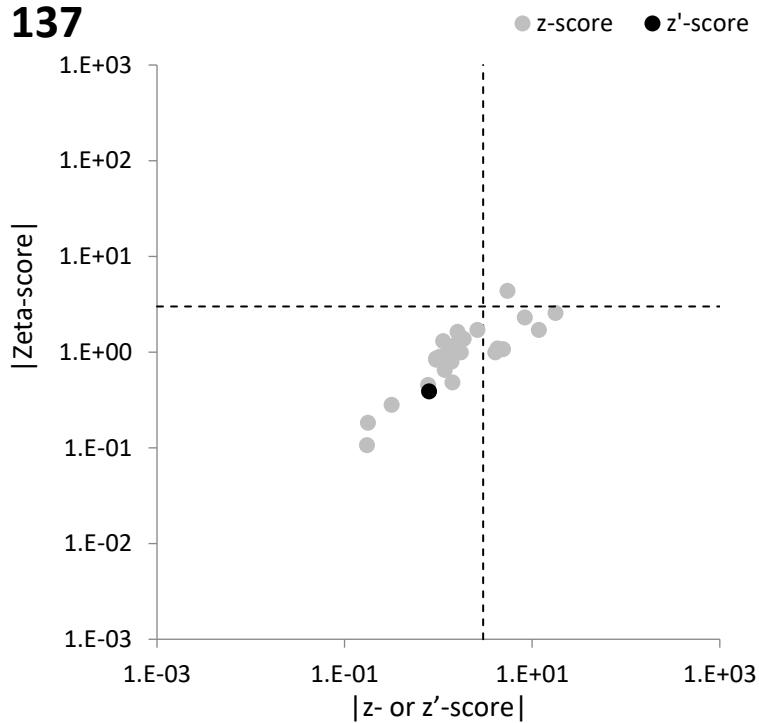


FIG. 216. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 133 (Plant material).

137

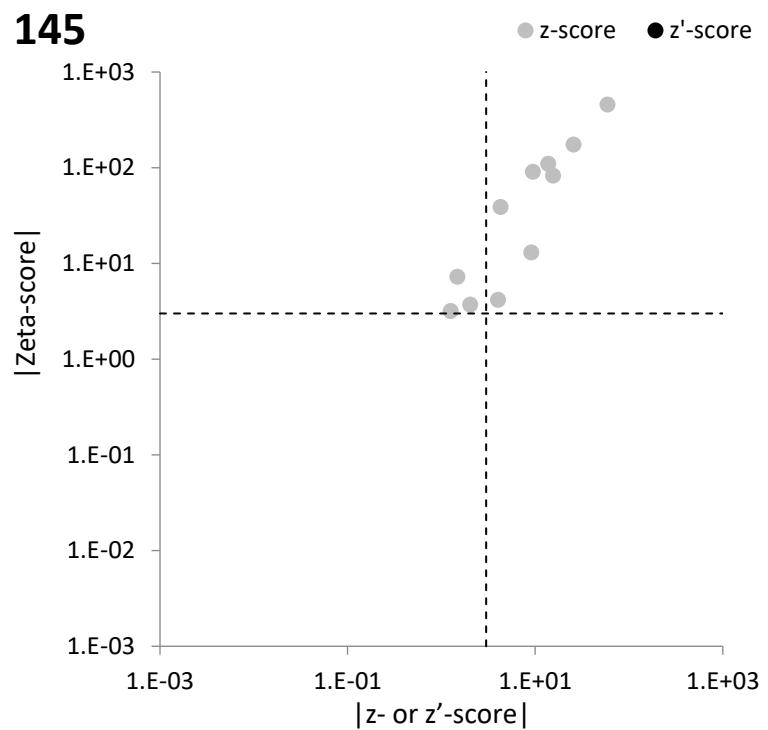


FIG. 219. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 145 (Clay material).

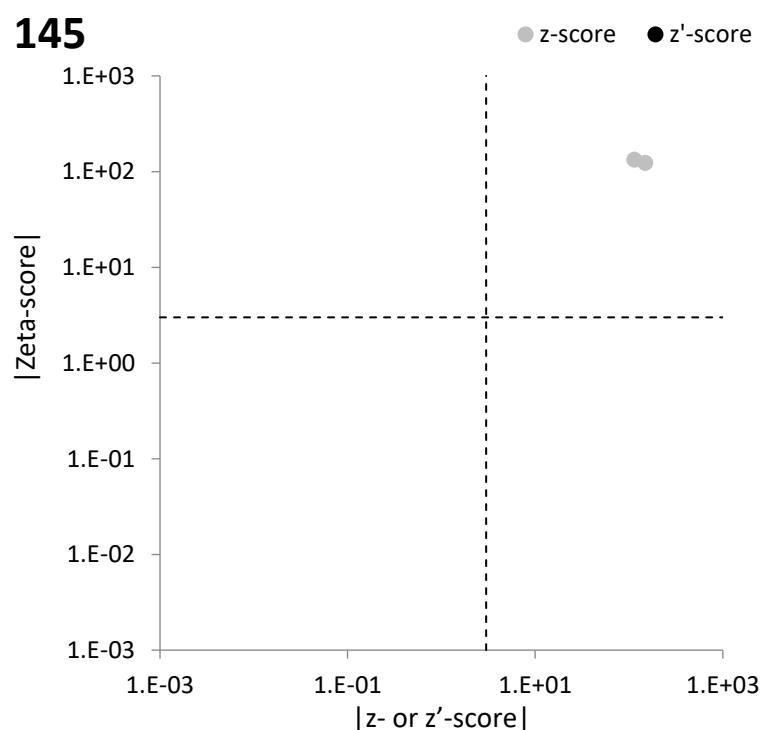


FIG. 220. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 145 (Plant material).

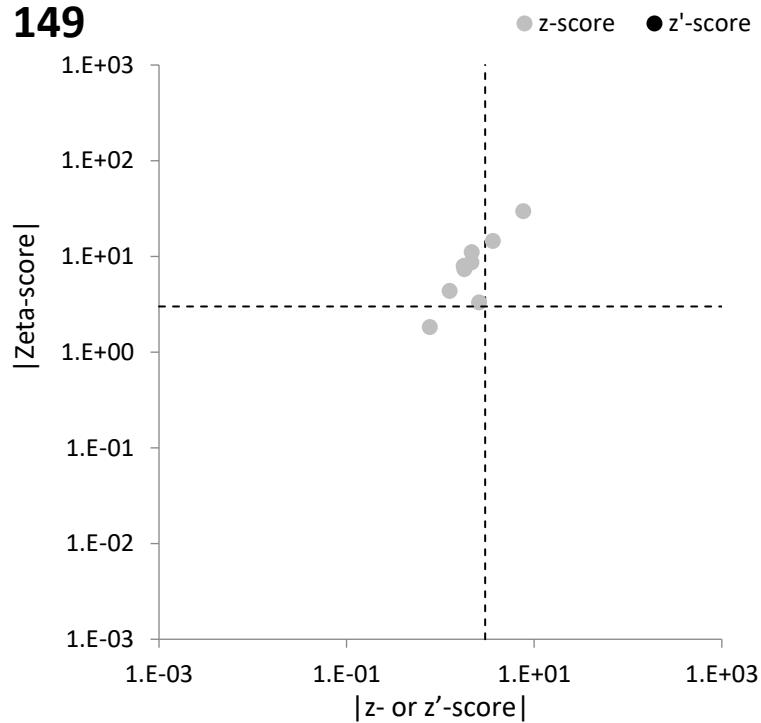
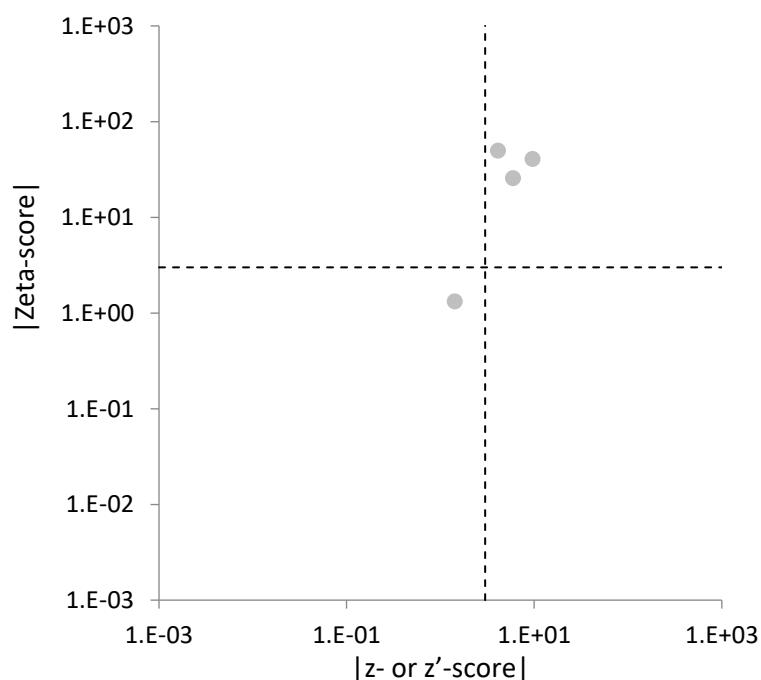
149

FIG. 221. Combined plots of z- or z'-scores and Zeta-scores for the laboratory with code 149 (Clay material).

149

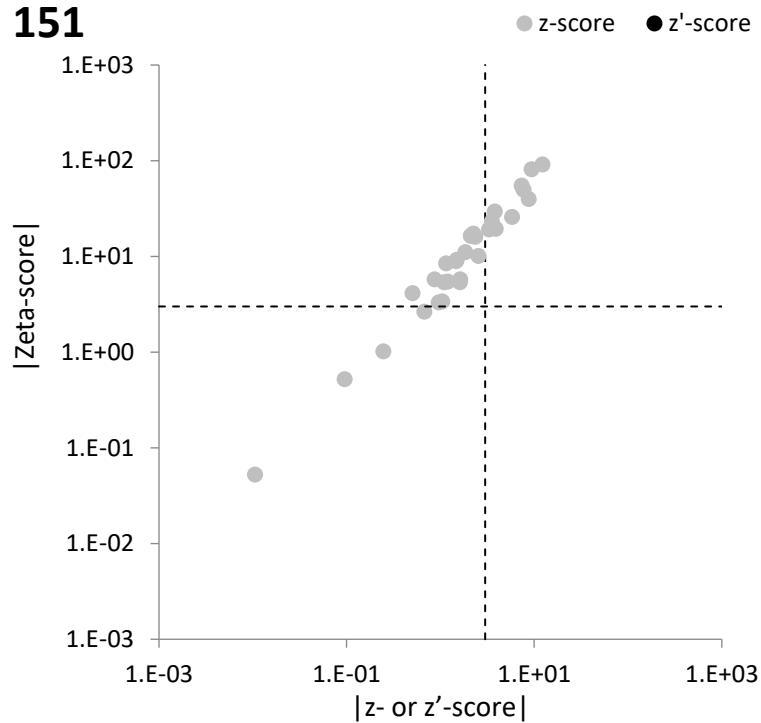
151

FIG. 223. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 151 (Clay material).

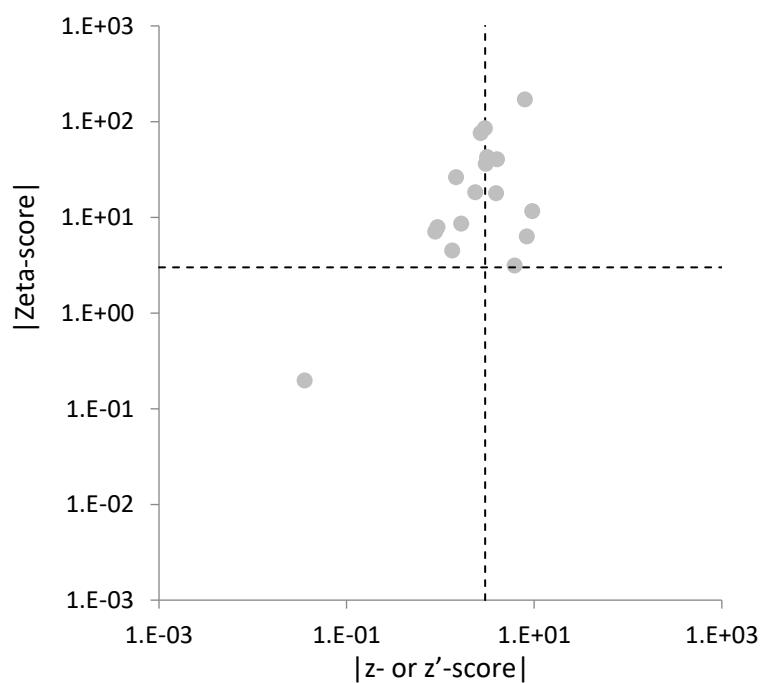
151

FIG. 224. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 151 (Plant material).

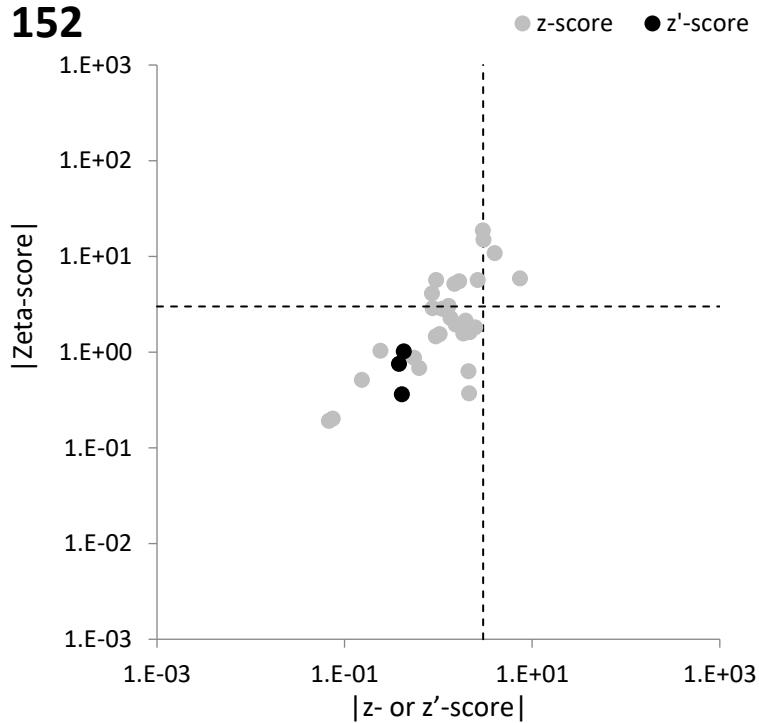
152

FIG. 225. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 152 (Clay material).

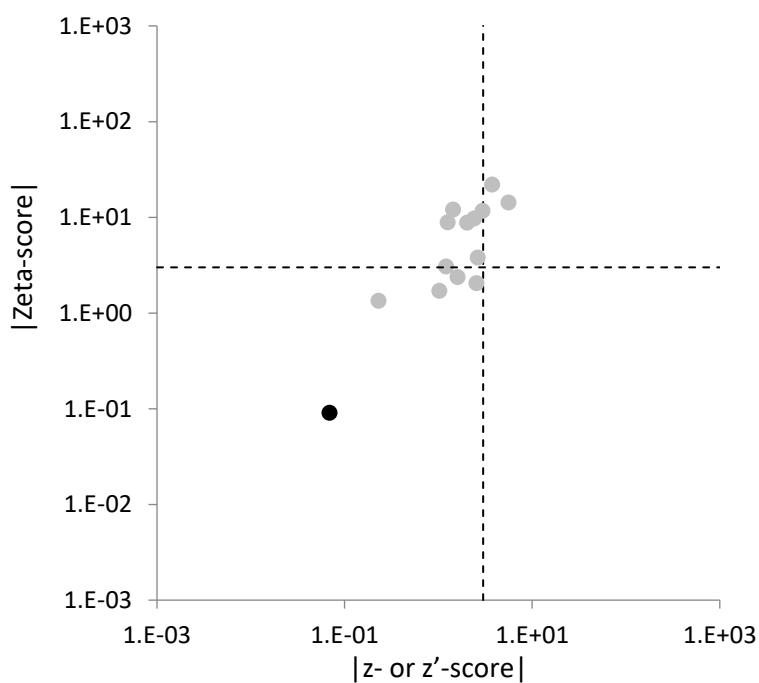
152

FIG. 226. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 152 (Plant material).

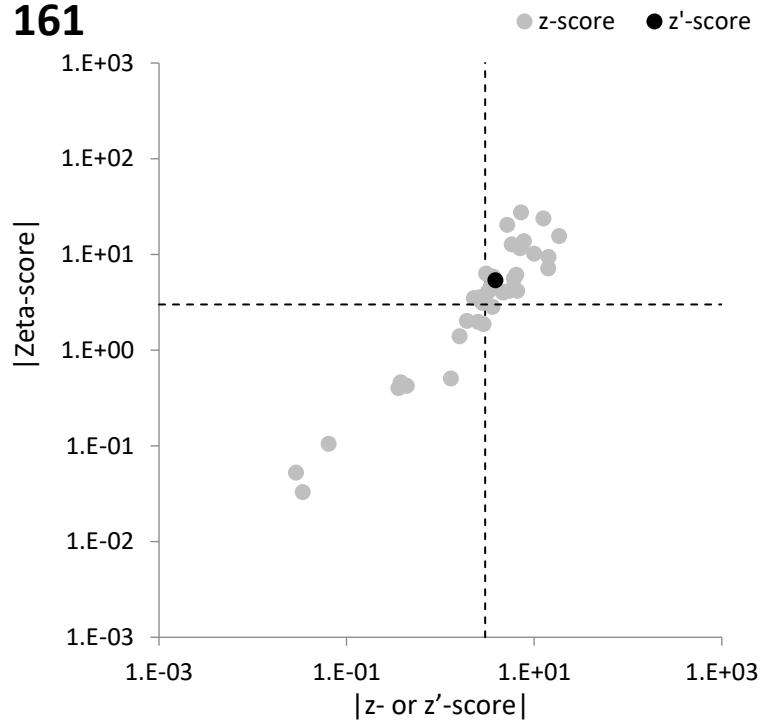
161

FIG. 227. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 161 (Clay material).

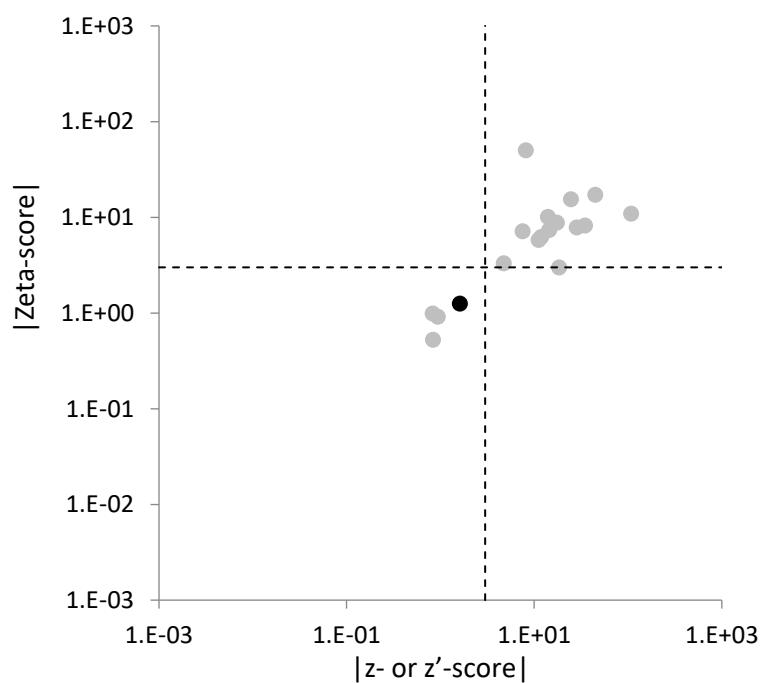
161

FIG. 228. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 161 (Plant material).

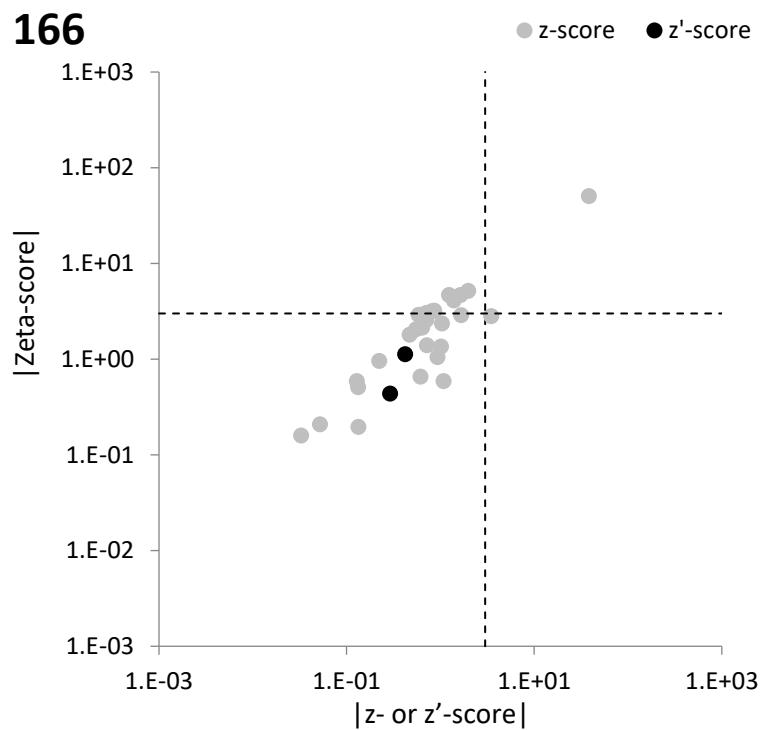


FIG. 229. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 166 (Clay material).

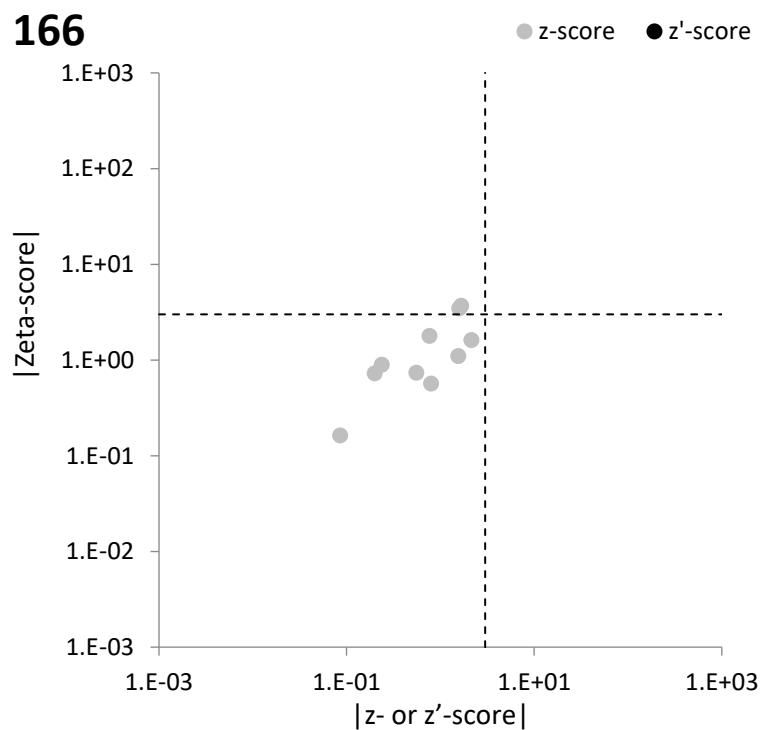


FIG. 230. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 166 (Plant material).

167

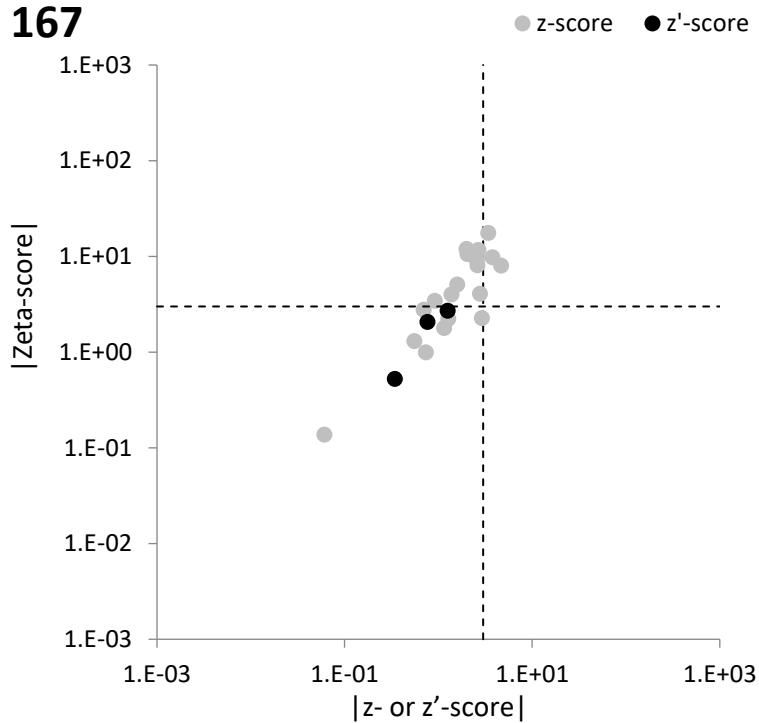


FIG. 231. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 167 (Clay material).

167

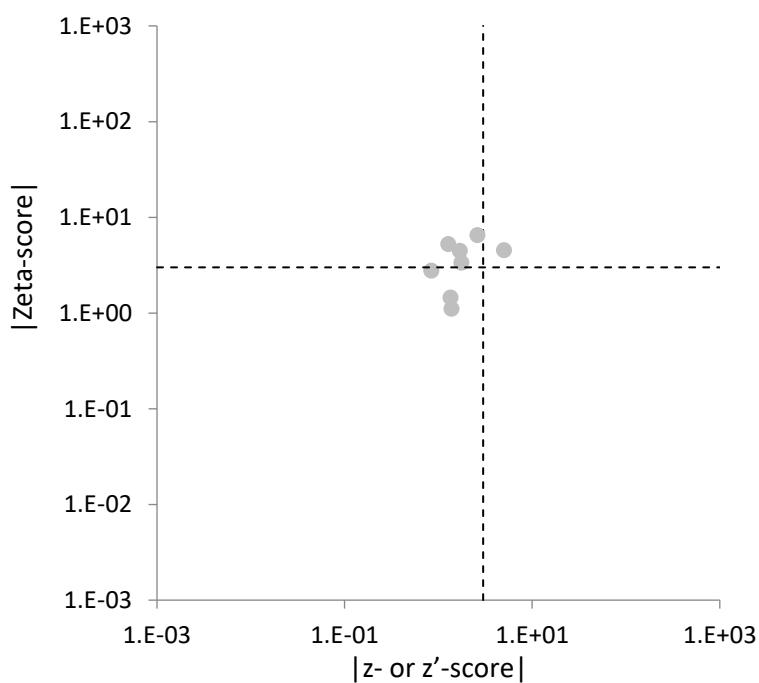


FIG. 232. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 167 (Plant material).

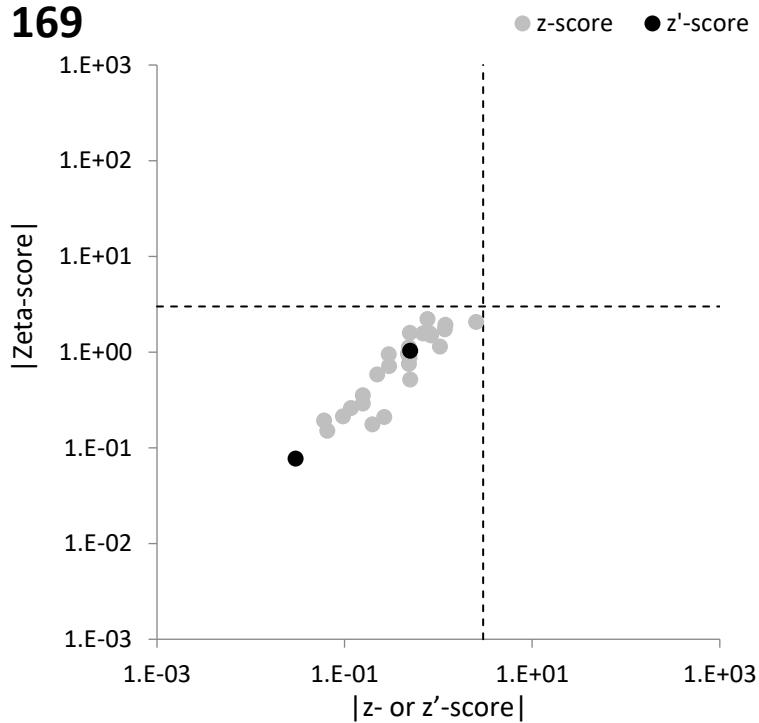
169

FIG. 233. Combined plots of z- or z'-scores and Zeta-scores for the laboratory with code 169 (Clay material).

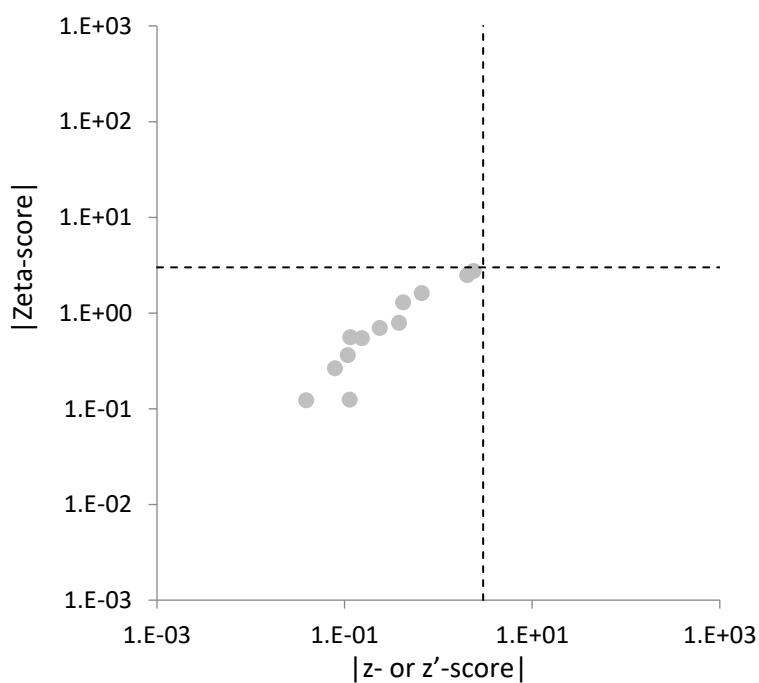
169

FIG. 234. Combined plots of z- or z'-scores and Zeta-scores for the laboratory with code 169 (Plant material).

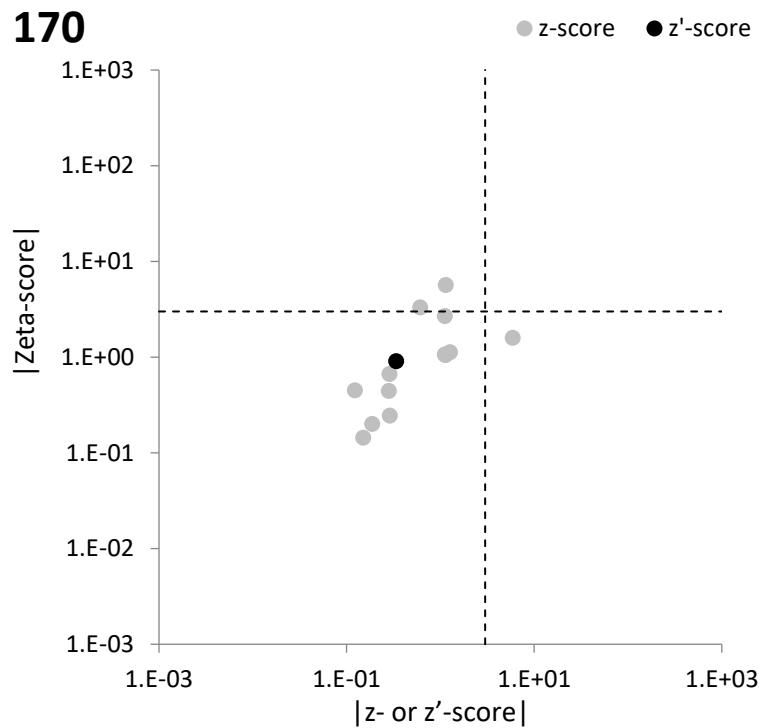


FIG. 235. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 170 (Clay material).

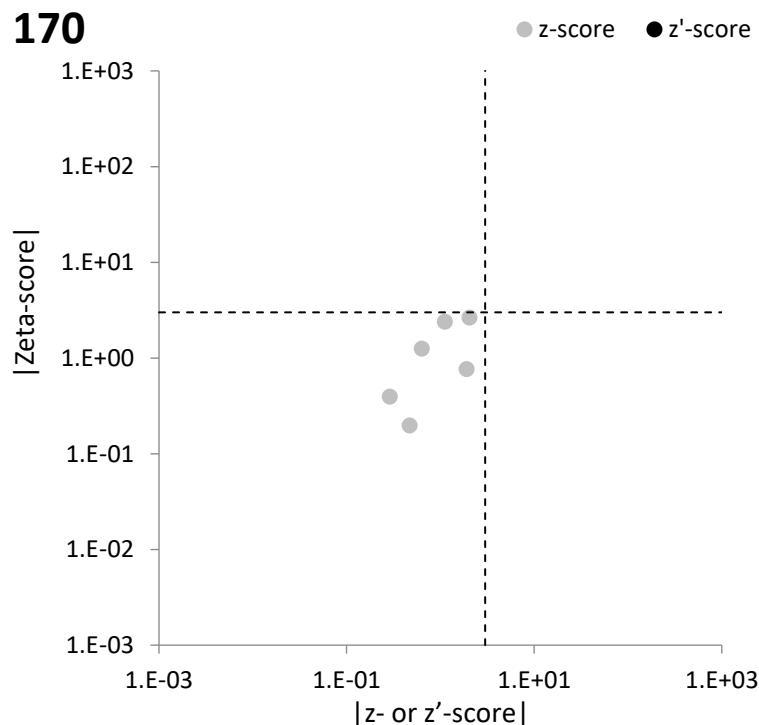
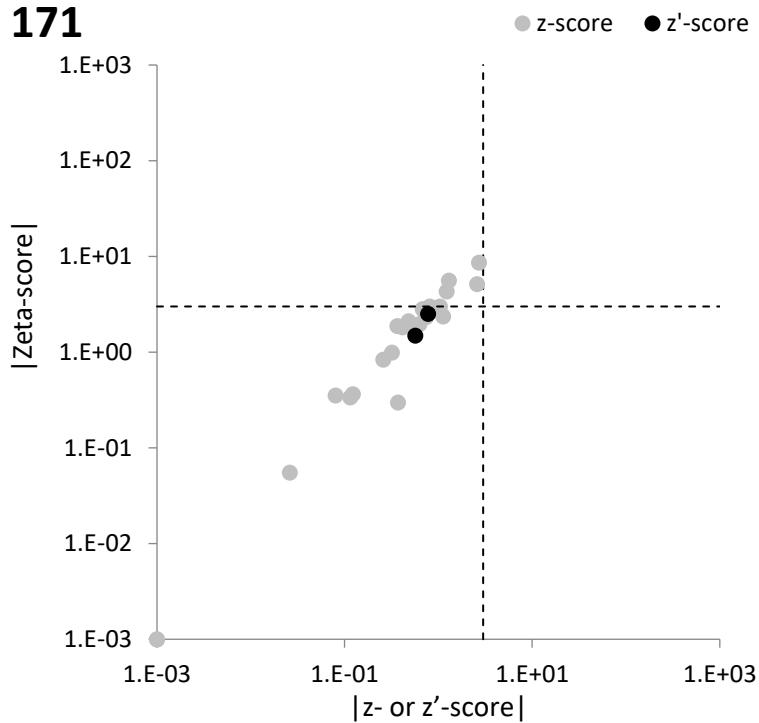


FIG. 236. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 170 (Plant material).

171

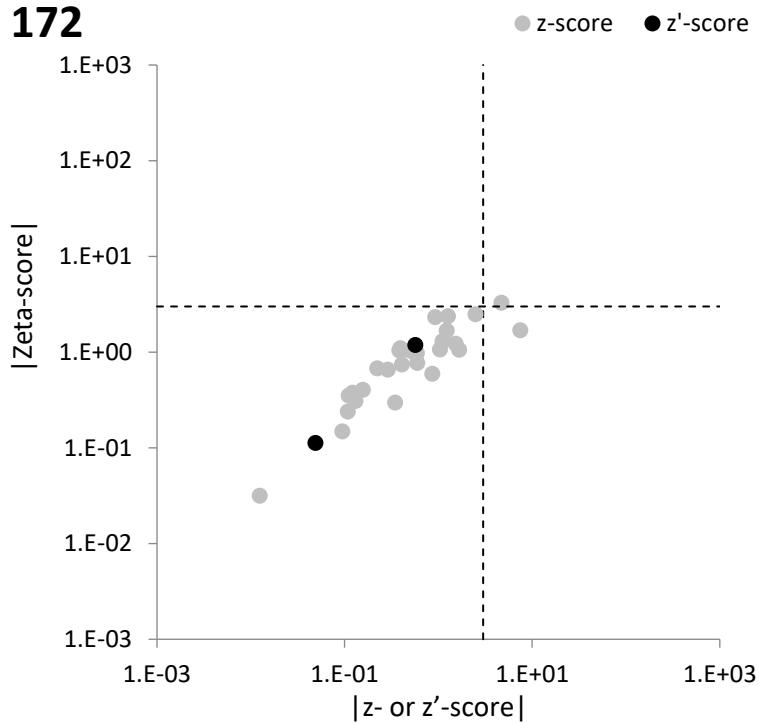
172

FIG. 239. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 172 (Clay material).

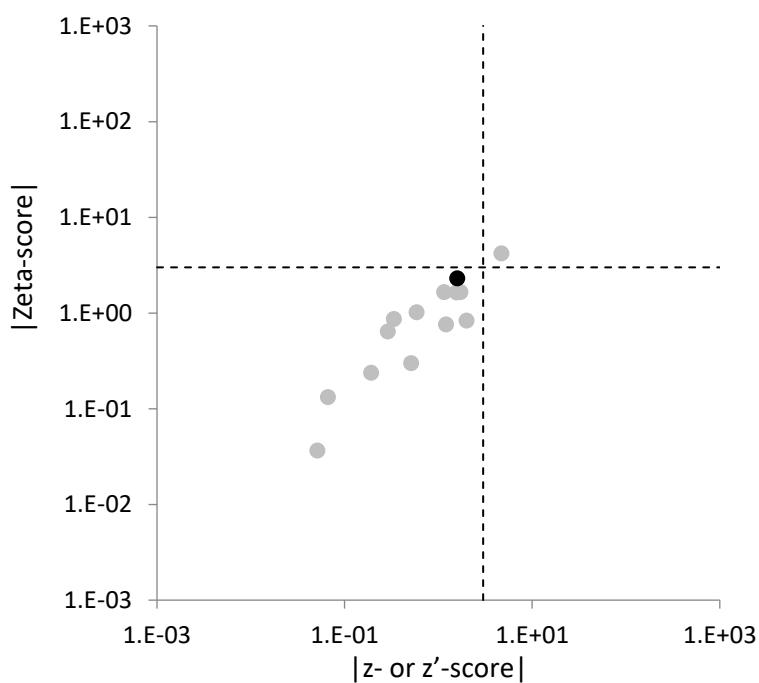
172

FIG. 240. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 172 (Plant material).

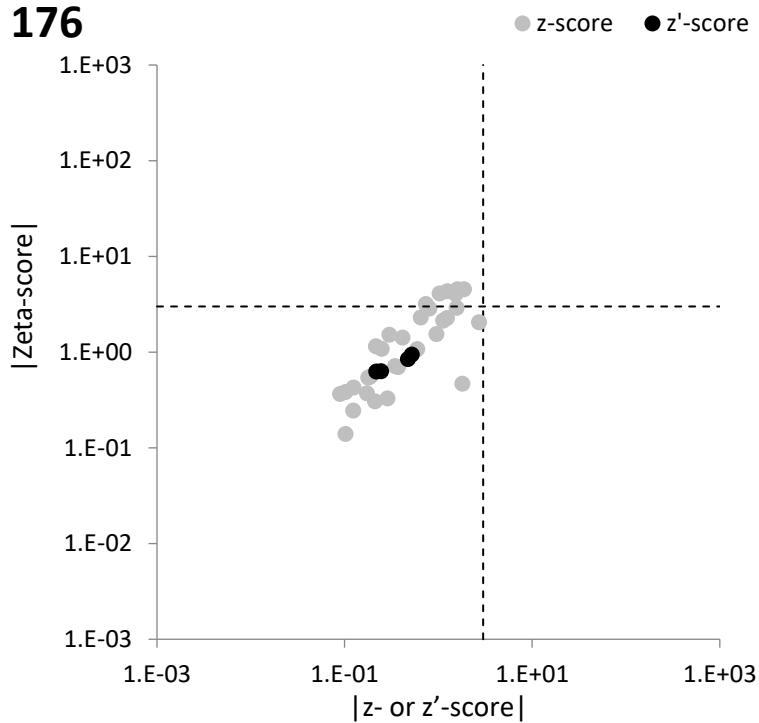
176

FIG. 241. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 176 (Clay material).

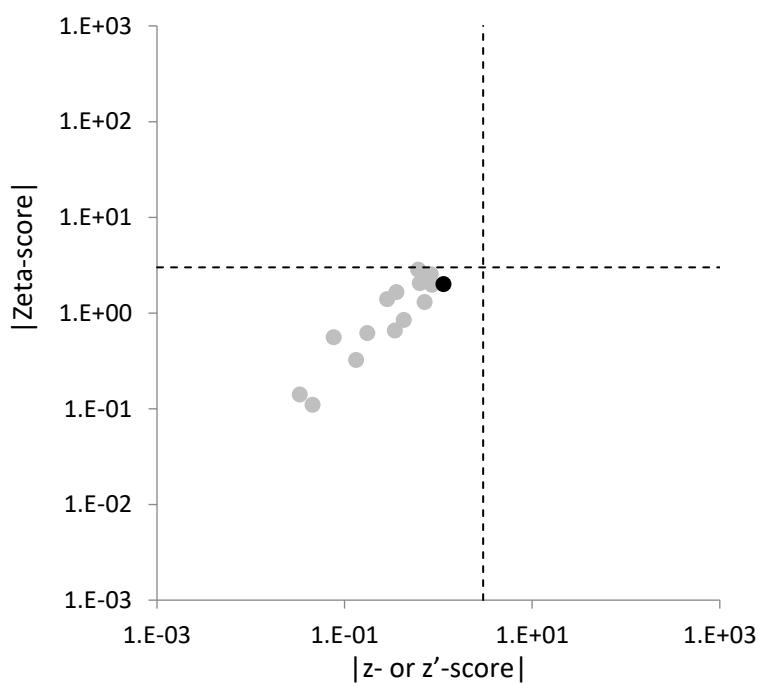
176

FIG. 242. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 176 (Plant material).

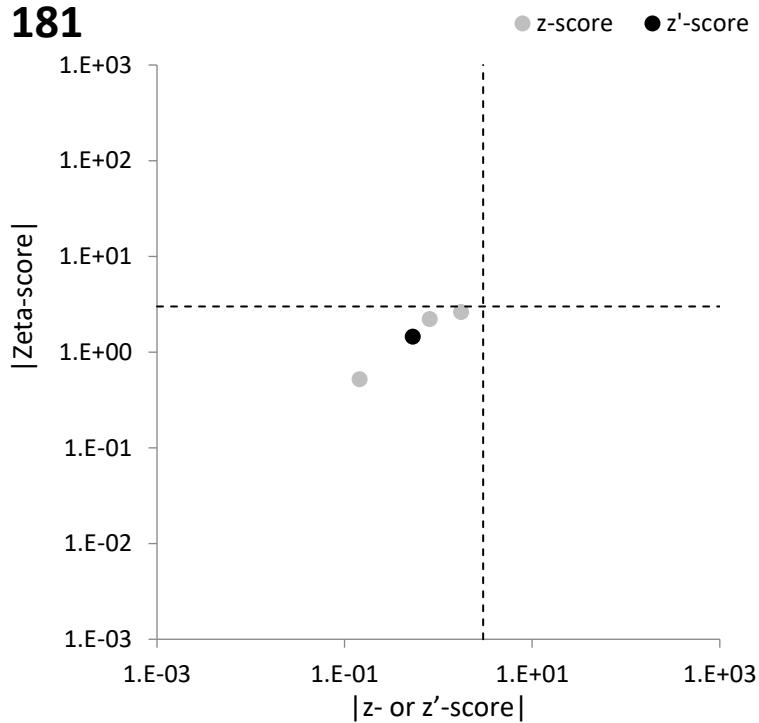
181

FIG. 243. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 181 (Clay material).

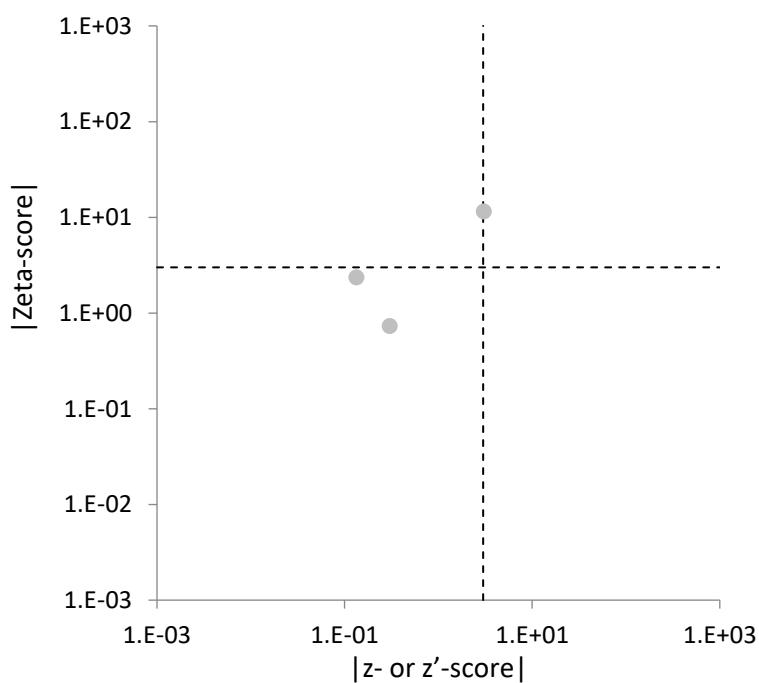
181

FIG. 244. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 181 (Plant material).

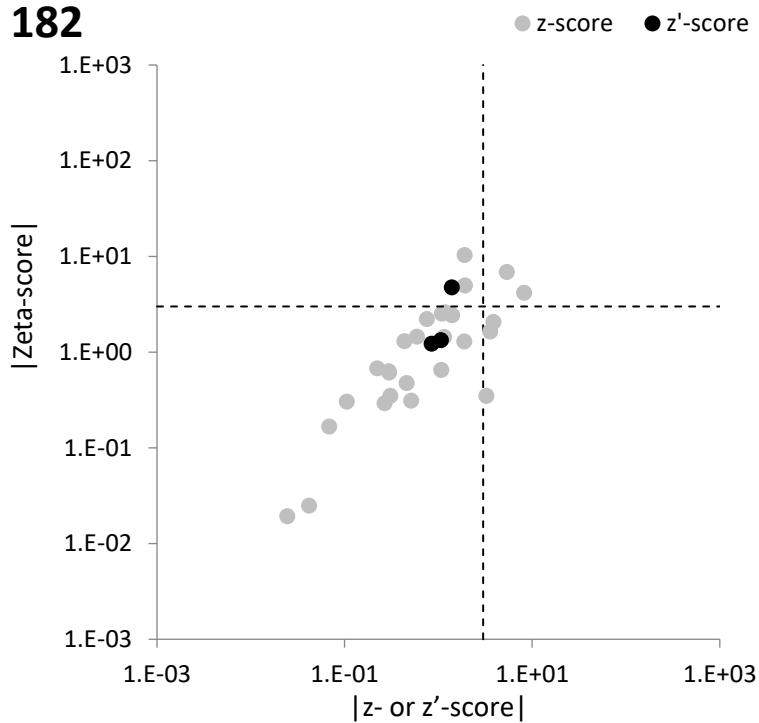
182

FIG. 245. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 182 (Clay material).

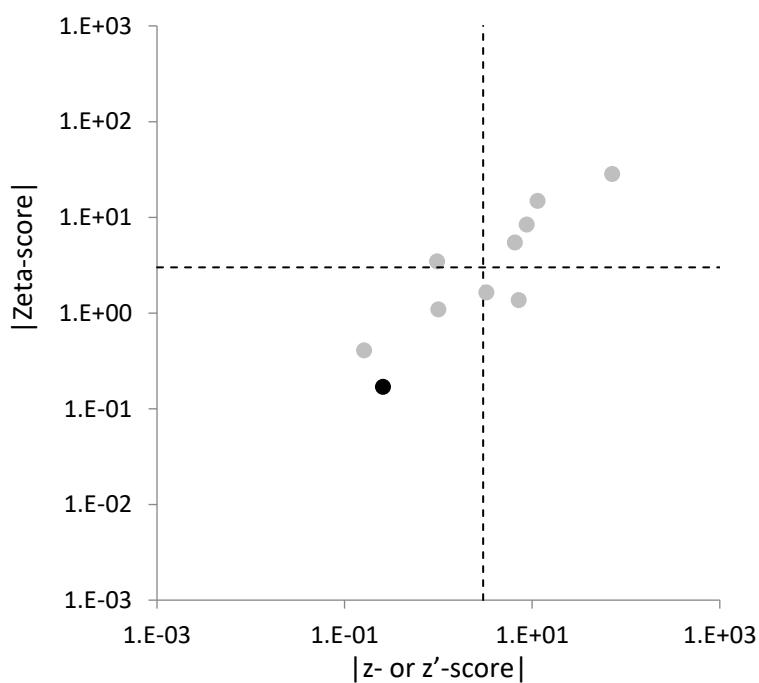
182

FIG. 246. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 182 (Plant material).

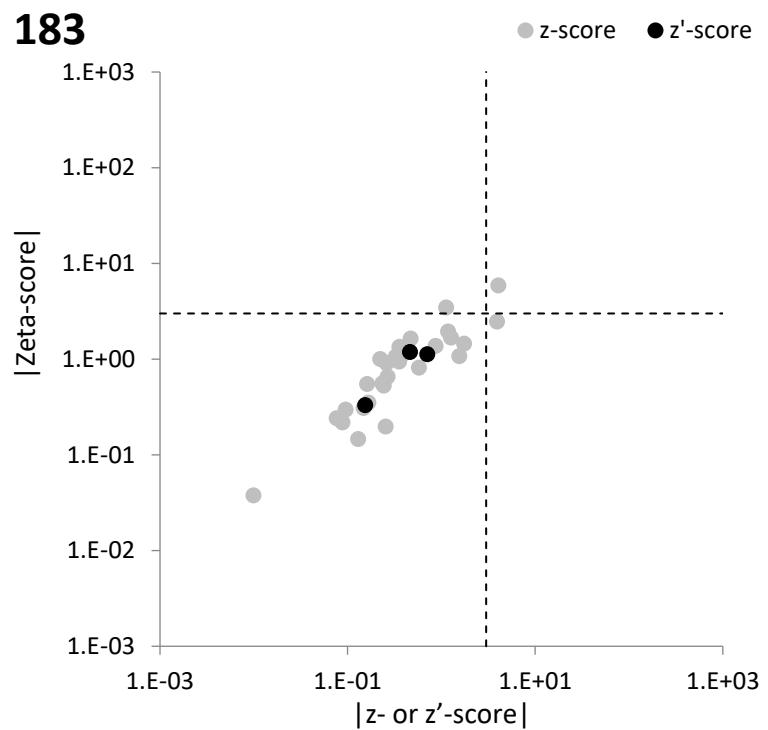


FIG. 247. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 183 (Clay material).

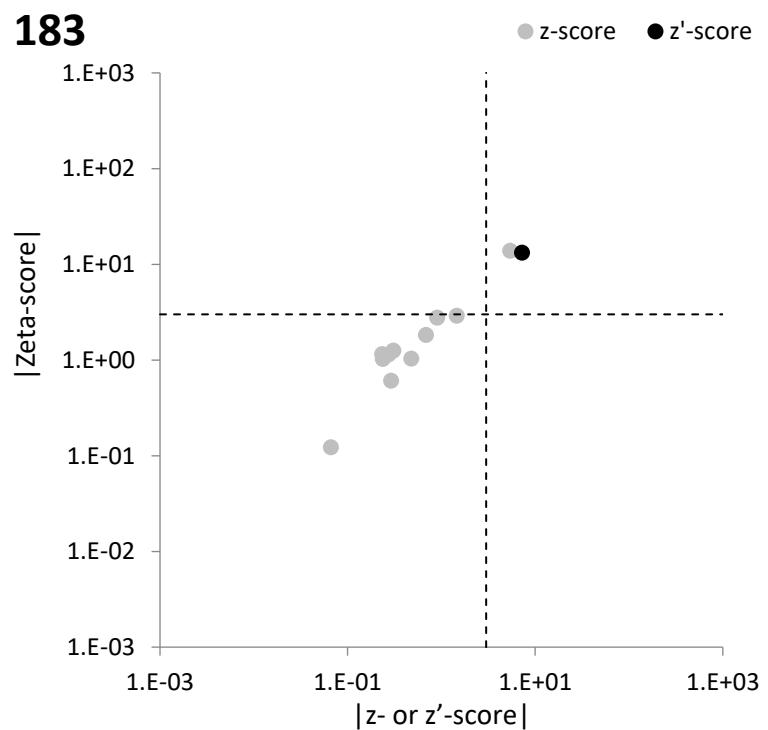


FIG. 248. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 183 (Plant material).

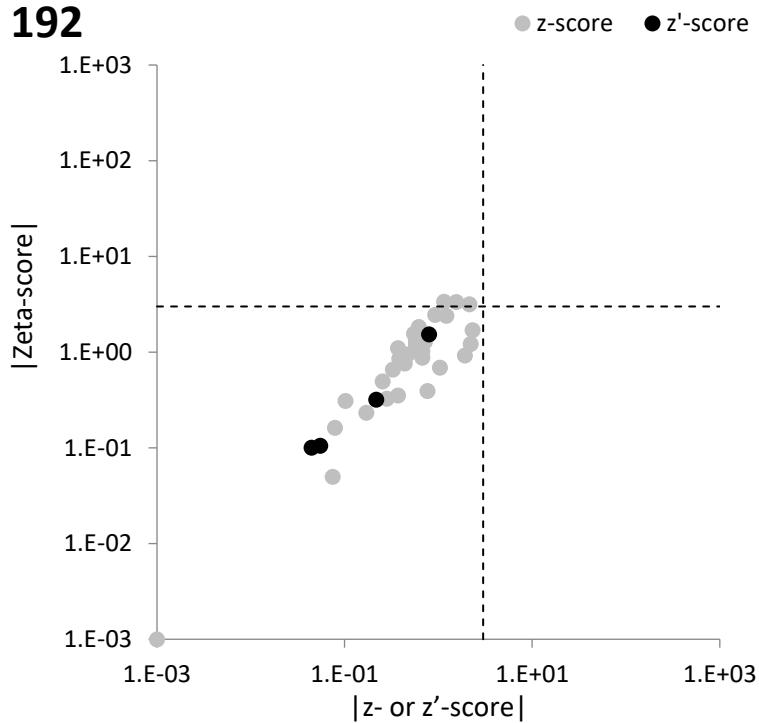
192

FIG. 249. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 192 (Clay material).

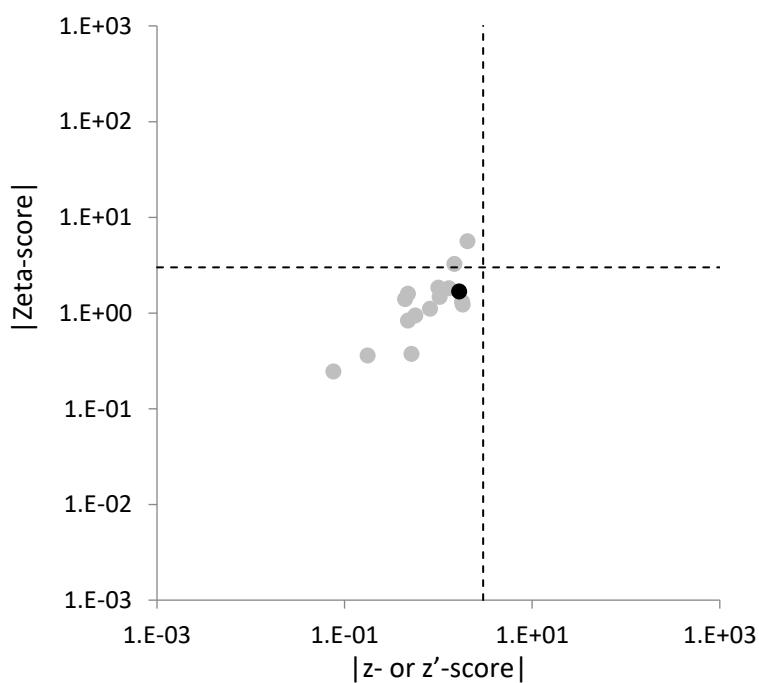
192

FIG. 250. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 192 (Plant material).

194

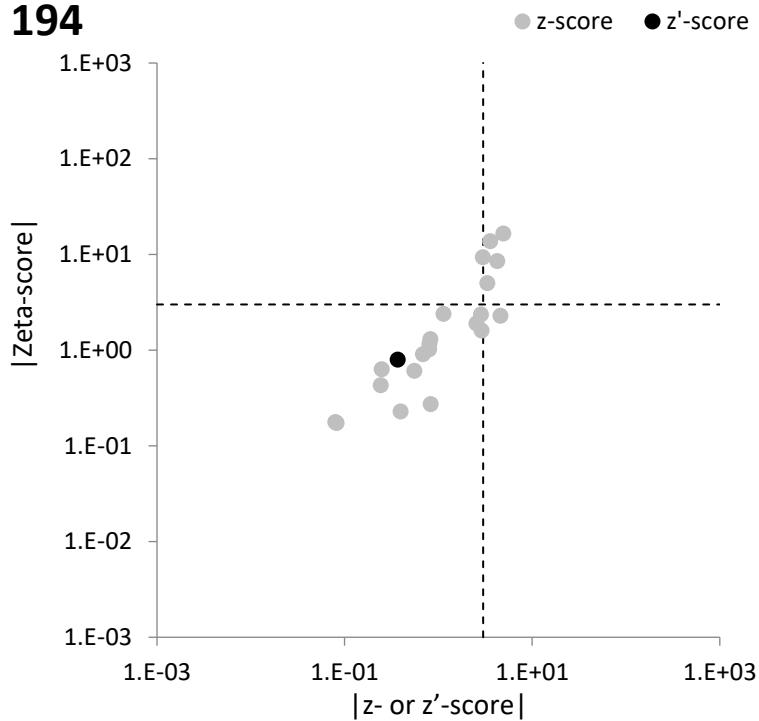


FIG. 251. Combined plots of z- or z'-scores and Zeta-scores for the laboratory with code 194 (Clay material).

194

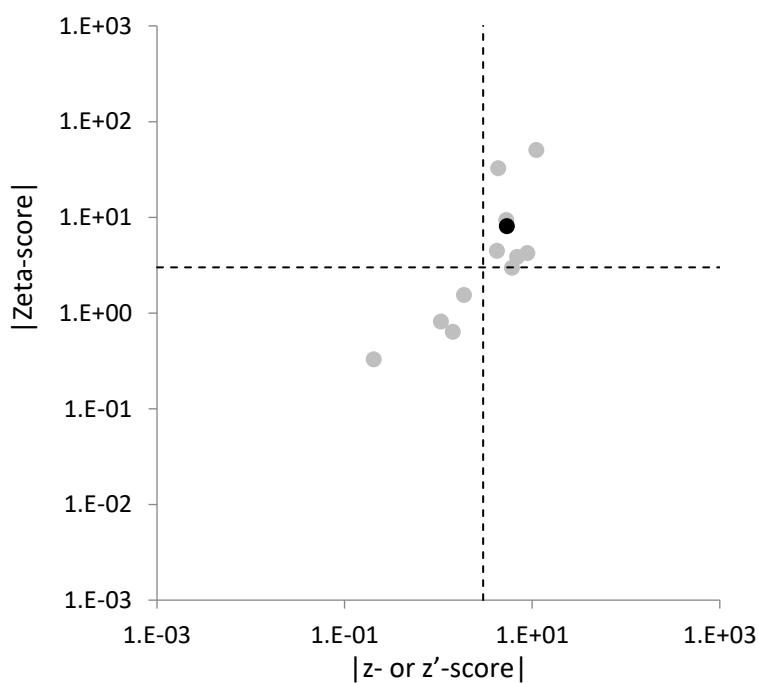


FIG. 252. Combined plots of z- or z'-scores and Zeta-scores for the laboratory with code 194 (Plant material).

195

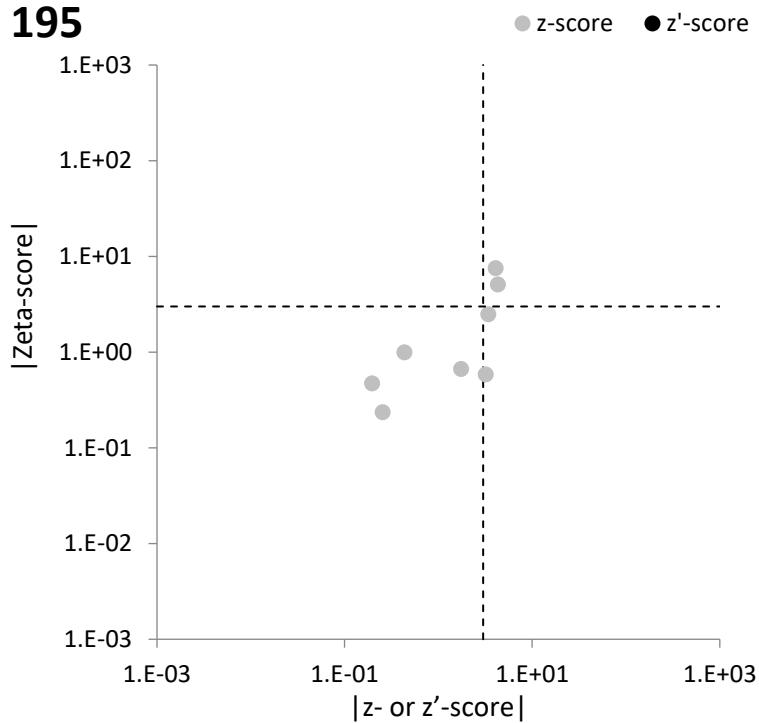


FIG. 253. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 195 (Clay material).

195

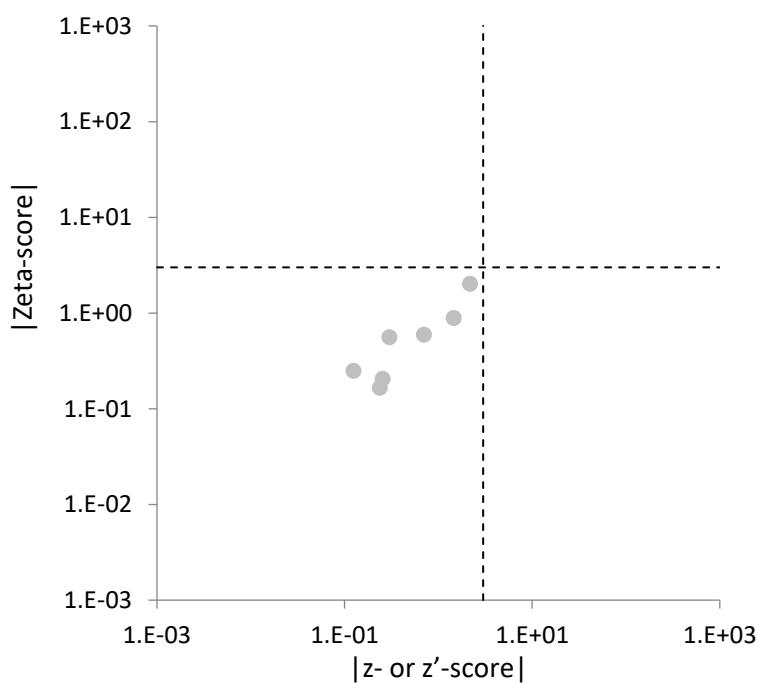


FIG. 254. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 195 (Plant material).

197

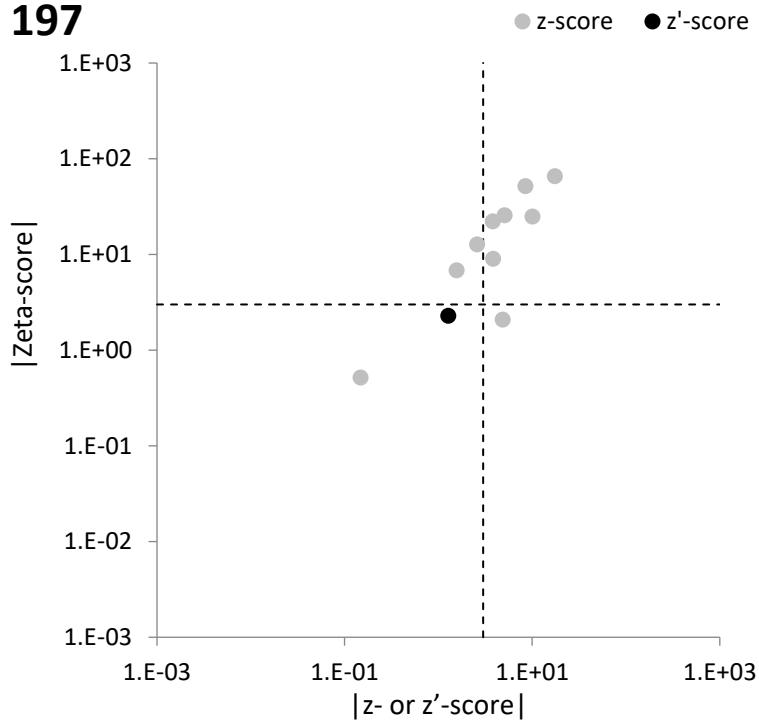
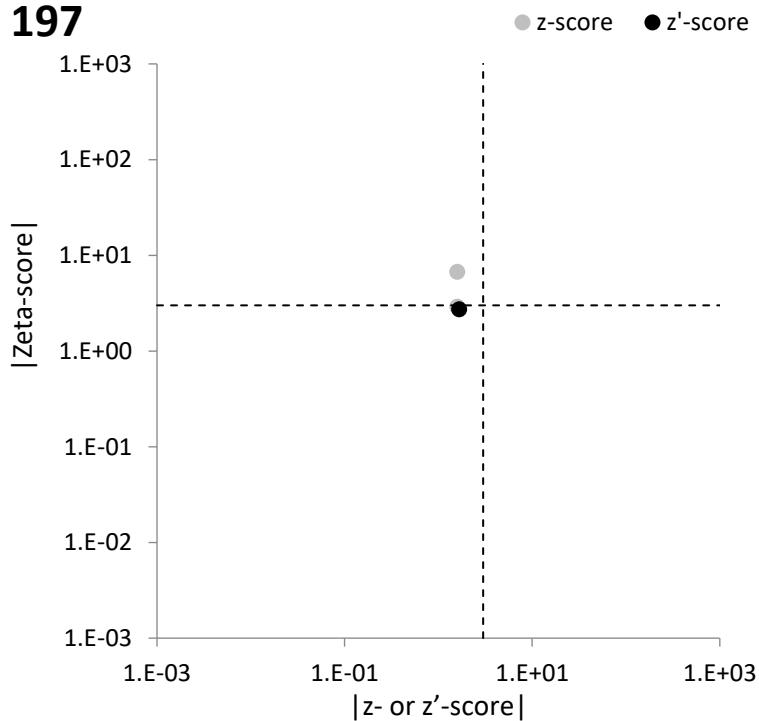


FIG. 255. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 197 (Clay material).

197



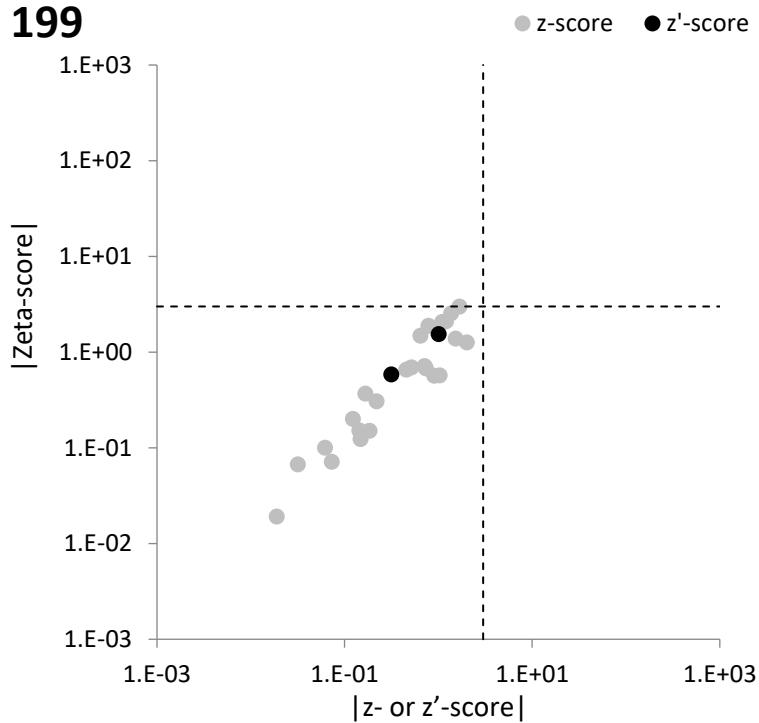
199

FIG. 257. Combined plots of z- or z'-scores and Zeta-scores for the laboratory with code 199 (Clay material).

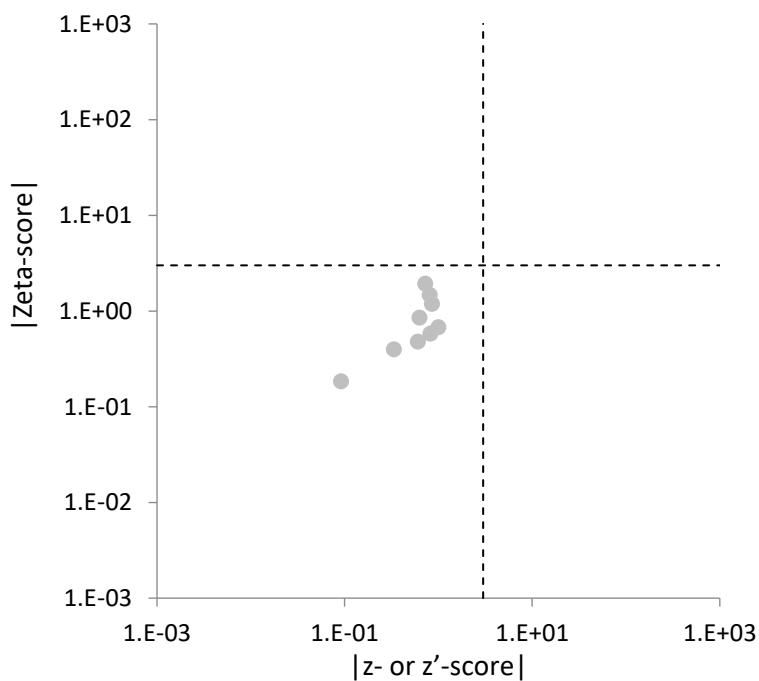
199

FIG. 258. Combined plots of z- or z'-scores and Zeta-scores for the laboratory with code 199 (Plant material).

202

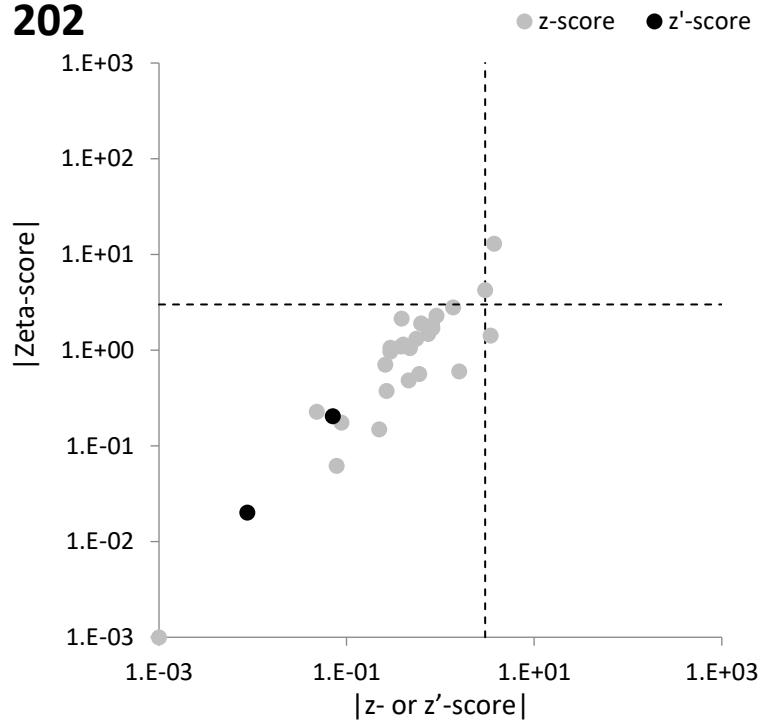


FIG. 259. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 202 (Clay material).

202

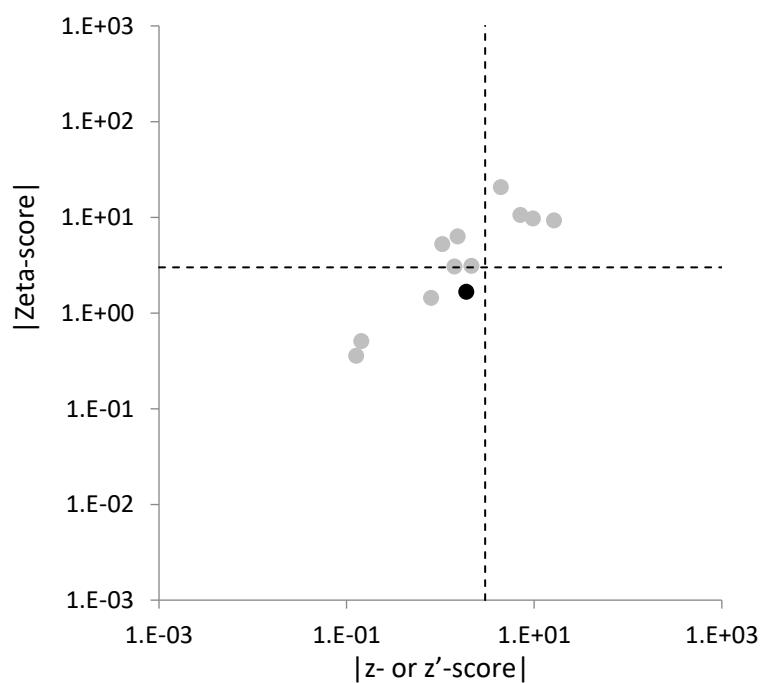


FIG. 260. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 202 (Plant material).

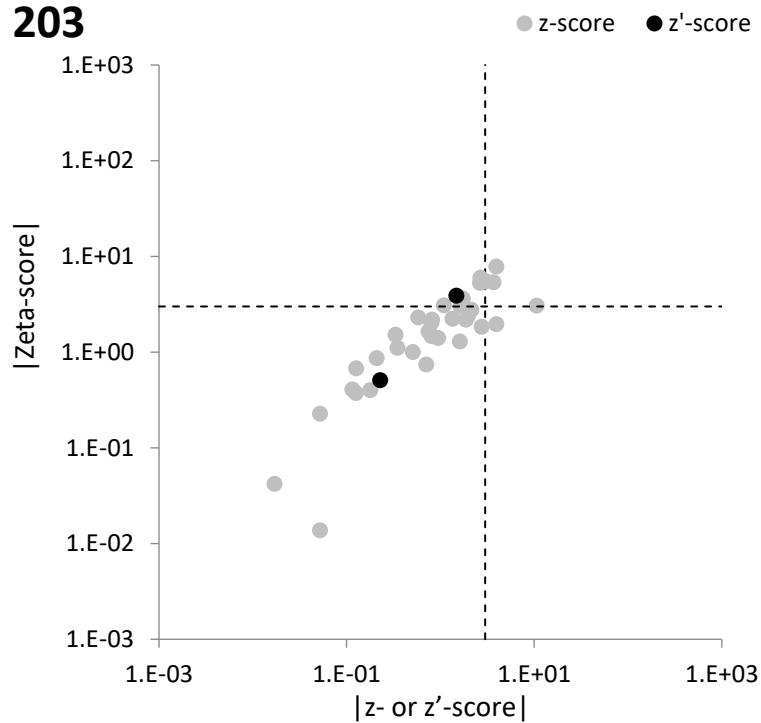
203

FIG. 261. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 203 (Clay material).

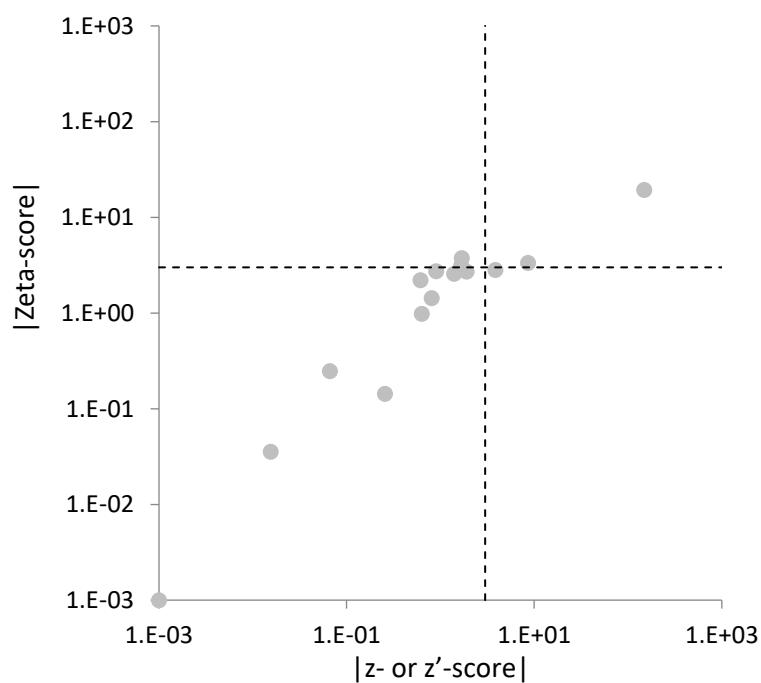
203

FIG. 262. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 203 (Plant material).

204

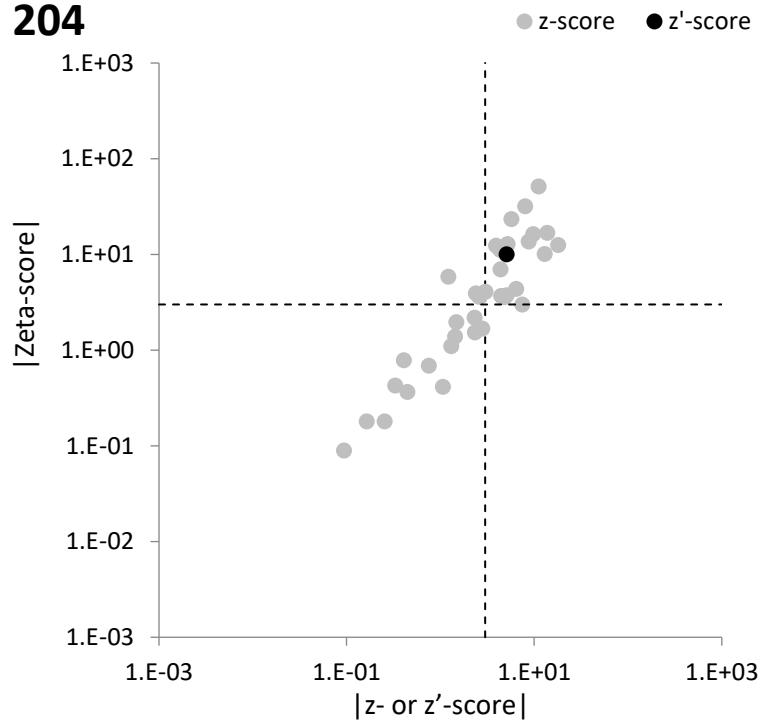


FIG. 263. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 204 (Clay material).

204

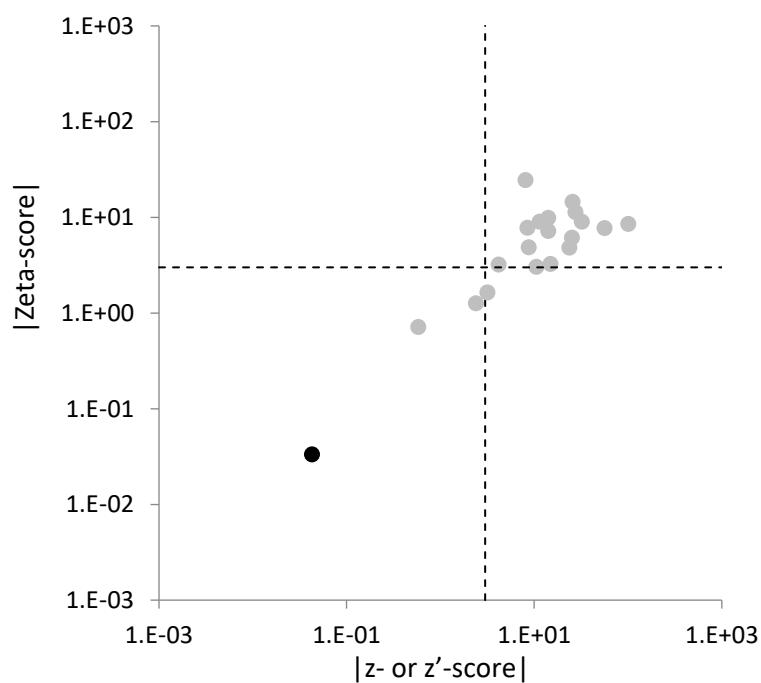


FIG. 264. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 204 (Plant material).

205

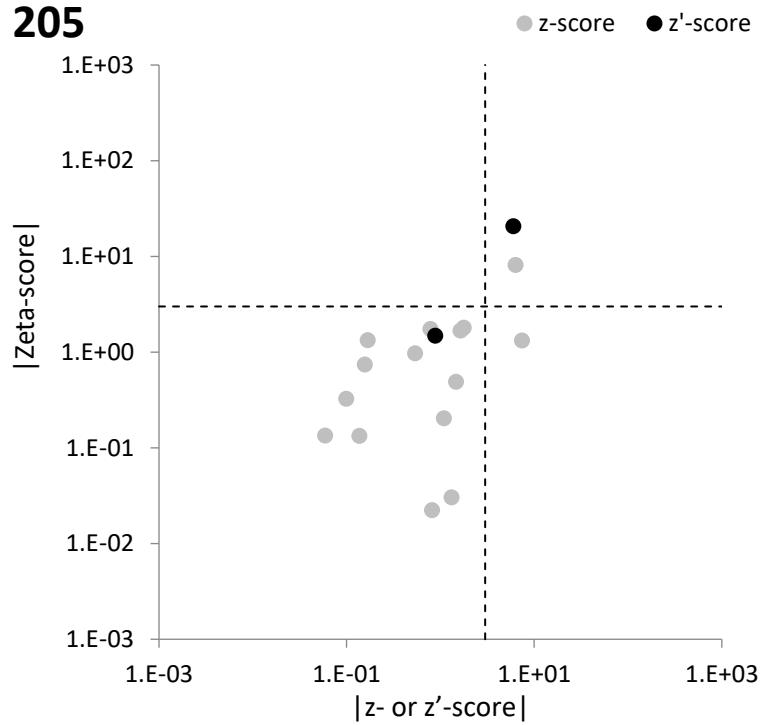


FIG. 265. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 205 (Clay material).

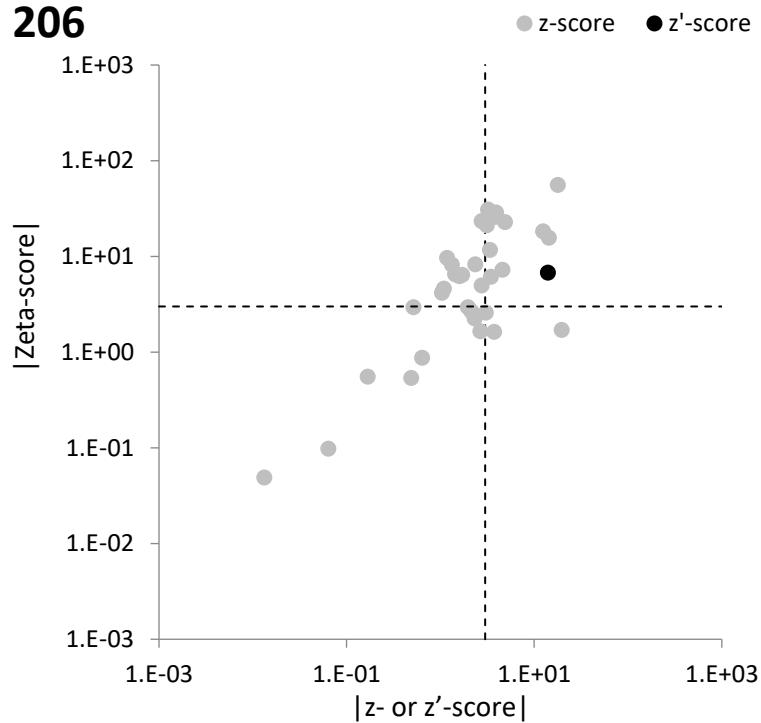
206

FIG. 266. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 206 (Clay material).

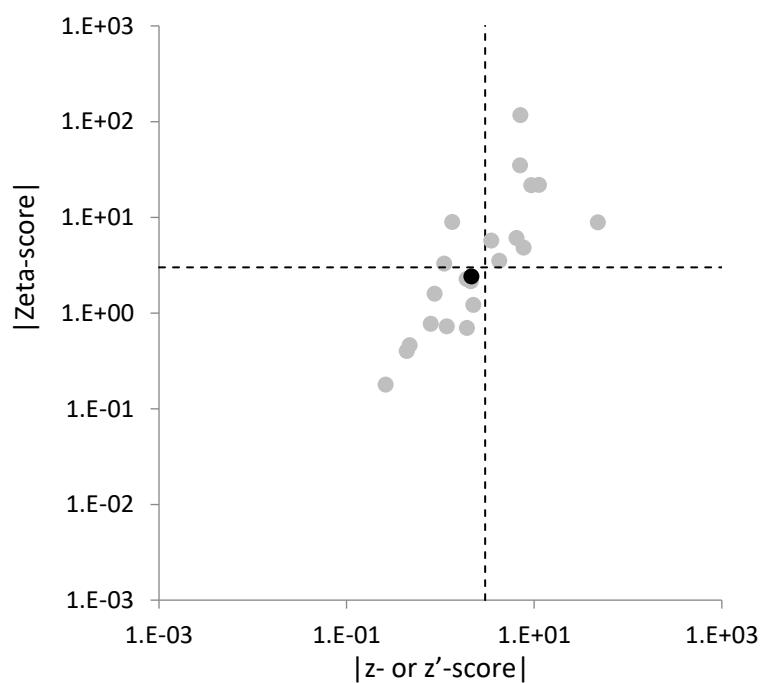
206

FIG. 267. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 206 (Plant material).

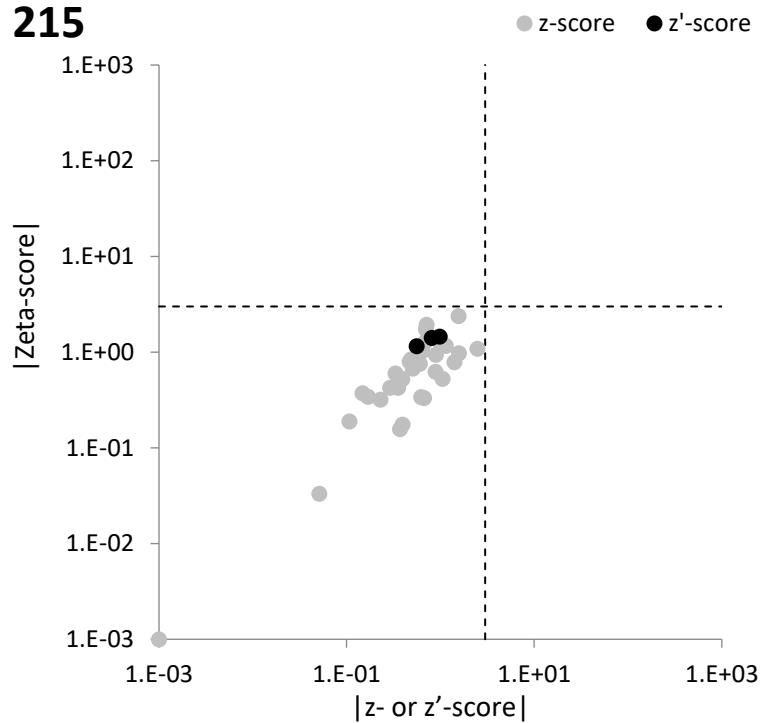
215

FIG. 268. Combined plots of z- or z'-scores and Zeta-scores for the laboratory with code 215 (Clay material).

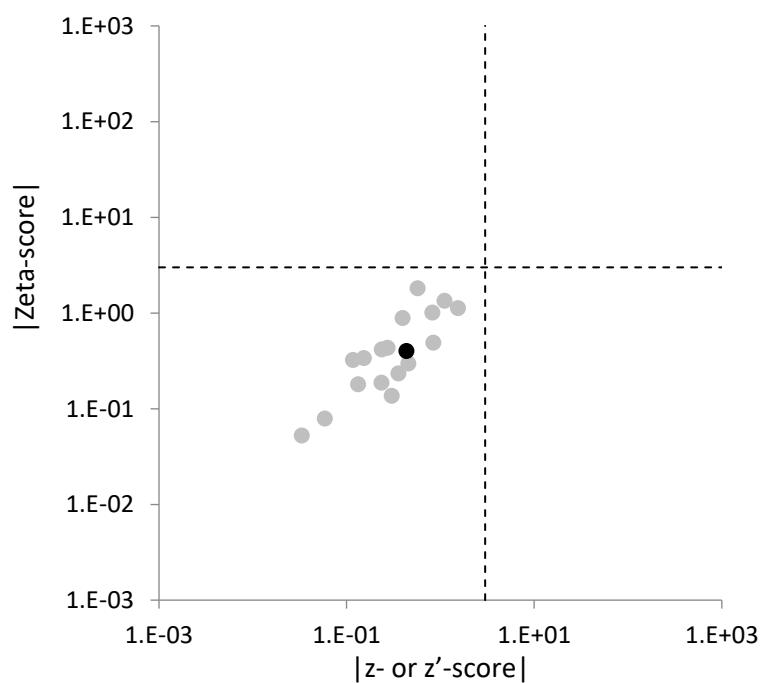
215

FIG. 269. Combined plots of z- or z'-scores and Zeta-scores for the laboratory with code 215 (Plant material).

217

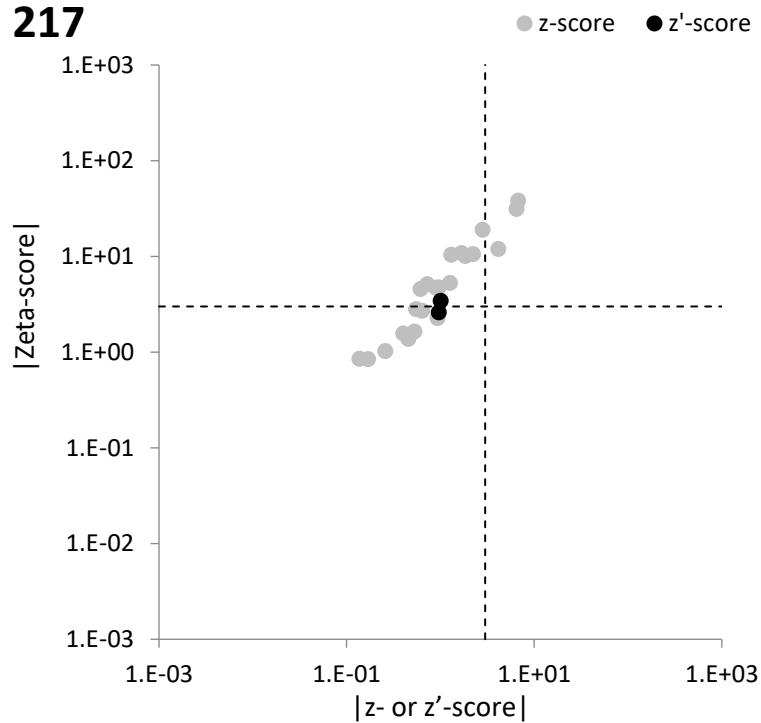


FIG. 270. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 217 (Clay material).

217

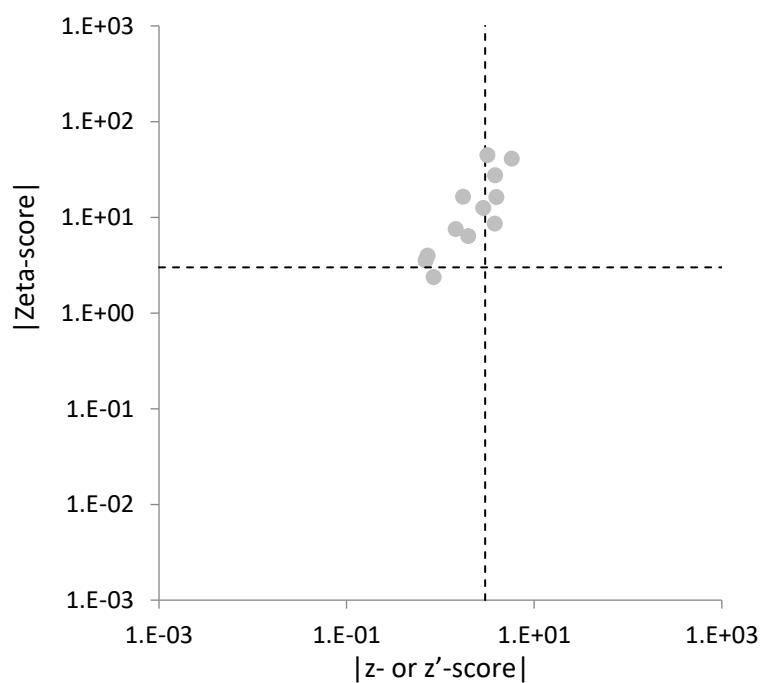


FIG. 271. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 217 (Plant material).

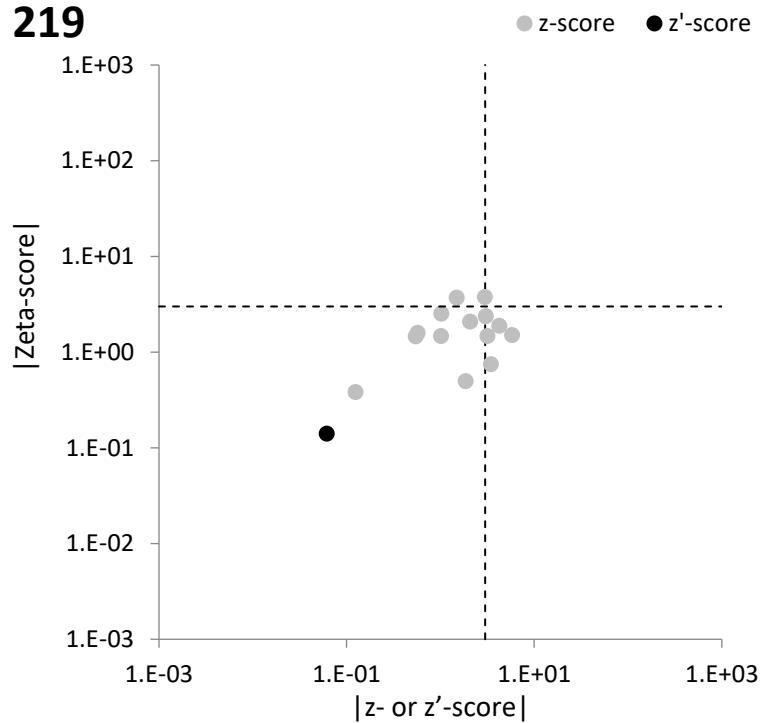
219

FIG. 272. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 219 (Clay material).

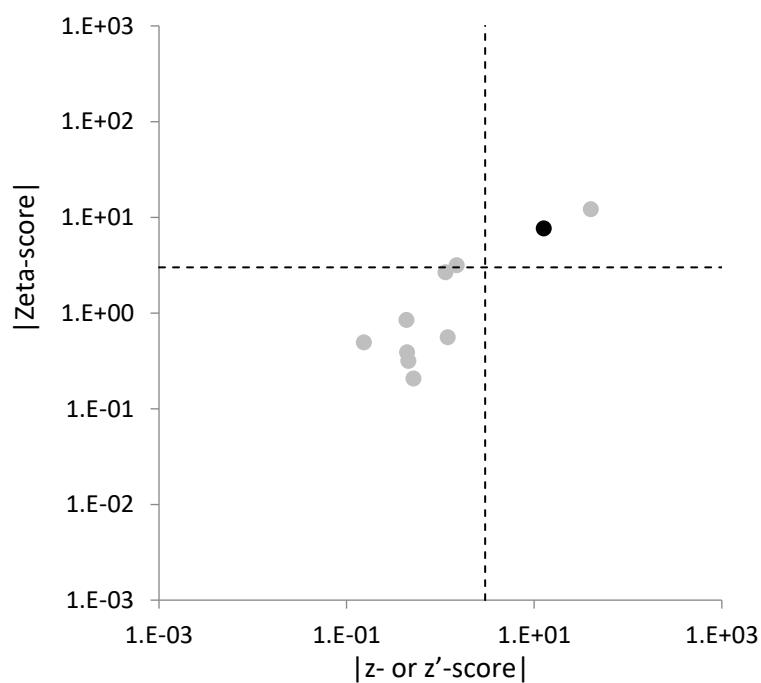
219

FIG. 273. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 219 (Plant material).

221

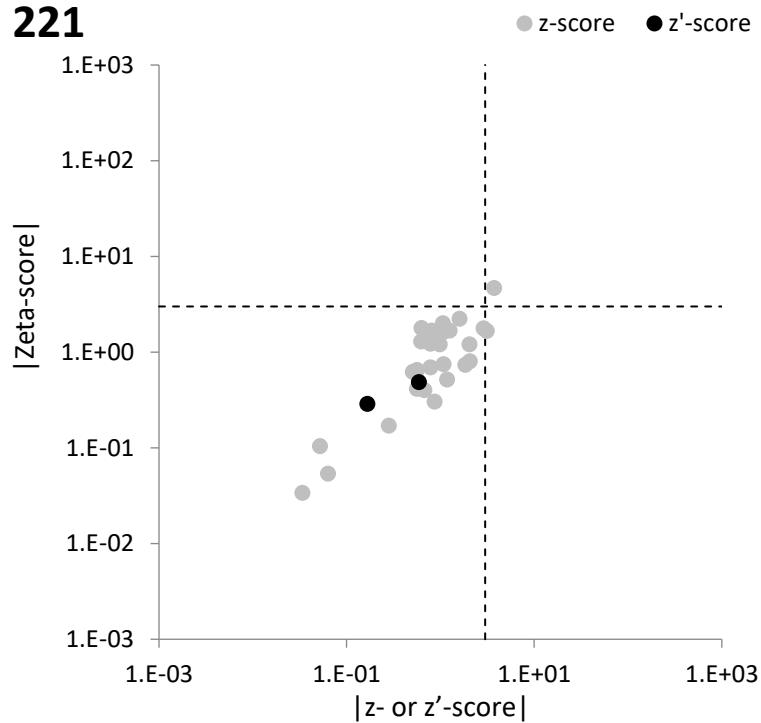


FIG. 274. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 221 (Clay material).

221

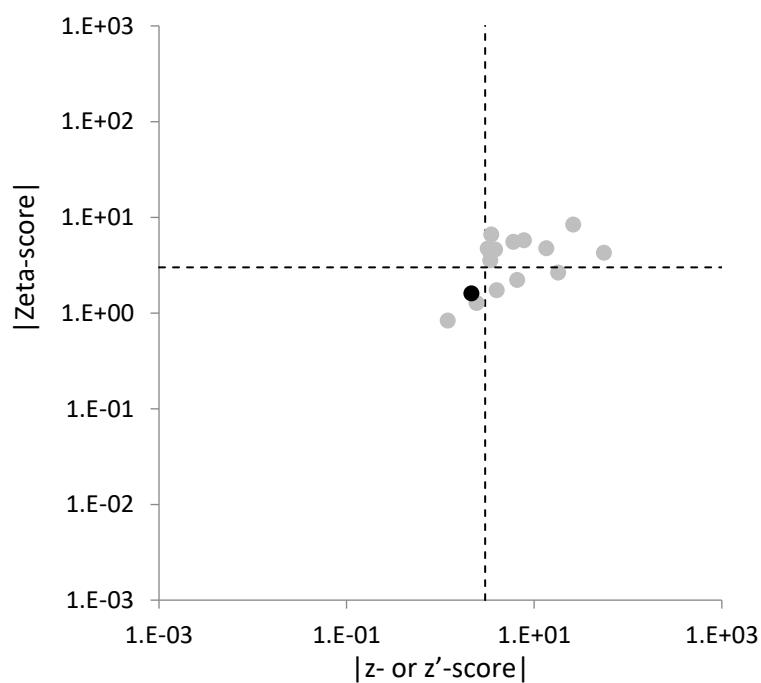


FIG. 275. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 221 (Plant material).

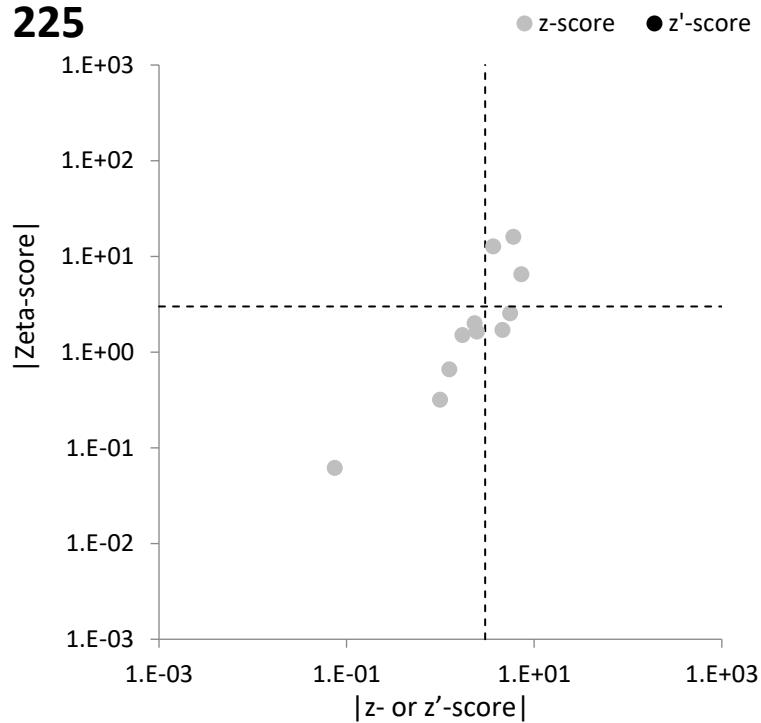
225

FIG. 276. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 225 (Clay material).

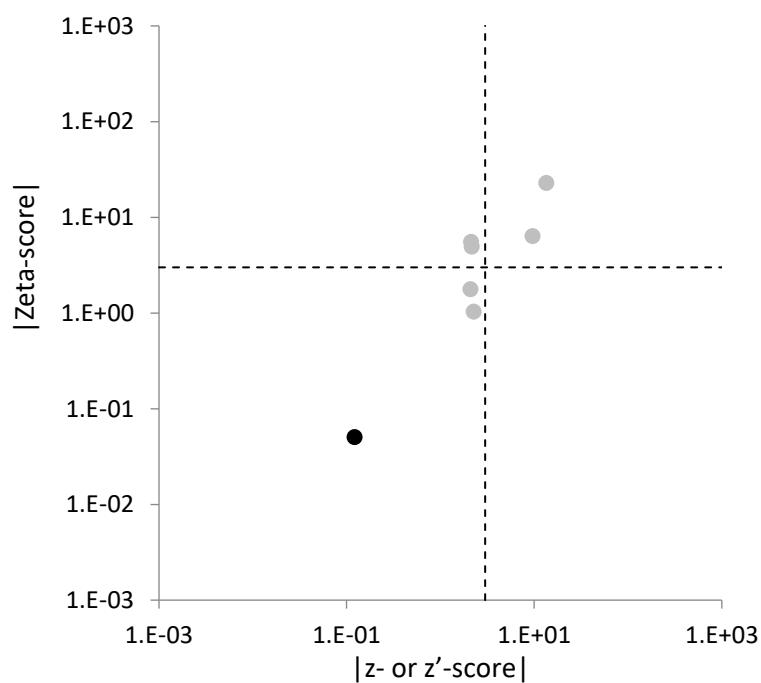
225

FIG. 277. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 225 (Plant material).

229

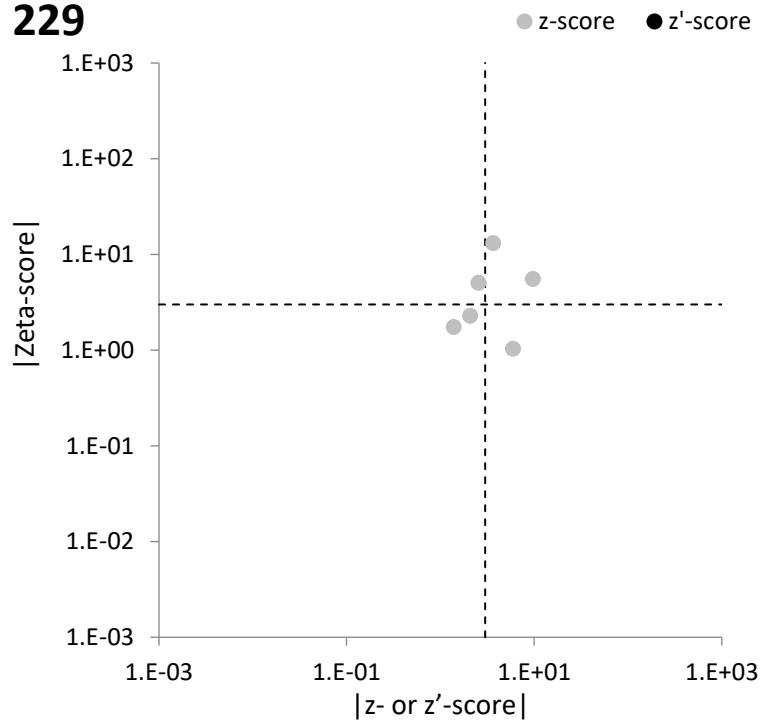


FIG. 278. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 229 (Clay material).

229

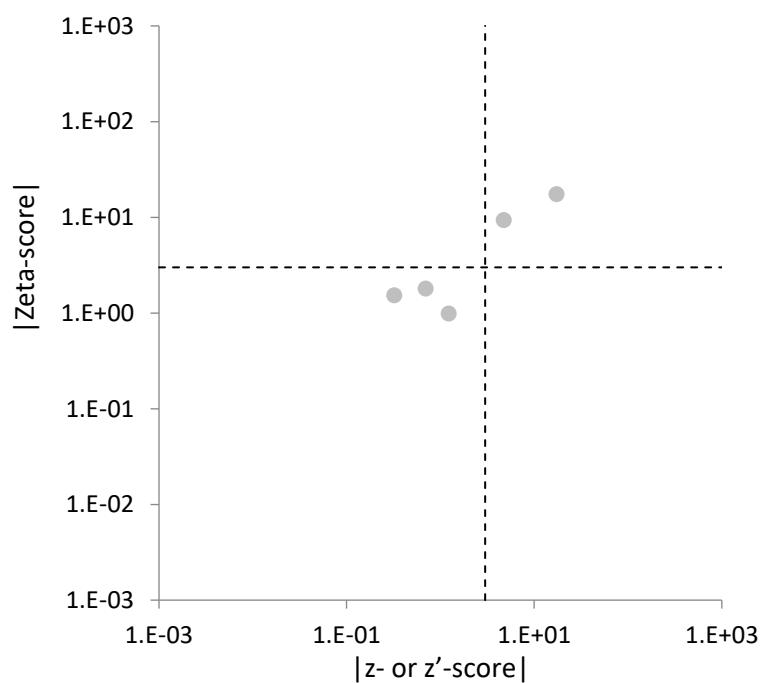


FIG. 279. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 229 (Plant material).

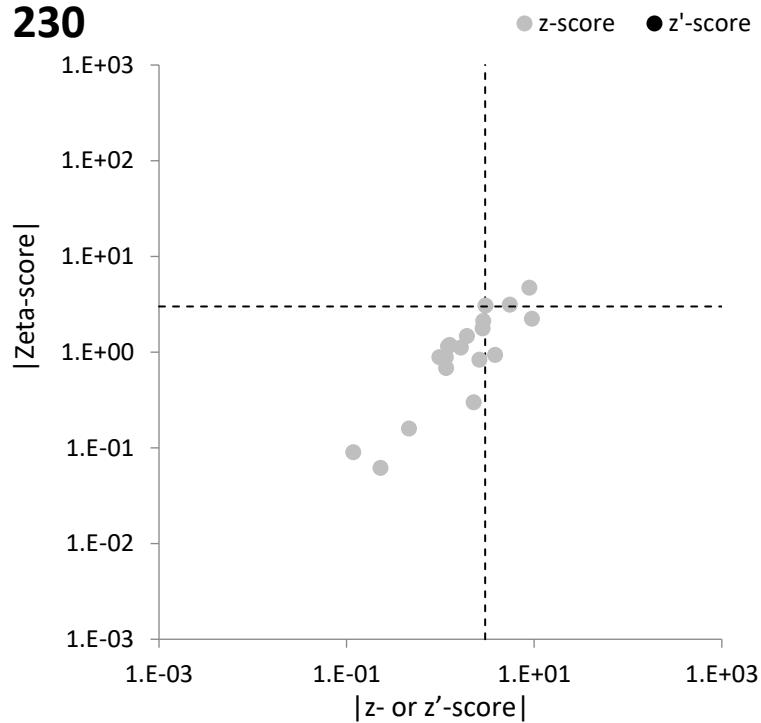
230

FIG. 280. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 230 (Clay material).

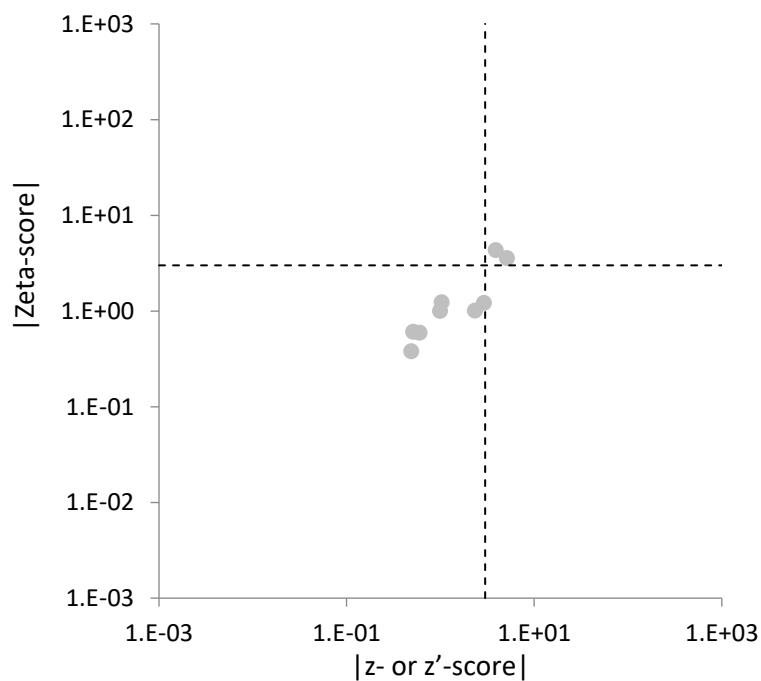
230

FIG. 281. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 230 (Plant material).

232

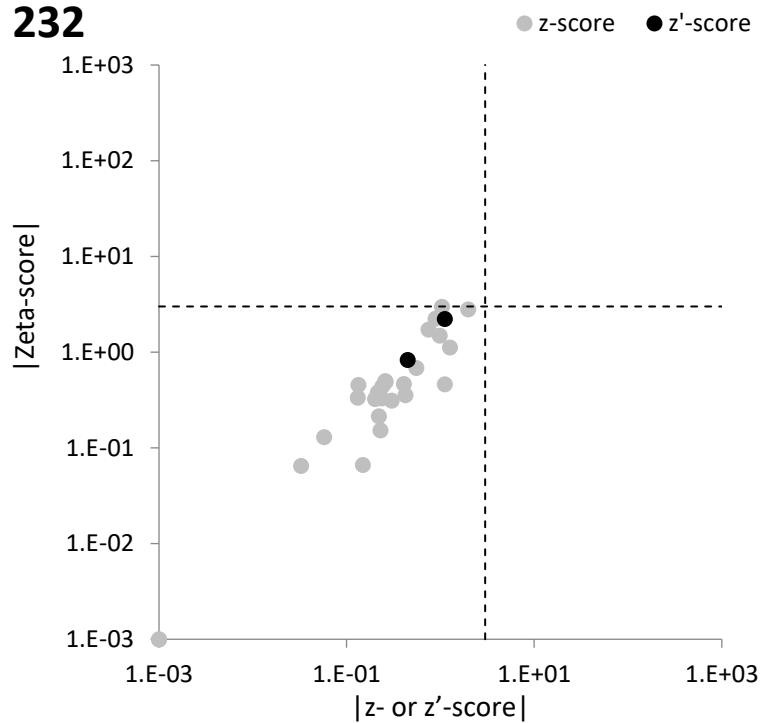


FIG. 282. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 232 (Clay material).

232

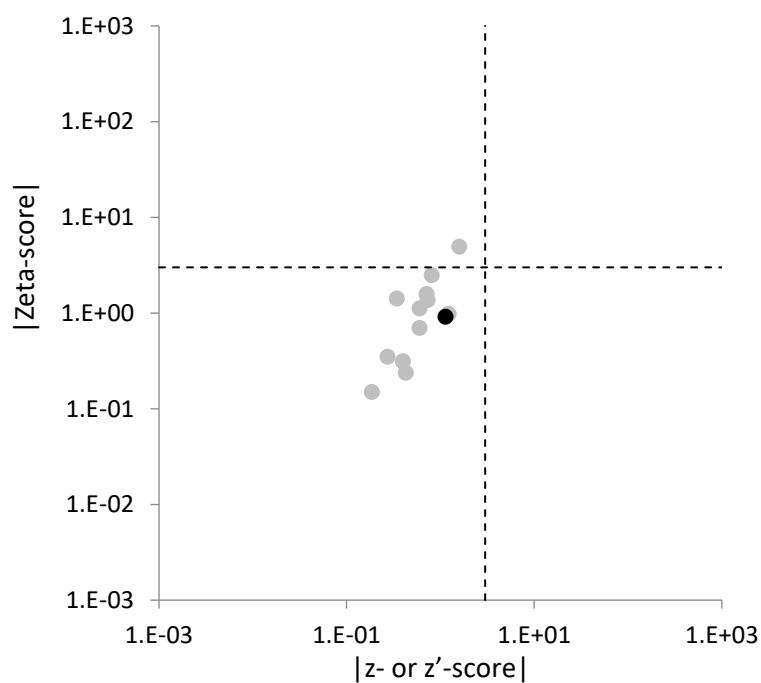


FIG. 283. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 232 (Plant material).

233

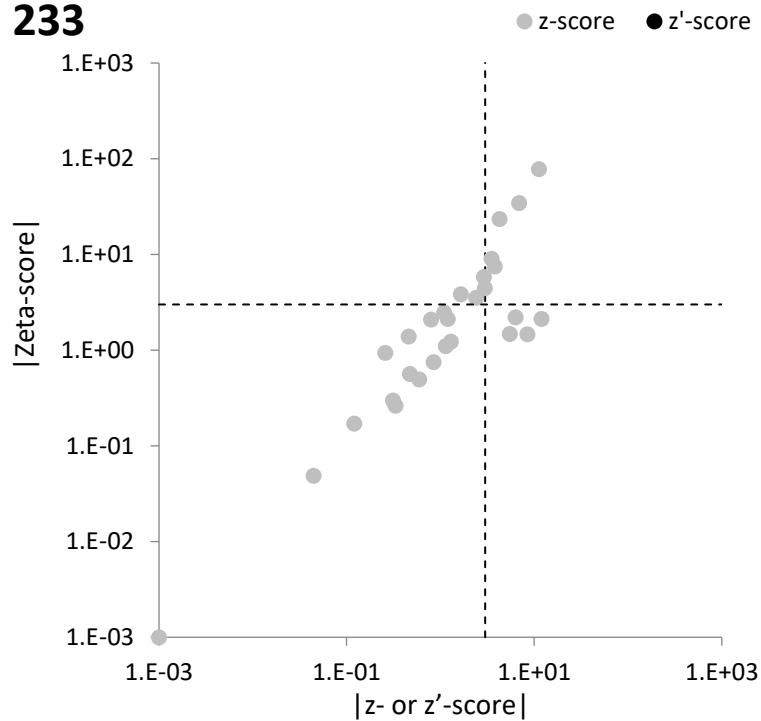


FIG. 284. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 233 (Clay material).

233

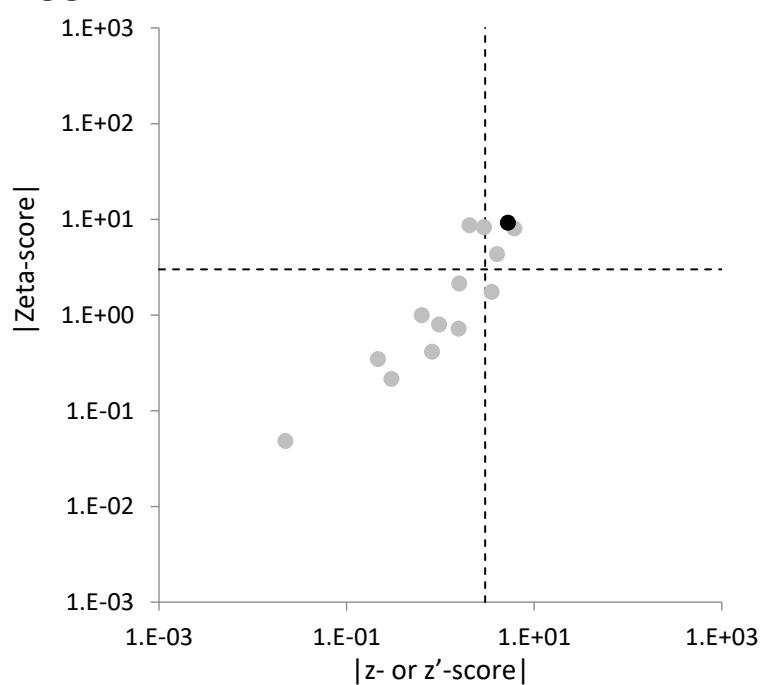


FIG. 285. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 233 (Plant material).

234

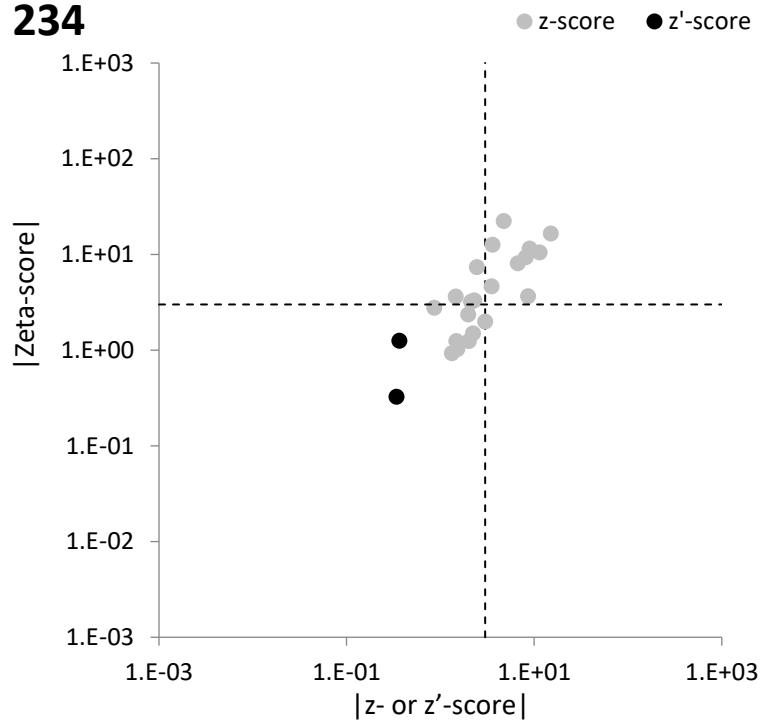


FIG. 286. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 234 (Clay material).

234

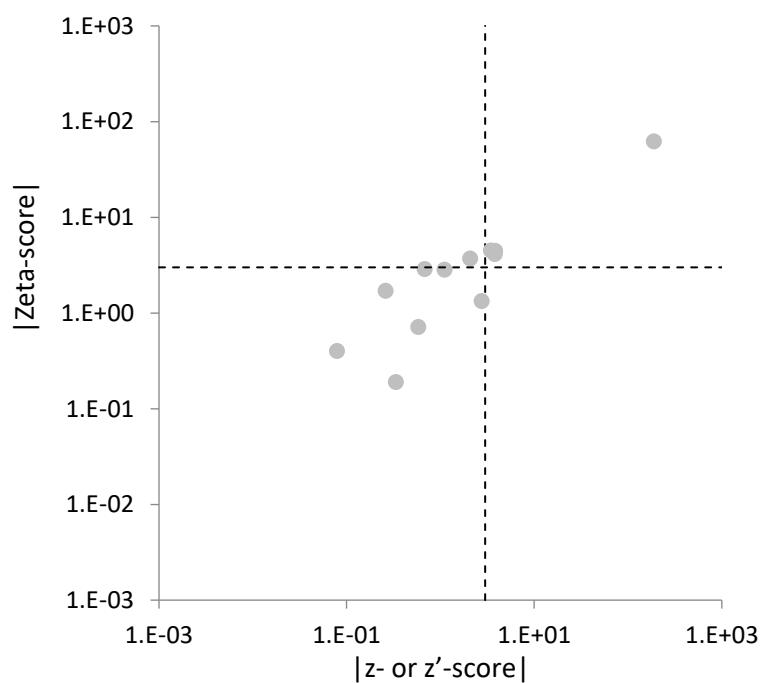


FIG. 287. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 234 (Plant material).

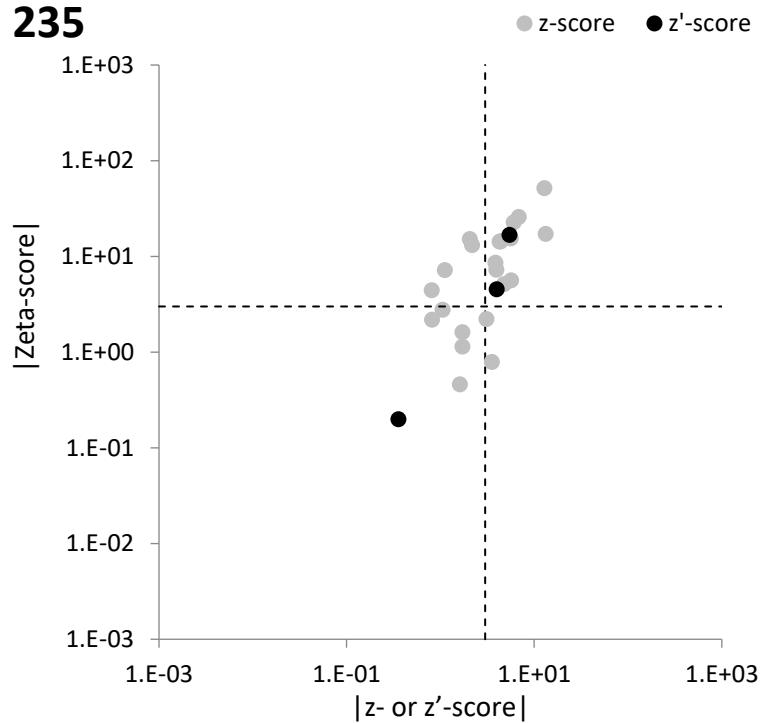
235

FIG. 288. Combined plots of z- or z'-scores and Zeta-scores for the laboratory with code 235 (Clay material).

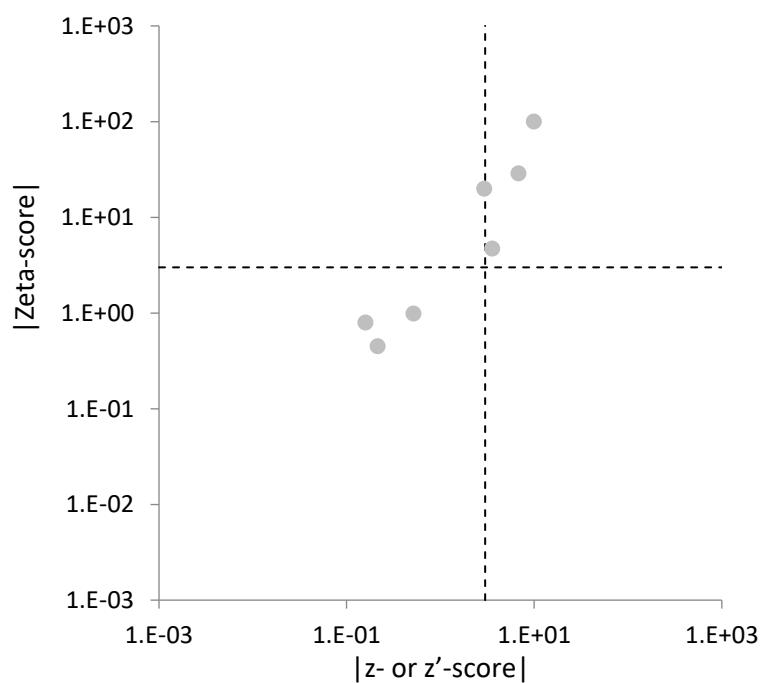
235

FIG. 289. Combined plots of z- or z'-scores and Zeta-scores for the laboratory with code 235 (Plant material).

236

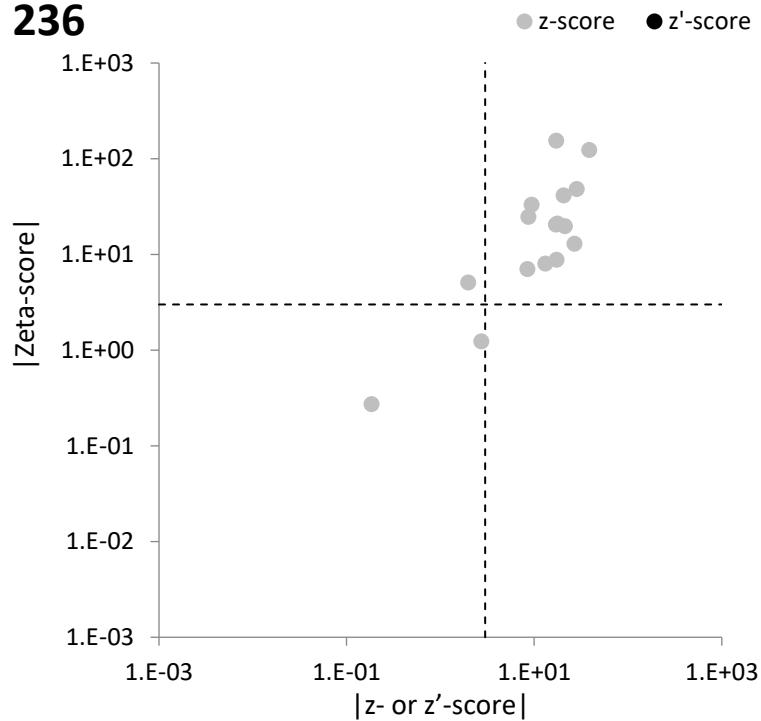


FIG. 290. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 236 (Clay material).

236

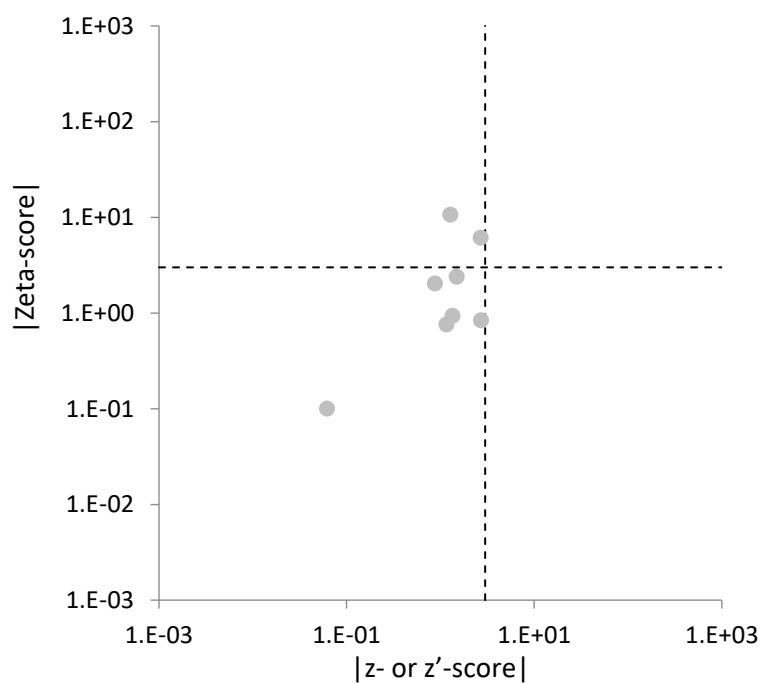


FIG. 291. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 236 (Plant material).

237

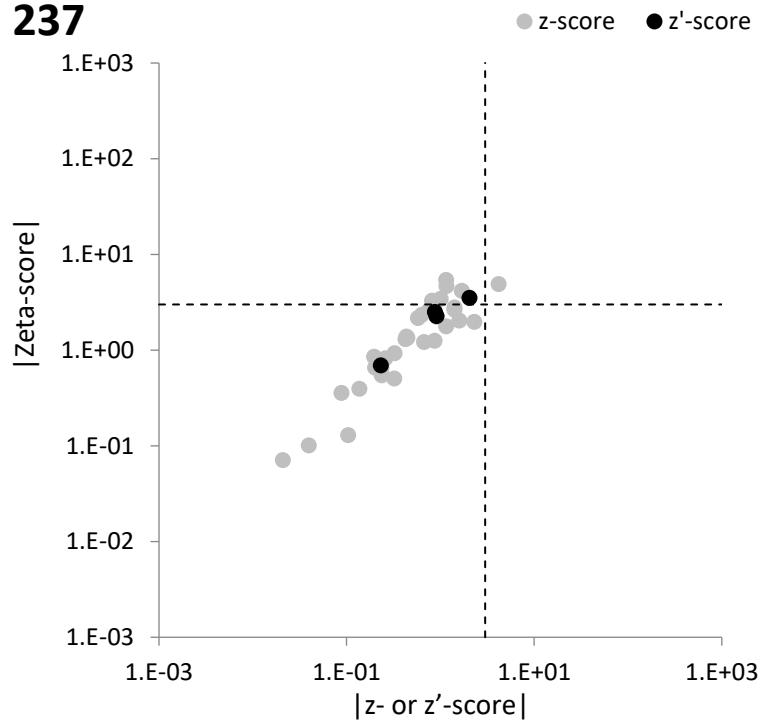


FIG. 292. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 237 (Clay material).

237

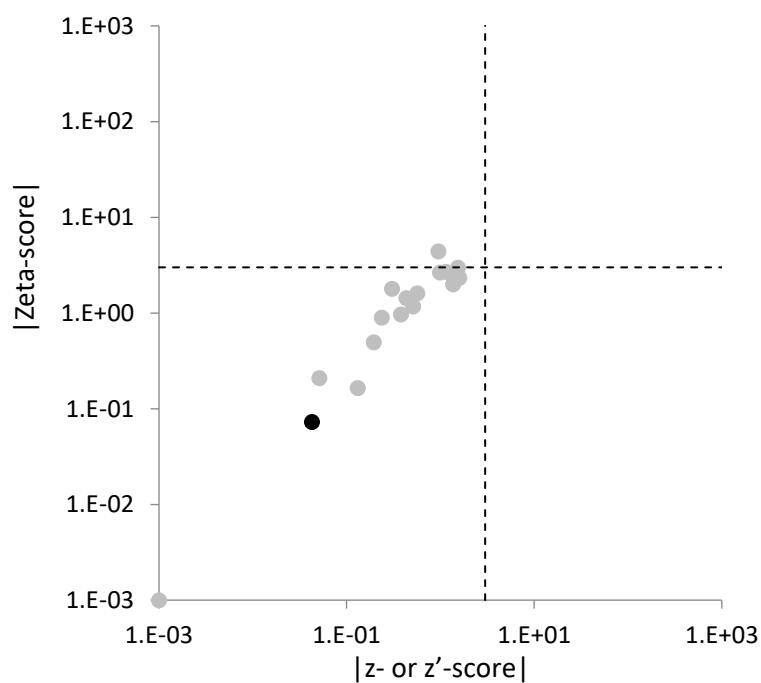


FIG. 293. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 237 (Plant material).

238

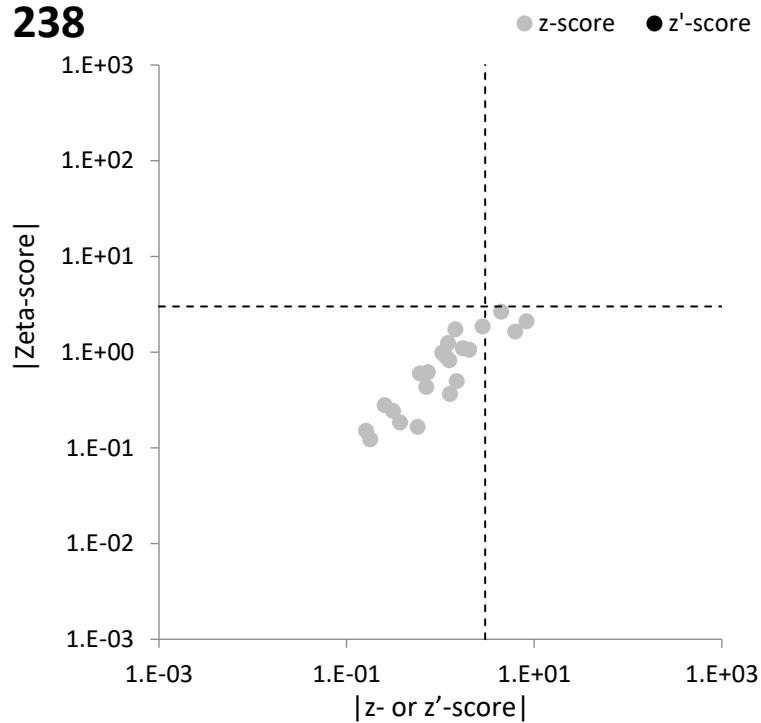


FIG. 294. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 238 (Clay material).

238

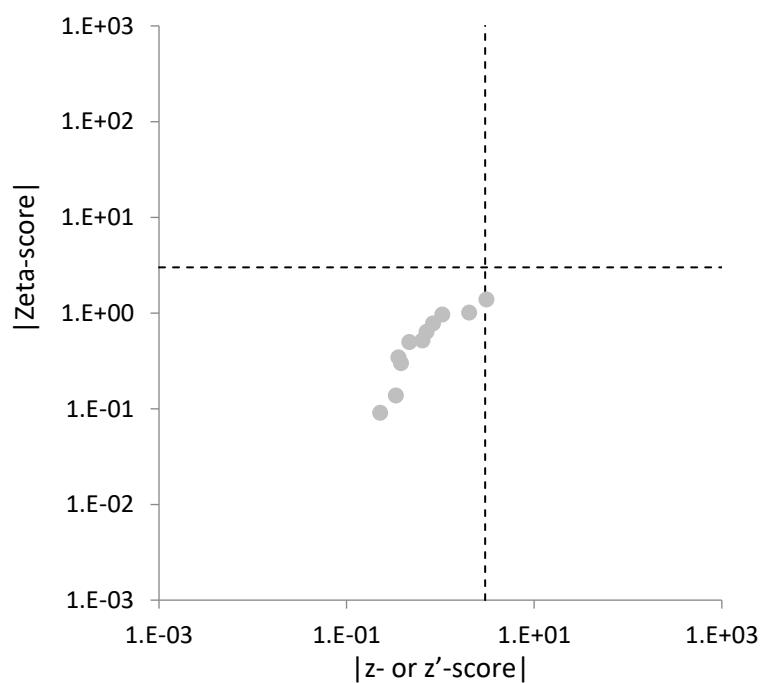
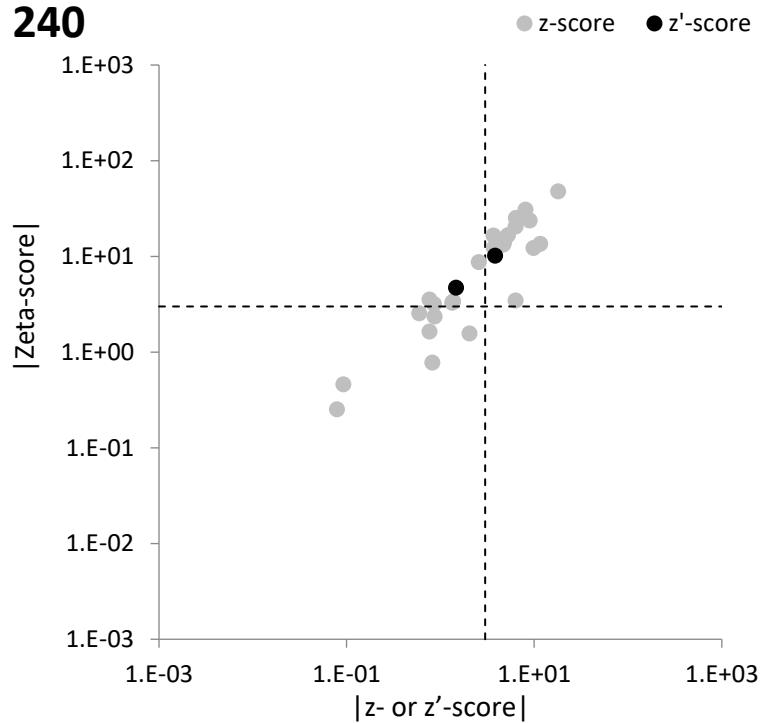


FIG. 295. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 238 (Plant material).

240

242

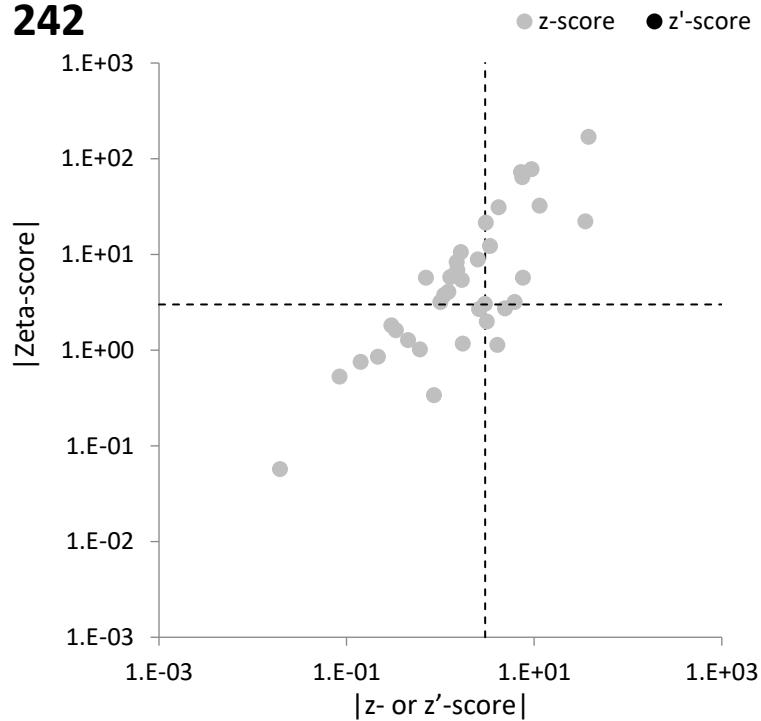


FIG. 298. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 242 (Clay material).

242

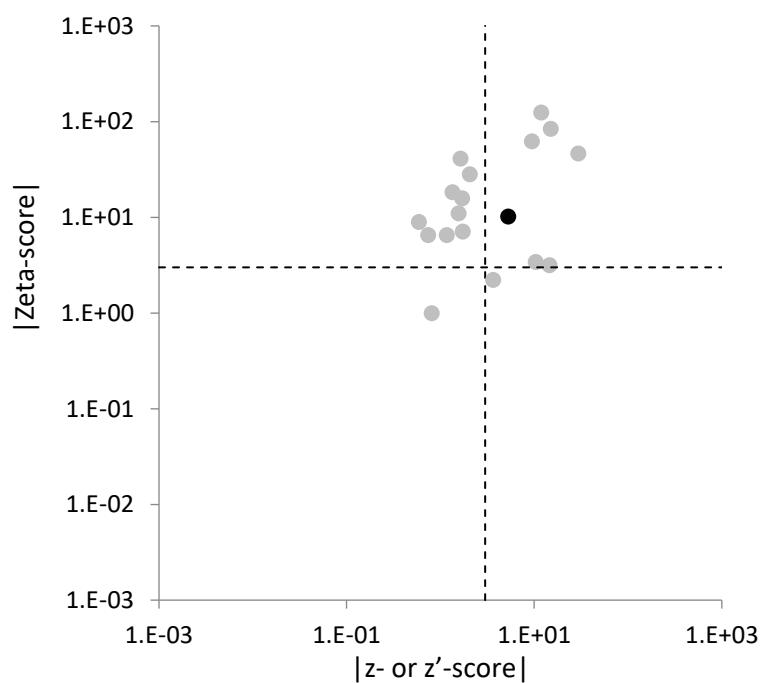


FIG. 299. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 242 (Plant material).

243

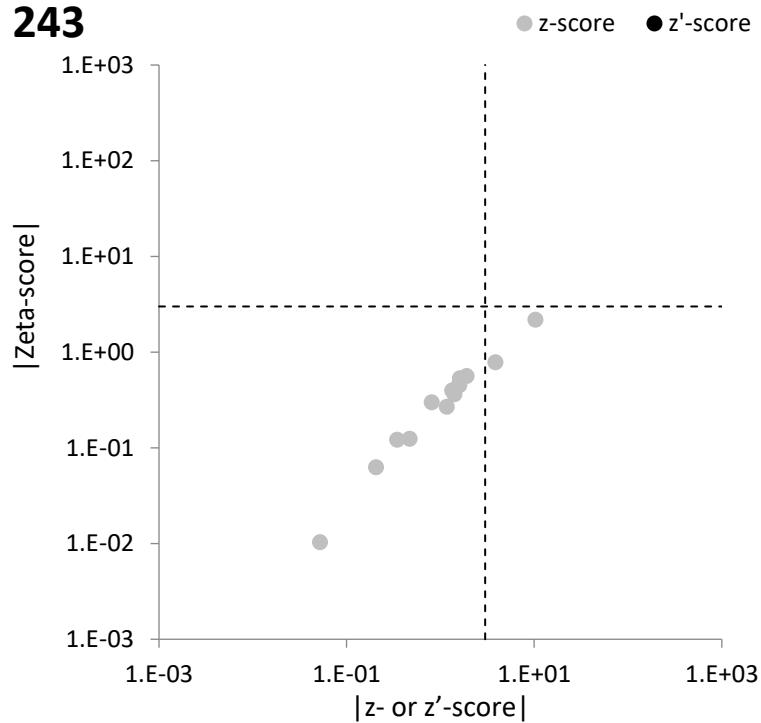


FIG. 300. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 243 (Clay material).

244

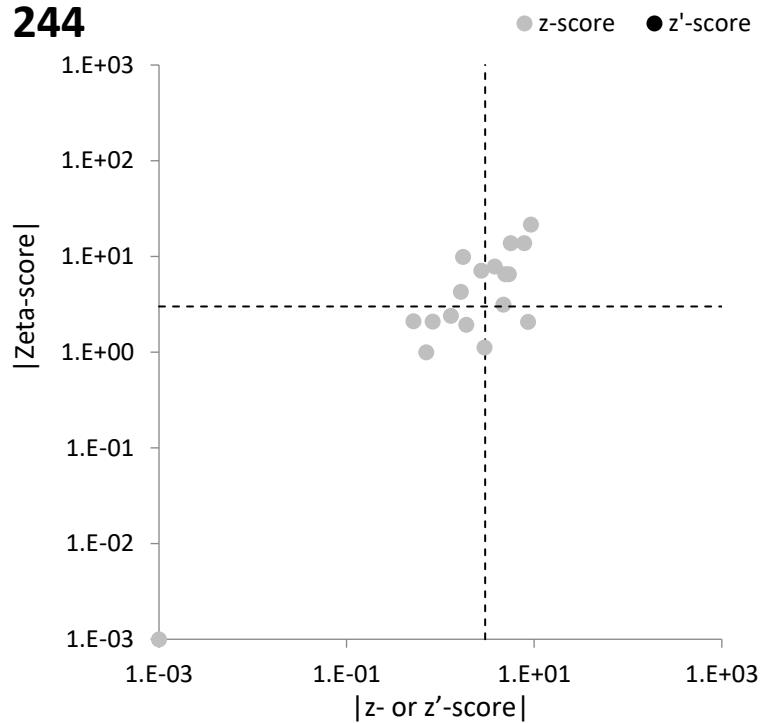


FIG. 301. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 244 (Clay material).

244

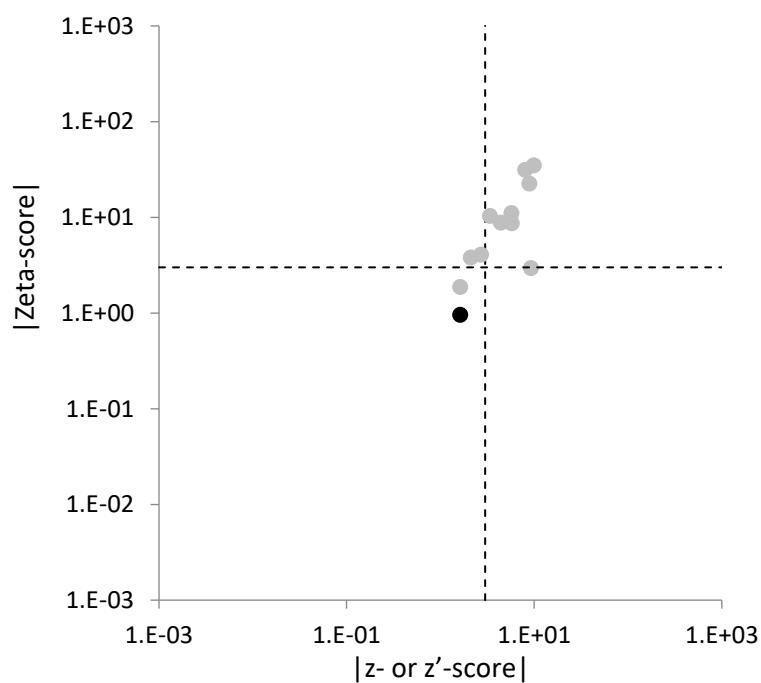


FIG. 302. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 244 (Plant material).

245

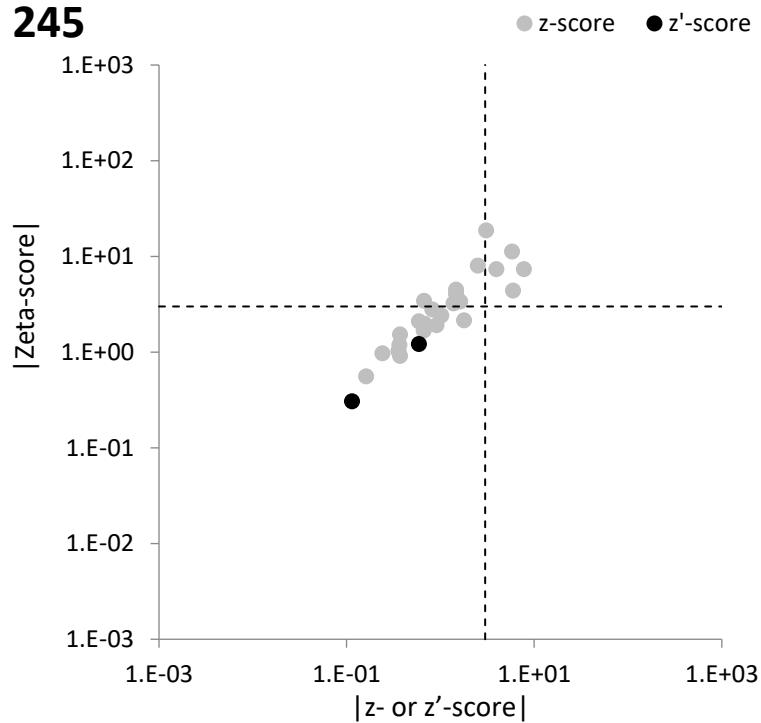


FIG. 303. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 245 (Clay material).

245

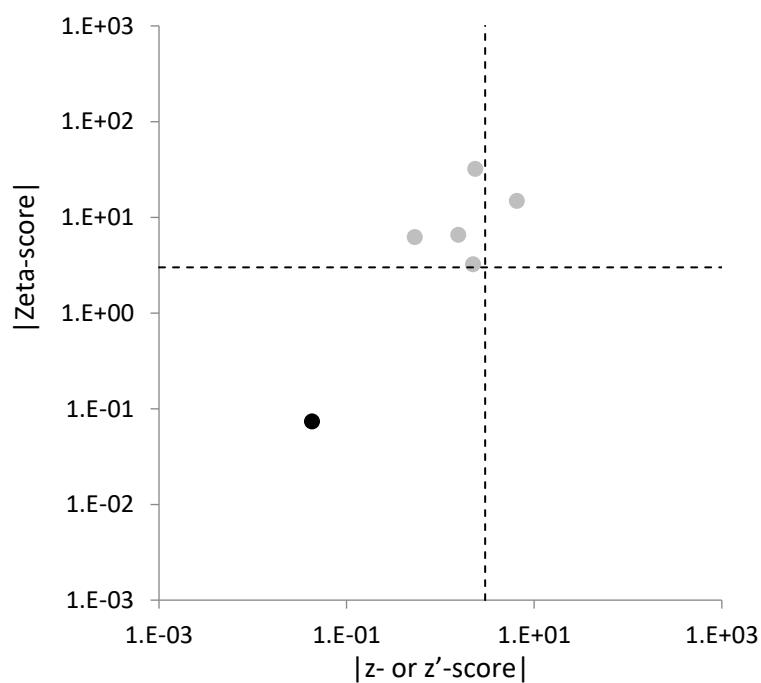


FIG. 304. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 245 (Plant material).

246

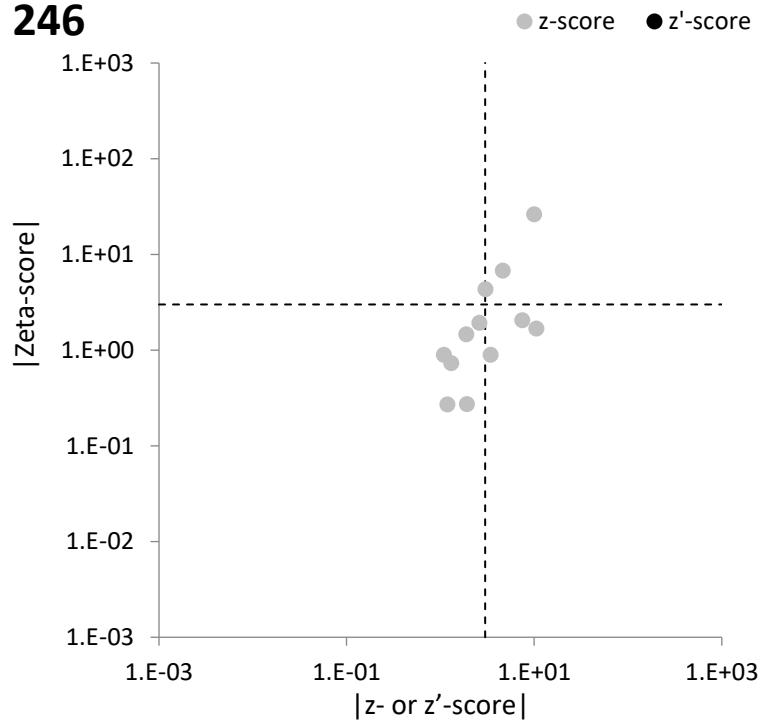


FIG. 305. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 246 (Clay material).

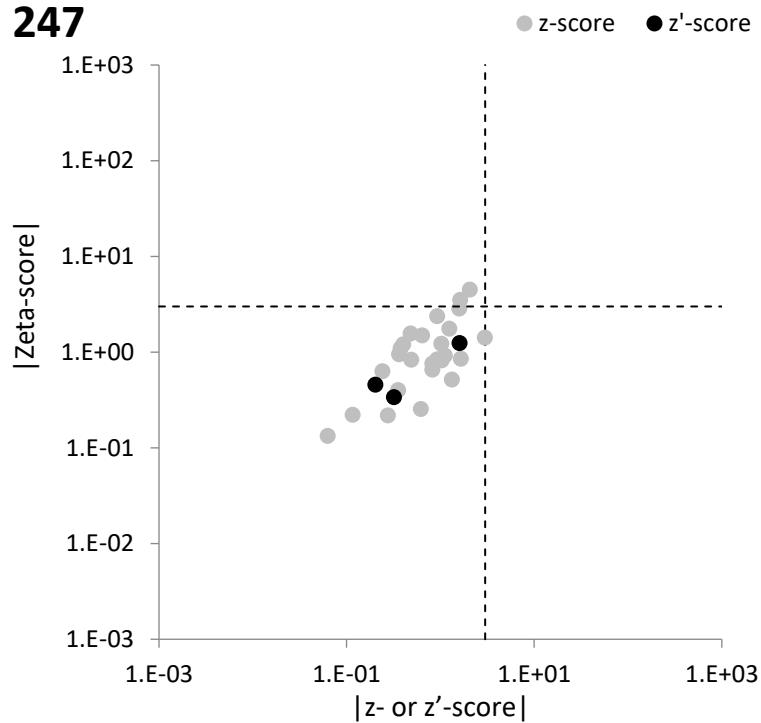
247

FIG. 306. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 247 (Clay material).

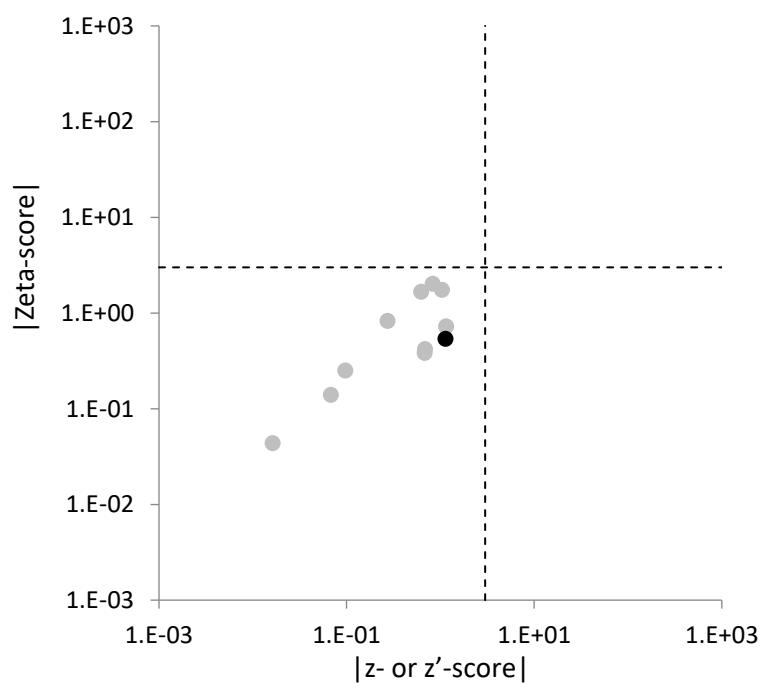
247

FIG. 307. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 247 (Plant material).

248

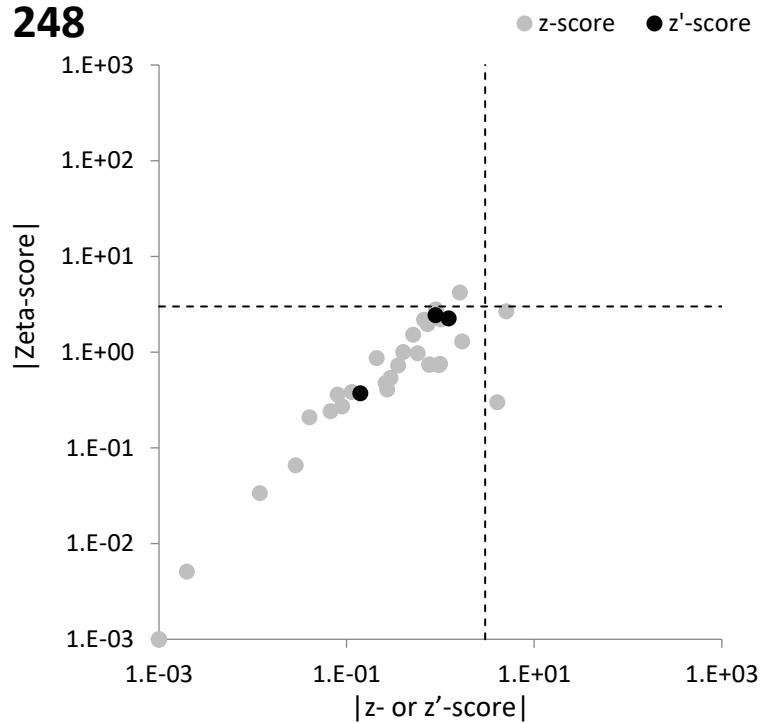


FIG. 308. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 248 (Clay material).

248

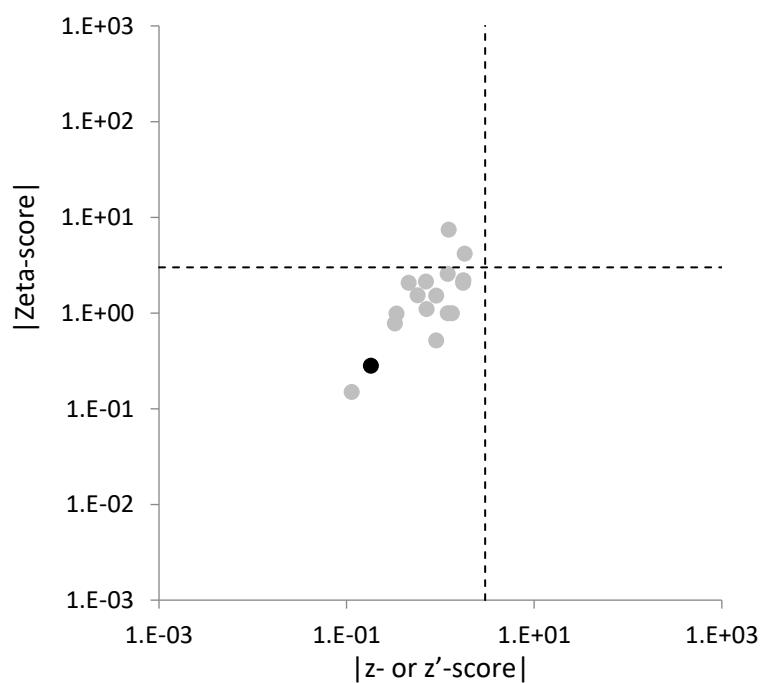


FIG. 309. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 248 (Plant material).

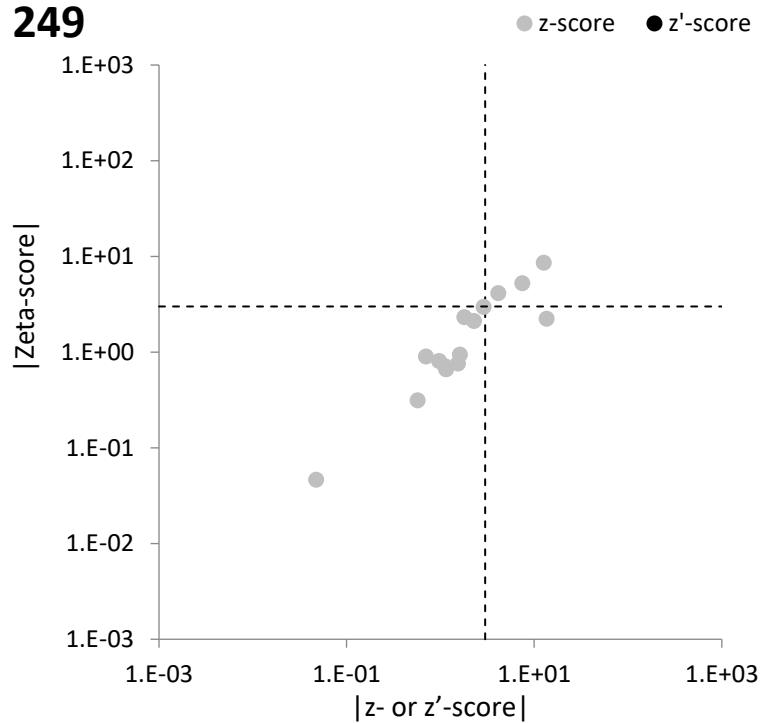
249

FIG. 310. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 249 (Clay material).

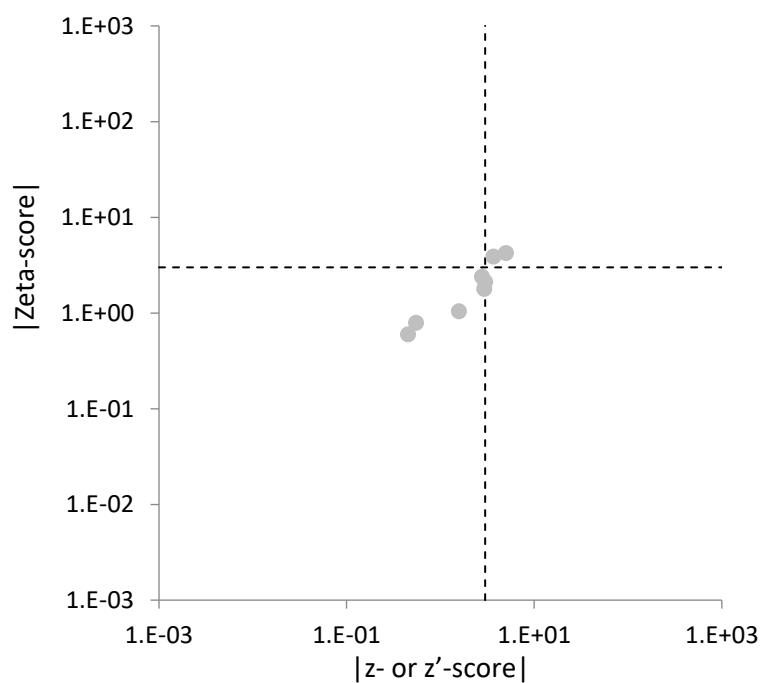
249

FIG. 311. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 249 (Plant material).

250

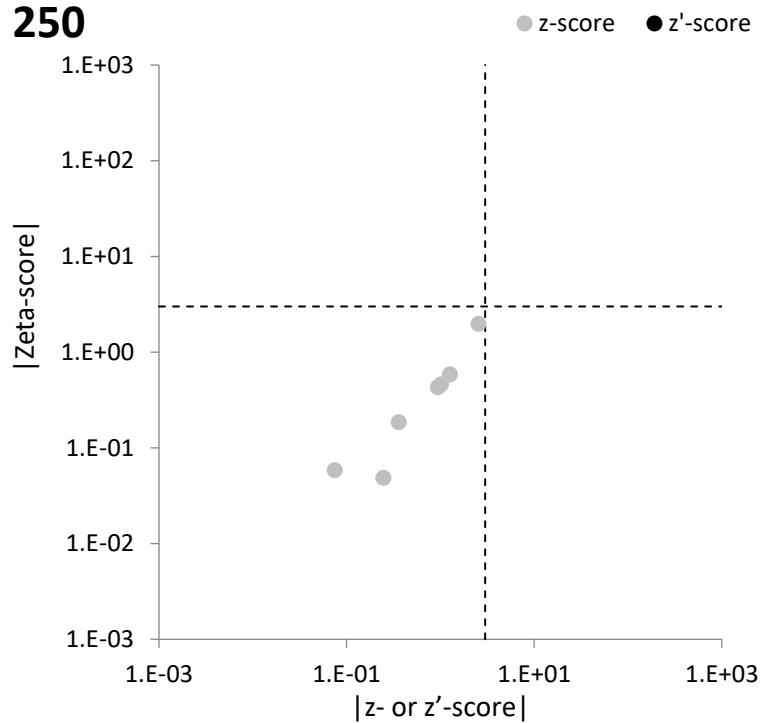


FIG. 312. Combined plots of z - or z' -scores and Zeta-scores for the laboratory with code 250 (Clay material).

TABLE 5a. SUMMARY OF THE PERFORMANCE INDICATORS FOR EACH PARTICIPANT (CLAY SAMPLE).

Part. code	Number of results	Number of values < 3			Number of values ≥ 3		
		$ z $	$ z' $	$ \zeta $	$ z $	$ z' $	$ \zeta $
35	13	11	0	3	2	0	10
36	12	0	0	0	12	0	12
44	14	5	0	13	8	0	0
53	14	11	0	14	3	0	0
54	7	0	0	0	7	0	7
55	22	20	2	16	0	0	6
61	26	24	2	26	0	0	0
65	31	22	0	27	9	0	4
73	10	4	0	2	6	0	8
78	20	14	0	5	6	0	15
79	12	9	0	8	3	0	4
84	6	5	0	4	1	0	2
85	52	33	5	38	7	0	7
99	10	7	1	8	2	0	2
100	12	4	0	4	8	0	8
105	30	8	0	12	19	0	15
108	17	3	0	10	14	0	7
124	18	13	0	6	5	0	12
126	38	21	0	22	14	0	13
130	22	12	0	5	10	0	17
133	17	8	0	14	9	0	3
137	28	20	1	27	7	0	1
145	11	3	0	0	8	0	11
149	10	7	0	1	2	0	8
151	33	20	0	4	10	1	27
152	33	26	3	22	4	0	11
161	41	15	0	12	21	1	25
166	29	25	2	21	2	0	8
167	23	16	3	10	4	0	13
169	27	25	2	27	0	0	0
170	14	12	1	12	1	0	2
171	25	23	2	20	0	0	5
172	32	27	2	30	2	0	1
176	36	31	4	29	0	0	6
181	4	3	1	4	0	0	0
182	32	23	3	26	5	0	5
183	33	26	3	29	2	0	2
192	40	33	4	34	0	0	3
194	22	16	1	17	5	0	5
195	8	4	0	6	4	0	2
197	12	3	1	3	7	0	8

199	26	24	2	26	0	0	0
202	29	24	2	26	2	0	2
203	37	29	2	26	5	0	10
204	40	18	0	15	18	1	22
205	17	13	1	15	2	1	2
206	35	20	0	13	14	1	22
215	40	33	3	36	0	0	0
217	24	19	2	10	3	0	14
219	15	9	1	13	5	0	2
221	30	26	2	29	2	0	1
225	11	6	0	8	5	0	3
229	7	3	0	3	4	0	4
230	19	14	0	16	5	0	3
232	28	26	2	28	0	0	0
233	30	19	0	19	9	0	9
234	23	12	2	10	9	0	13
235	27	9	1	8	13	2	17
236	16	3	0	2	13	0	14
237	39	32	4	30	1	0	7
238	22	19	0	22	3	0	0
240	28	12	1	7	14	1	21
242	39	22	0	14	14	0	22
243	14	12	0	14	2	0	0
244	18	10	0	8	8	0	10
245	26	19	2	15	5	0	11
246	12	6	0	9	6	0	3
247	29	26	3	27	0	0	2
248	40	32	3	36	2	0	1
249	15	11	0	12	4	0	3
250	7	7	0	7	0	0	0

TABLE 5b. SUMMARY OF THE PERFORMANCE INDICATORS FOR EACH PARTICIPANT (PLANT SAMPLE).

Part. code	Number of results	Number of values < 3			Number of values ≥ 3		
		$ z $	$ z' $	$ \zeta $	$ z $	$ z' $	$ \zeta $
35	10	8	0	3	2	0	7
36	5	5	0	1	0	0	4
44	12	10	1	12	1	0	0
53	11	10	0	10	1	0	1
54	7	4	0	4	3	0	3
55	18	11	1	10	1	0	3
61	17	11	0	12	1	0	0
65	19	10	1	11	5	0	5
73	3	0	0	0	3	0	3
78	11	7	0	5	3	0	5
79	7	5	0	3	2	0	4
84	3	1	0	1	1	0	1
85	15	13	0	13	1	0	1
99	4	3	0	2	1	0	2
100	4	1	0	3	3	0	1
105	18	11	0	8	4	1	8
108	12	7	0	9	5	0	3
126	24	6	1	11	10	0	6
130	14	2	0	2	10	0	10
133	15	2	0	7	10	0	5
137	13	8	0	9	3	1	3
145	10	0	0	0	8	0	8
149	8	1	0	1	3	0	3
151	25	10	0	1	9	0	18
152	20	11	1	5	2	0	9
161	38	3	1	5	18	0	17
166	19	10	0	8	0	0	2
167	13	7	0	3	2	0	6
169	16	12	0	12	0	0	0
170	8	6	0	6	0	0	0
171	11	10	0	9	0	0	1
172	16	12	1	13	1	0	1
176	20	14	1	15	0	0	0
181	3	2	0	2	1	0	1
182	14	3	1	5	7	0	6
183	19	10	0	10	5	1	6
192	27	16	1	15	0	0	2
194	16	4	0	5	7	1	7
195	10	7	0	7	2	0	2
197	6	2	1	2	1	0	2
199	15	9	0	9	0	0	0

202	16	7	1	4	4	0	8
203	19	12	0	11	3	0	4
204	37	2	1	4	18	0	17
206	29	13	1	11	9	0	12
215	28	18	1	19	0	0	0
217	19	7	0	1	5	0	11
219	13	8	0	7	1	1	3
221	22	2	1	6	13	0	10
225	8	4	1	3	2	0	4
229	7	3	0	3	3	0	3
230	9	7	0	7	2	0	2
232	17	12	1	12	0	0	1
233	14	10	0	9	3	1	5
234	12	8	0	7	4	0	5
235	15	4	0	3	6	0	7
236	8	8	0	6	0	0	2
237	20	16	1	16	0	0	1
238	11	10	0	11	1	0	0
240	16	9	0	4	3	0	8
242	33	10	0	3	8	1	16
244	13	3	1	3	8	0	9
245	7	4	1	1	1	0	5
247	13	10	1	11	0	0	0
248	24	16	1	15	0	0	2
249	8	6	0	6	2	0	2

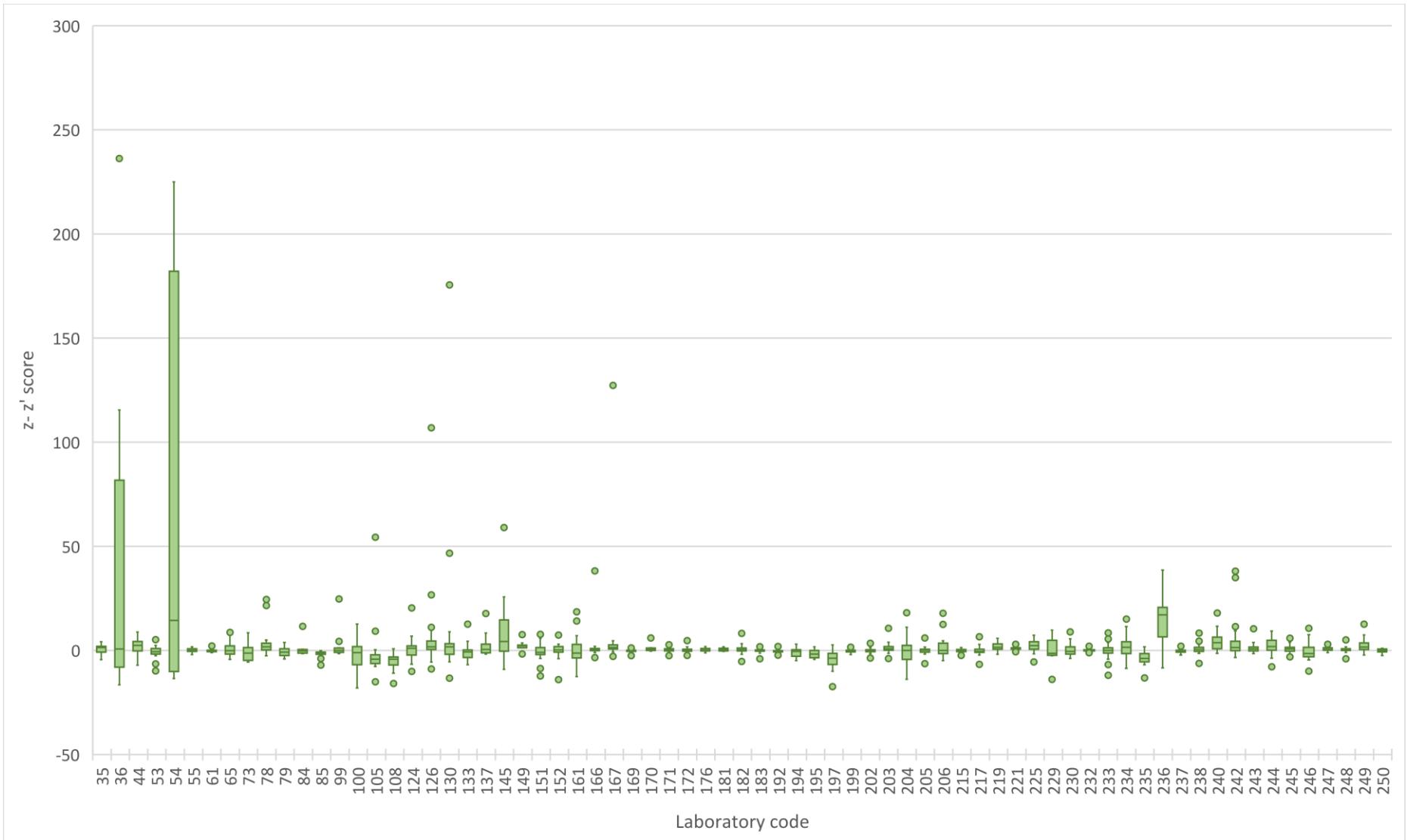


FIG. 313. Box-and-whisker plot of the z - and z' -scores for each participant (clay sample).

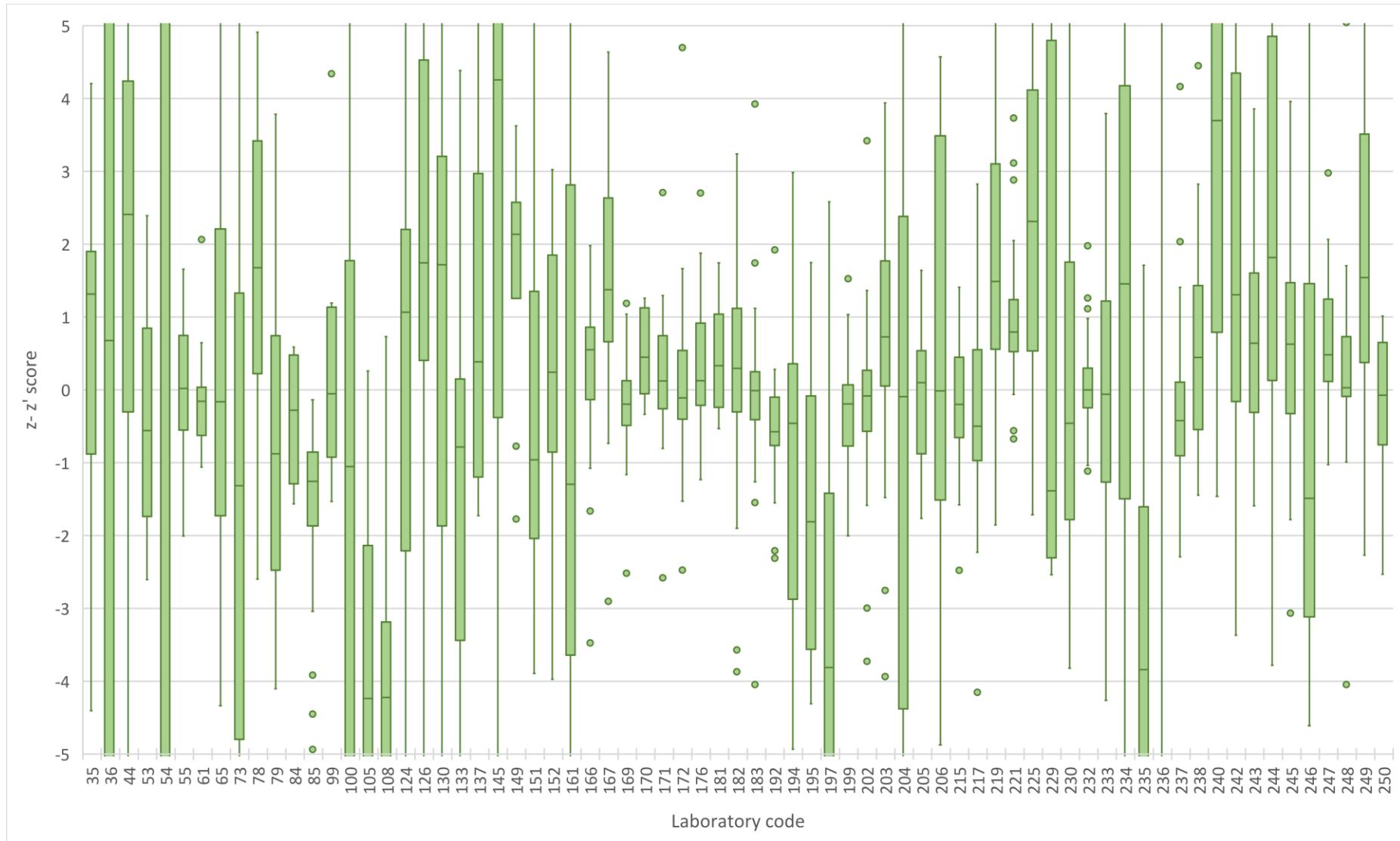


FIG. 314. Box-and-whisker plot of the z - and z' -scores for each participant with the vertical scale reduced to the range -5÷5 (clay sample).

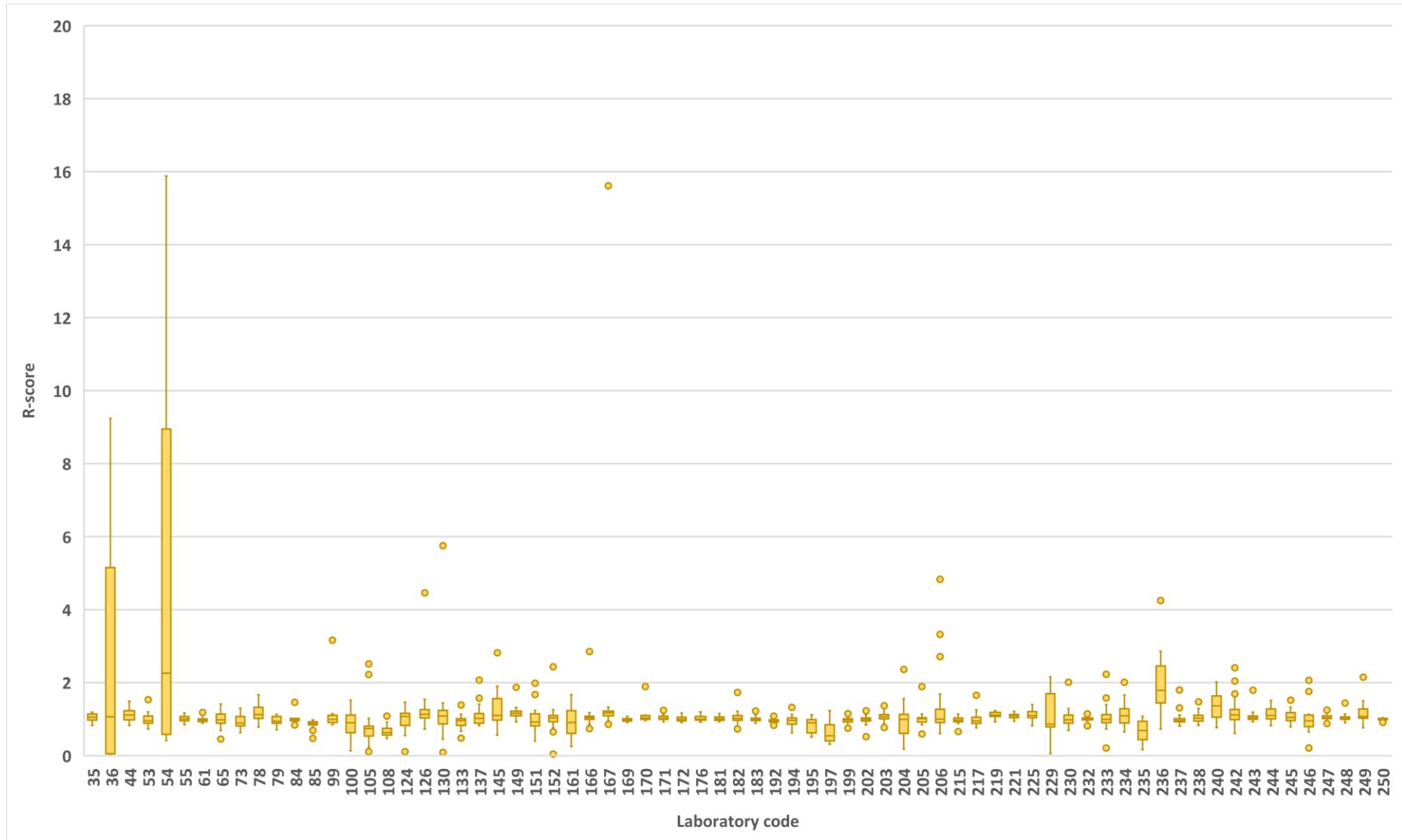


FIG. 315. Box-and-whisker plot of the R-scores for each participant (clay sample).

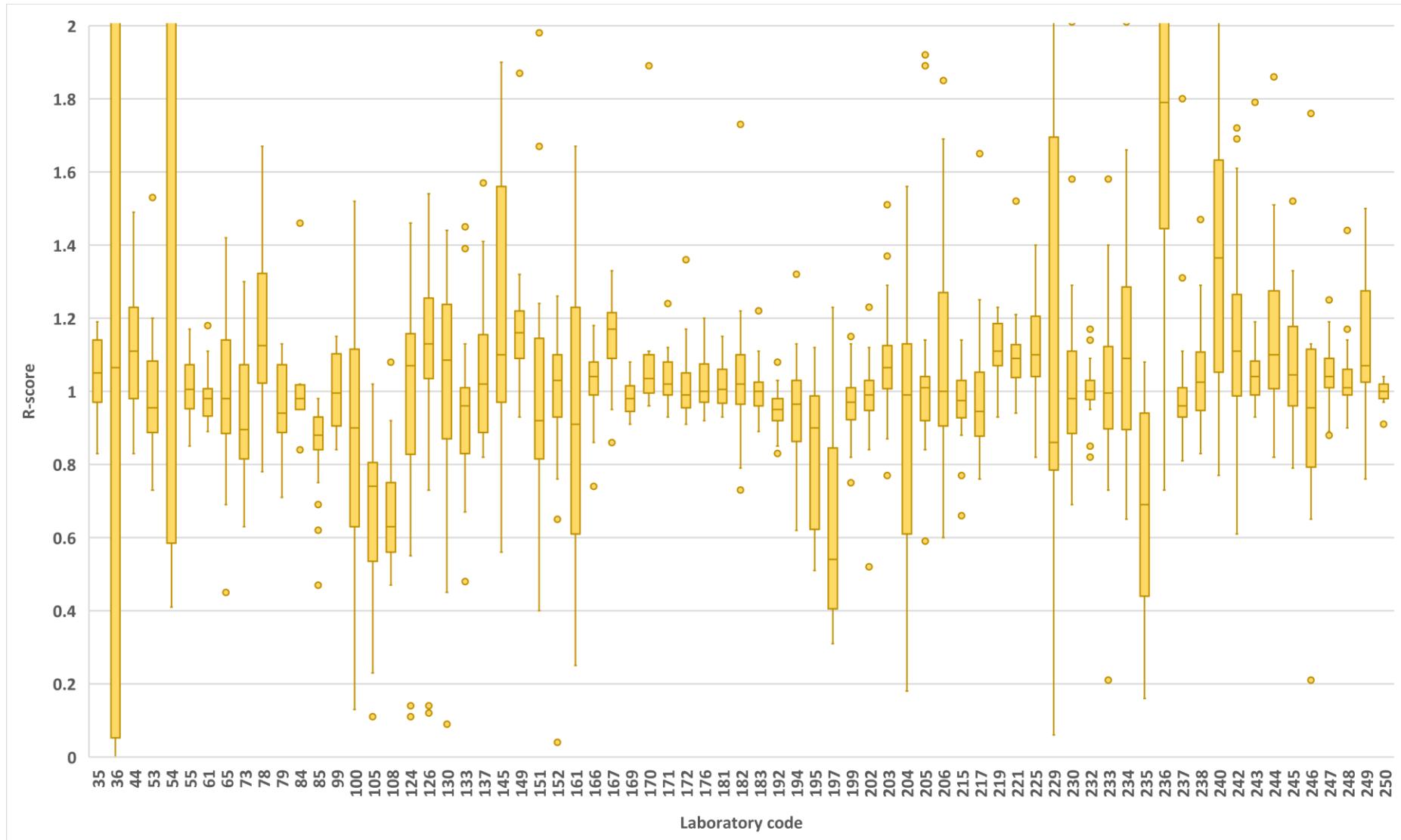


FIG. 316. Box-and-whisker plot of the R-scores for each participant with vertical scale reduced to the range 0÷2 (clay sample).

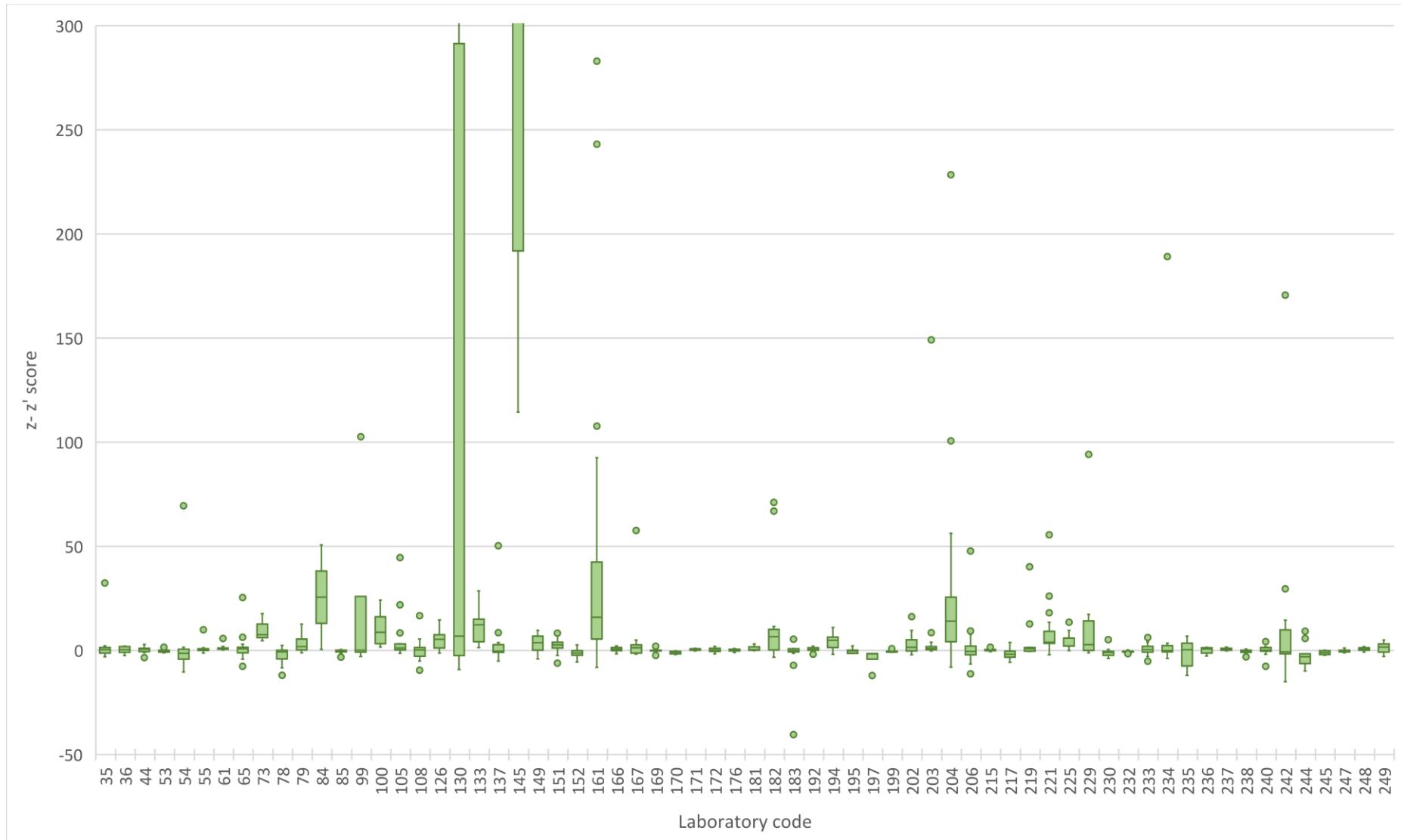


FIG. 317. Box-and-whisker plot of the z - and z' -scores for each participant (plant sample).

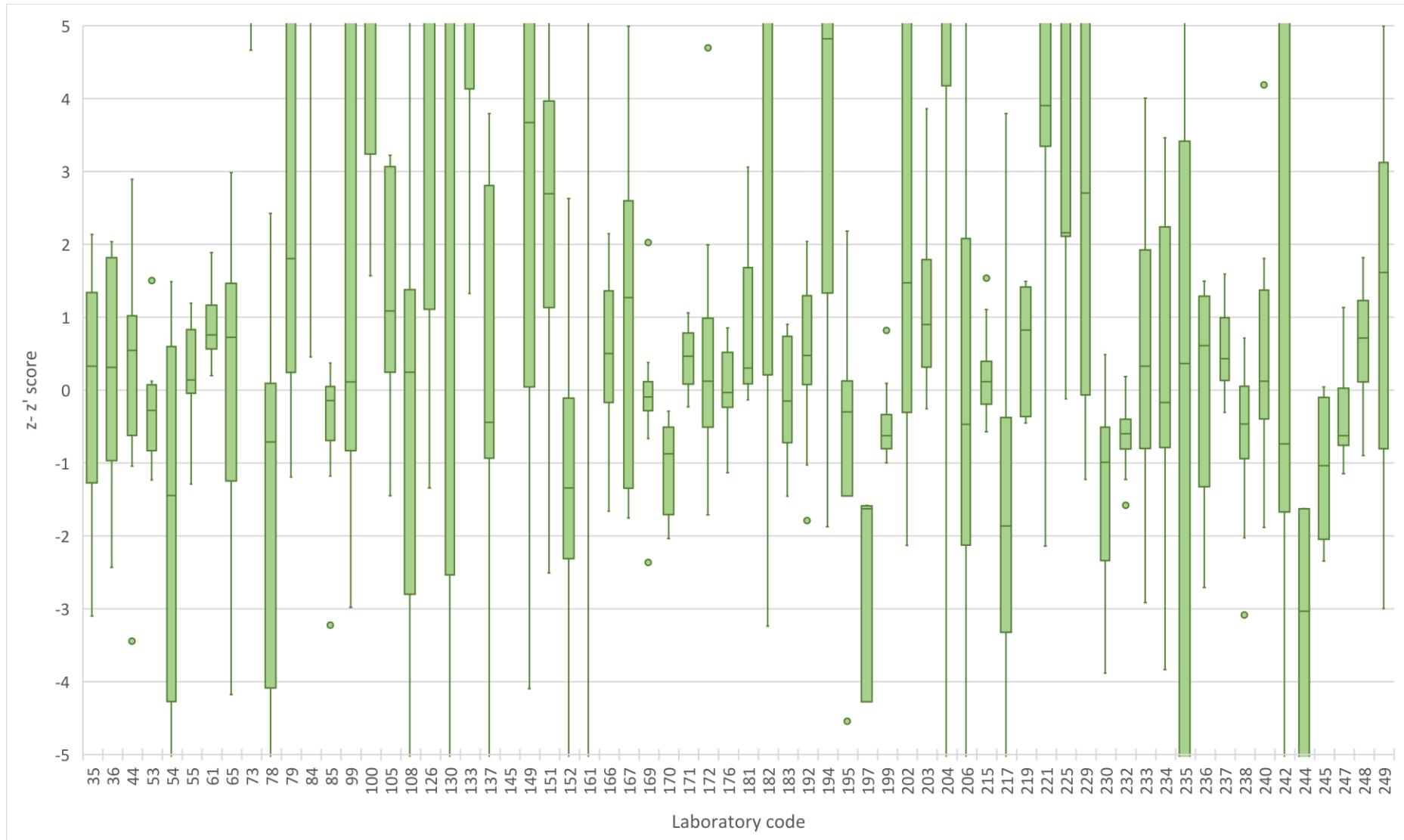


FIG. 318. Box-and-whisker plot of the z - and z' -scores for each participant with the vertical scale reduced to the range -5÷5 (plant sample).

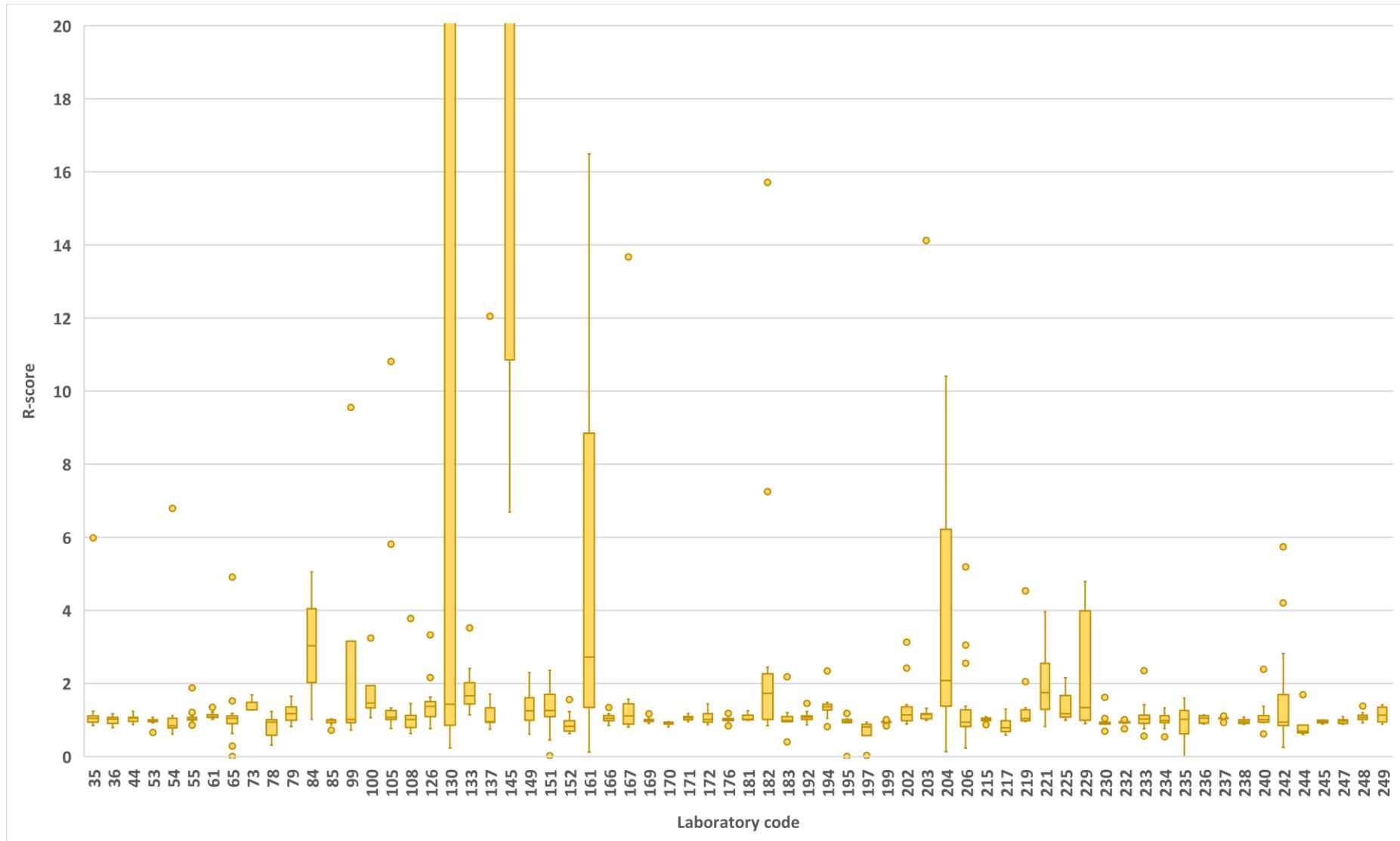


FIG. 319. Box-and-whisker plot of the R-scores for each participant (plant sample).

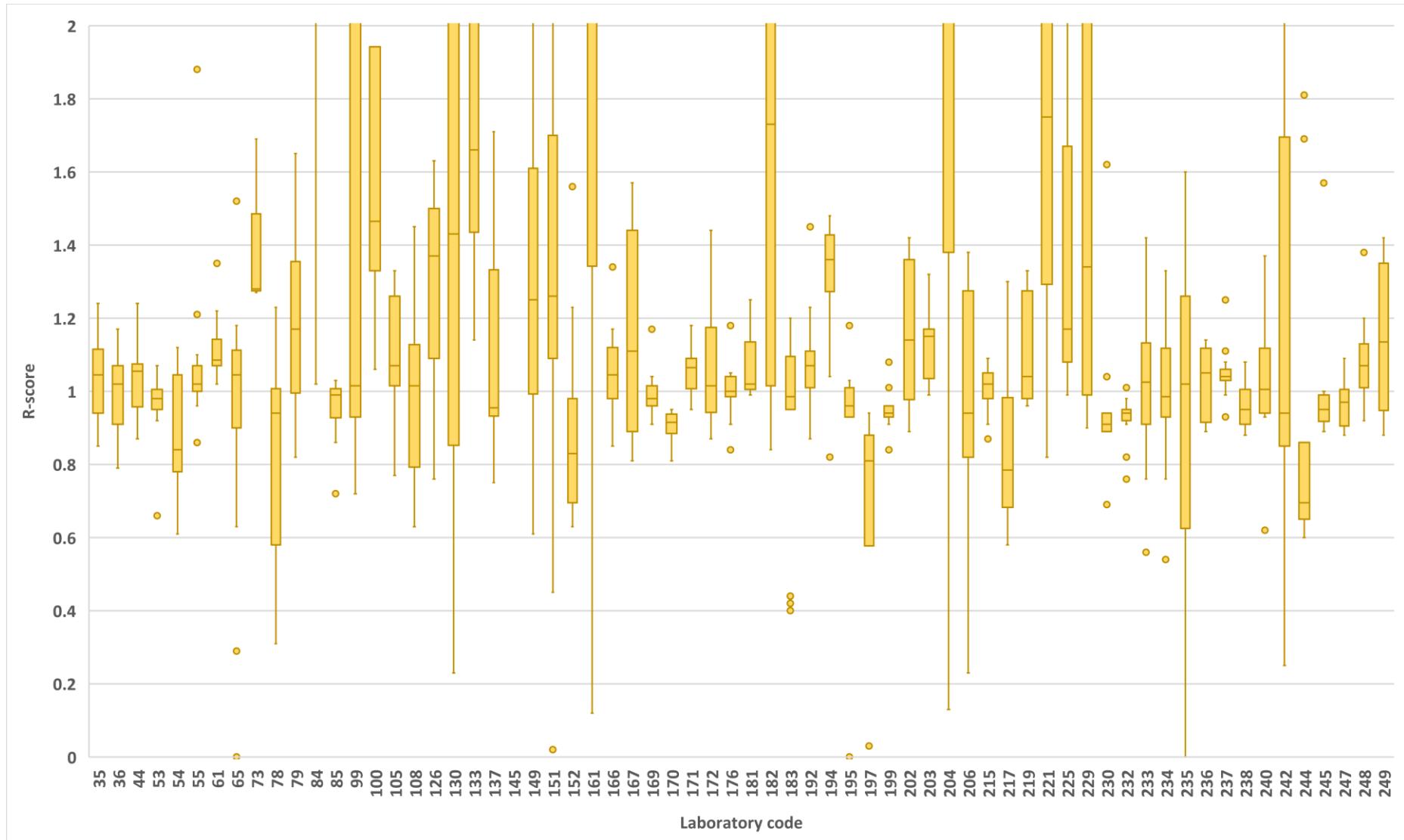


FIG. 320. Box-and-whisker plot of the R-scores for each participant with vertical scale reduced to the range 0÷2 (plant sample).

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