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19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

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1 INTRODUCTION

A high quality and comparable laboratory standard in all countries is indispensable for a European-wide survey of the state of forests, small changes in nature should be detected and not the changes in laboratory quality. Important steps on this way are method harmonisation, QA/QC in the laboratories in daily routine and an implementation of a regular performed Interlaboratory Comparison Tests programme.

This Needle/Leaf Interlaboratory Comparison Test programme starts with the first European Foliar-Interlaboratory Comparison Test on two certified standards (BCR 100-*beech leaves* and BCR 101 - *spruce needles*) in 1993. The data were submitted by post or fax and had to be rechecked from the laboratories. All the data collection and evaluation must be done manually. The final report was available after some month. The Interlaboratory Comparison Tests were performed biannually till 2002.

Beginning with 2003/2004 (6th Interlaboratory Comparison Test) an annual test program was set up and the test were performed from the Forest Foliar Co-ordinating Centre/Austria (FFCC). The data collection was done via internet. The Needle/Leaf Interlaboratory Comparison Test program was opened for every interested laboratory.

Beginning in 2012 an internet based web interface was used for the data collection, to collect the billing information for the participation fee, for the data evaluation and for the creation of online qualification reports. The interface offers the possibility for first data checks (decimal errors, non plausible results, max LOQ) immediately before the final evaluation. The results of the ringtest are available now within some days, so the laboratories can react - in case of unsatisfactory results – very fast. For this case a re-qualification procedure was set up, starting with the 11th Test in 2009 (see: http://bfw.ac.at/rz/bfwcms2.web?dok=7830). This feedback procedure is mandatory for all *ICP-Forests laboratories* and showed very a positive effect on the data quality.

To support the participating laboratories and to exchange knowledge between them regularly meetings of the heads of the laboratories are organized from the ICP-Forests Working Group on quality assurance and quality control in laboratories. Leaf and needle reference materials for method validation and method verification are offered by FFCC (see: http://bfw.ac.at/rz/bfwcms2.web?dok=5146).

Today this interlaboratory test program is open for every laboratory and is financed by participation fee, by advertising, by selling reference materials and by ringtest sample collection and/or sample preparation from participating laboratories.

2 TASK, MATERIAL, PARTICIPANTS AND EVALUATION

2.1 Task

The Forest Foliar Co-ordinating Centre established the following timetable:

- Informing the participating labs (March 2016)
- Registration of the participants via internet (10th July 2016)
- Submission of the ring test samples (July 2016)
- Submission of the results from the labs (October-December 2016)
- Deadline of data input (1st January 2017)
- Evaluation according to DIN 38402/42 (January/February 2017)
- Submission of the final report and the online qualification reports (February 2017)
- Re-qualification process finished (1st September 2017)

The mandatory parameters S, N, P, Ca, Mg, K and C must be analysed from all *ICP-Forests laboratories*, optional parameters Zn, Mn, Fe, Cu, Pb, Cd and B can be analysed. Results from other elements can be submitted. The units and all possible elements are shown in figure 1.

Figure 1: Elements and units

I a	II a	III b	IV b	V b	VI b	VII b	VIII b			I b	II b	III a	IV a	V a	VI a	VII a	VIII a
1 H																	2 He
3 Li µg/g	4 Be ng/g											5 B µg/g	6 C %	7 N mg/g	8 O	9 F µg/g	10 Ne
11 Na µg/g	12 Mg mg/g											13 Al µg/g	14 Si µg/g	15 P mg/g	16 S mg/g	17 Cl µg/g	18 Ar
19 K mg/g	20 Ca mg/g	21 Sc ng/g	22 Ti µg/g	23 V µg/g	24 Cr µg/g	25 Mn µg/g	26 Fe µg/g	27 Co µg/g	28 Ni µg/g	29 Cu µg/g	30 Zn µg/g	31 Ga µg/g	32 Ge µg/g	33 As ng/g	34 Se ng/g	35 Br µg/g	36 Kr
37 Rb µg/g	38 Sr µg/g	39 Y ng/g	40 Zr µg/g	41 Nb ng/g	42 Mo ng/g	43 Tc	44 Ru ng/g	45 Rh ng/g	46 Pd ng/g	47 Ag ng/g	48 Cd ng/g	49 In ng/g	50 Sn ng/g	51 Sb ng/g	52 Te µg/g	53 I µg/g	54 Xe
55 Cs ng/g	56 Ba µg/g	71 Lu ng/g	72 Hf ng/g	73 Ta ng/g	74 W ng/g	75 Re ng/g	76 Os ng/g	77 Ir ng/g	78 Pt ng/g	79 Au ng/g	80 Hg ng/g	81 Tl ng/g	82 Pb µg/g	83 Bi ng/g	84 Po	85 At	86 Rn

57 La ng/g	58 Ce ng/g	59 Pr ng/g	60 Nd ng/g	61 Pm ng/g	62 Sm ng/g	63 Eu ng/g	64 Gd ng/g	65 Tb ng/g	66 Dy ng/g	67 Ho ng/g	68 Er ng/g	69 Tm ng/g	70 Yb ng/g

Mandatory (for ICP-Forests labs)	Optional (for ICP-Forests labs)	Additional (with special interest for more labs)	Possible

Due the fact that the combination of microwave digestion with multi element methods like ICP-MS and special mercury element analyzer are getting more and more common heavy metals (As, Co, Cr, Hg, Mo, Ni, Tl and V) are analysed from more laboratories. There is a plan

to add these parameters in the ringtest evaluation and in the monitoring program. All paticipants were asked to submit their results for these elements too; they will be used to set up tolerable limits in the next Foliage and Litterfall Expert Panel Meeting in Zagreb end of March 2017.

For each parameter four replicates per sample are necessary. Minimum sample weight for mandatory and optional elements should be per replicate 250 mg, because of the homogeneity of the sample material. All results must be calculated on dry weight (105^{o}C).
The used pretreatment method and the determination method must be specified by a code. This code was harmonized for all ringtests (foliage & litterfall, deposition & soil solution and soil) after the 4th Meeting of the Heads of the Laboratories in Zadar 2013.

For a deeper evaluation - all participant laboratories had to fill a questionnaire to get more information about the status of their quality control systems, about their instrumentation, about their sample number/year and about their methodical knowledge. *ICP-Forests laboratories* had to mark all parameters if the plan to analyse and submit monitoring results to ICP-FORESTS PCC from the growing season 2016.

2.2 Material

In July 2016 the Austrian Federal Research Centre for Forests, Natural Hazards and Landscape (BFW) sent out four dried and powdered plant samples to 45 laboratories in 22 countries.

The samples consisted of:

1. Spruce needles (Slovenia)
2. Spruce needles (Austria)
3. Spruce needles (Austria)
4. Pine needles (Finland) - same sample like in the 6th and 7th Test (Sample 1)

Sample 1 was collected from Daniel Žlindra in Slovenia. **Sample 2** was collected from Walter Wuggenig and his employees in Austria/Carinthia. **Sample 3** was collected from Markus Neumann and his employees in Austria/Arnoldstein and **Sample 4** was collected from Hannu Raitio 2002 in Finland. Special thank to all colleagues for collecting and preparing samples for this ringtest and special thank to the *Dr. Gudmund Schütte Forst- und Gutsverwaltung* for supporting this ringtest program with needles of a spruce tree.

The further sample preparation (drying and grinding) – if necessary - was done in the BFW laboratory for air pollution monitoring and plant analyses. Before the samples were sent out they were once more homogenized and filled in PE-bags. Homogeneity was tested for these samples by analysing the P, K, Ca, Mg, Fe, Mn, Zn, Cu and B content in eight randomly selected sub samples. No significant variation (Kruskal-Wallis Test - 95% significance level) could be found between the results of these eight sub samples, and they were therefore considered to be homogeneous.

2.3 Participants

Table 1 shows the number of countries and laboratories taking part in the interlaboratory comparison test program.

Table 1: Number of countries and laboratories taking part in the interlaboratory comparison test program

Interlaboratory Comparison Test	Year	Number of countries	Number of laboratories
1st	1993/94	21	24
2nd	1995/96	25	39
3rd	1997/98	29	51
4th	1999/00	29	52
5th	2001/02	29	53
6th	2003/04	26	46
7th	2004/05	23	43
8th	2005/06	30	52
9th	2006/07	28	53
10th	2007/08	29	54
11th	2008/09	28	56
12th	2009/10	30	56
13th	2010/11	29	60
14th	2011/12	28	62
15th	2012/13	28	61
16th	2013/14	25	57
17th	2014/15	25	54
18th	2015/16	25	53
19th	2016/17	22	45

One of the participating laboratories doesn't send any results till end of the deadline (A47). With a few exceptions, all other laboratories analysed in the 19th Interlaboratory Comparison Test the complete list of mandatory elements and most of the optional elements (s. Table 2).

Table 2: Analysed elements from the participant laboratories (green); no results were submit (grey); red "X": monitoring samples will be analyzed from the growing season 2016 and these results will be sent to PCC in 2017 ("*ICP-Forests laboratory"*)

Labcode	N	S	P	Ca	Mg	K	C	Zn	Mn	Fe	Cu	Pb	Cd	B
A36														
A39														
A42														
A43														
A45	X	X	X	X	X	X	X	X		X	X	X	X	
A47														
A49														
A53														
A55														
A56														

Labcode	N	S	P	Ca	Mg	K	C	Zn	Mn	Fe	Cu	Pb	Cd	B
A57														
A59														
A60	X	X	X	X	X	X	X	X	X	X			X	
A61	X	X	X	X	X	X	X	X	X	X	X		X	X
A62	X	X	X	X	X	X	X							
A65														
A79														
A80														
A82														
A86														
A88														
A91														
F01	X		X	X	X	X								
F02	X	X	X	X	X	X	X	X	X	X	X			X
F03														
F04														
F05	X	X	X	X	X	X	X	X	X	X	X	X	X	
F06	X	X	X	X	X	X	X	X	X	X	X	X	X	
F07	X	X	X	X	X	X	X	X	X	X	X	X	X	X
F08														
F09														
F12	X	X	X	X	X	X	X	X	X	X	X	X	X	
F13	X	X	X	X	X	X	X	X	X	X	X	X	X	
F14	X	X	X	X	X	X	X	X	X	X	X	X	X	X
F15	X	X	X	X	X	X	X	X	X	X	X	X	X	
F16	X	X	X	X	X	X	X	X	X	X	X	X	X	X
F18	X	X	X	X	X	X	X	X	X	X	X	X	X	X
F19	X	X	X	X	X	X	X	X						
F21	X		X	X	X	X	X							
F24	X	X	X	X	X	X	X							
F25														
F26							X							
F27														
F32	X	X	X	X	X	X	X	X			X	X	X	
F33	X	X	X	X	X	X	X	X	X	X	X	X	X	

2.4 Data Evaluation

Only four replicates above the quantification limits can be used for calculating an outlier free laboratory mean value. Results below the quantification limit are marked with "<" followed by the quantification limit of the laboratory (e.g. <0.1).

The results of the interlaboratory comparison test were evaluated according to DIN 38402/42. This method identifies three types of outliers. With the Grubbs-test the four replicates from each laboratory can first be checked for outliers (outlier type 1). The next step is to compare the recalculated mean values of each lab with the mean value from all labs as well as with the Grubb-test for outliers (type 2). Finally, the recalculated standard deviation from the laboratories must be compared with the total standard deviation (F-test) to eliminate laboratories with an excessive standard deviation (outlier type 3). Now the outlier free total mean value and the outlier free maximum and minimum mean value of all labs can be calculated. Marked outliers type 1 between the outlier free maximum and minimum mean values are not longer outliers, they will be included and will be used for the further evaluation of the interlaboratory comparison test. The last step is to calculate the outlier free statistical values.

With the outlier free mean value for each element/sample and the laboratory mean value the recovery must be calculated and compare with the tolerable limits from table 3 and 4. Laboratory results inside these tolerable limits are marked green (pass the test); outside they are marked orange (fail the test). This type of evaluation was fixed in the Foliar Expert Panel Meetings of As (1994) and Vienna (1997).

Table 3: Tolerable limits for normal concentration in foliage for the mandatory and optional elements

Element	Tolerable deviation from mean in %	Adopted by the Expert Panel Foliage and Litterfall
N	90-110	6th Meeting - Bonn 1999
S	85-115	10th Meeting - Madrid 2007
P	90-110	10th Meeting - Madrid 2007
Ca	90-110	10th Meeting - Madrid 2007
Mg	90-110	10th Meeting - Madrid 2007
K	90-110	10th Meeting - Madrid 2007
C	95-105	6th Meeting - Bonn 1999
Zn	85-115	8th Meeting - Prague 2003
Mn	85-115	8th Meeting - Prague 2003
Fe	80-120	6th Meeting - Bonn 1999
Cu	80-120	8th Meeting - Prague 2003
Pb	70-130	6th Meeting - Bonn 1999
Cd	70-130	6th Meeting - Bonn 1999
B	80-120	6th Meeting - Bonn 1999

Table 4: Tolerable limits for the mandatory and optional elements for samples with low concentrations (e.g. for non-foliage litterfall) the limits were fixed in Hamburg 2009 (11th Meeting of the Expert Panel Foliage and Litterfall)

Element	Tolerable deviation from mean in %	for concentrations below
N	85-115	5 mg/g
S	80-120	0.5 mg/g
P	85-115	0.5 mg/g
Ca	85-115	3 mg/g
Mg	85-115	0.5 mg/g
K	85-115	1 mg/kg
Zn	80-120	20 µg/g
Mn	80-120	20 µg/g
Fe	70-130	20 µg/g
Pb	60-140	0.5 µg/g
B	70-130	5 µg/g

If a limit of quantification (LOQ) is given from the laboratory, it will be checked first against the maximum acceptable LOQ from table 5. Is it higher than the maximum acceptable LOQ the lab will fail (marked in orange) - is it equal or lower it will be checked then against the outlier free mean. Is the submitted LOQ within the tolerable limits the lab will pass (marked in green), is it outside the lab will fail (marked in orange) for this parameter/sample combination. This evaluation of LOQ values was fixed in the 3rd Meeting of the Heads of the Laboratories in Arcachon (2011).

Table 5: Maximum acceptable limit of quantification and lowest evaluated interlaboratory sample result fixed in Arcachon 2011 (3rd Meeting of the Heads of the Laboratories)

Parameter	Unit	max. acceptable LOQ	Lowest evaluated result
N	mg/g	2	-
S	mg/g	0.3	-
P	mg/g	0.3	-
Ca	mg/g	0.5	-
Mg	mg/g	0.3	-
K	mg/g	0.5	-
C	g/100g	10	-
Zn	µg/g	5	-
Mn	µg/g	5	-
Fe	µg/g	5	-
Cu	µg/g	1	1
Pb	µg/g	0.50	0.20
Cd	ng/g	50	20
B	µg/g	1	-

In case of very low concentrations of copper, cadmium and lead in the interlaboratory comparison test samples these results will be excluded from the qualification report (see table 5). This procedure is needed to avoid wrong qualification results influenced by inaccurate results. On the other hand there is no practical need to detect these low concentrations in real samples, because it gives no additional information of the nutrient status (< 1 µg Cu/g is always deficiency) or of the pollution impact situation (< 20 ng Cd/g, < 1 µg Cu/g, < 0.2 µg Pb/g is always not polluted).

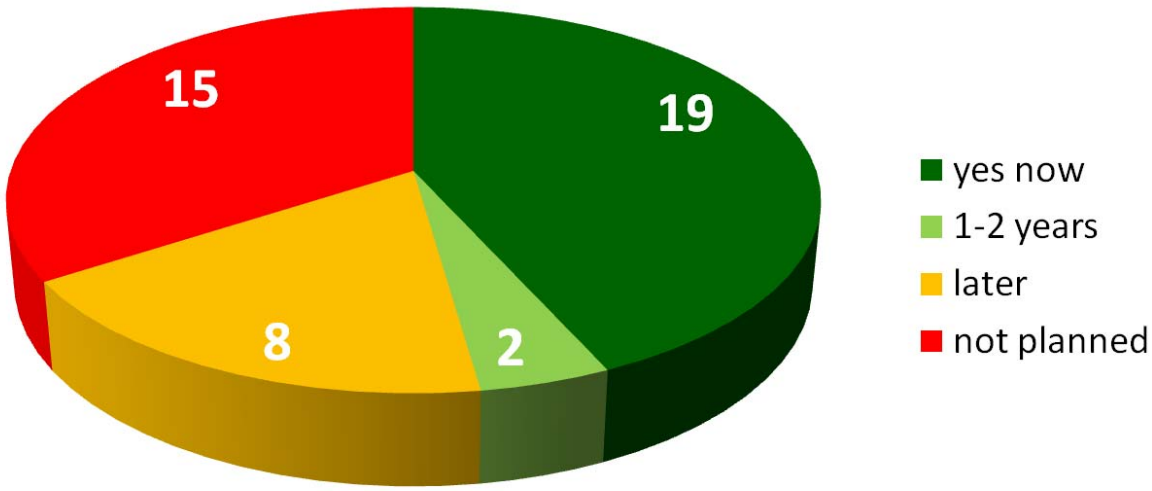
3 RESULTS

3.1 Main results of the questionnaire

All participating laboratories should fill a questionnaire in order to obtain information about the status and changes of their quality control systems. 44 of the 45 laboratories submit this questionnaire.

The first questions dealt with the accreditation status of the laboratories and the summarized results are shown in figure 2.

Figure 2: Accreditation status according EN 17025 (n=44)



47.7% of the laboratories are accredited now (19 labs) or plan an accreditation within 1-2 years (2 lab) - 15 laboratories don't plan an accreditation in future.

The next important question was about the usage of control charts for routine quality control (Hovind et al. 2007). 93.2% of these 44 laboratories are using control charts, and most of them are using average control chart – 3 of this 44 laboratories are still using no control chart. Some of the laboratories are using more than one type of control charts.

The other questions dealt with analytical knowledge and number of analyzed samples per year. The results are shown in tables 6 und 7.

If you compare these results from the questionnaire with the percentage of correct results you get following general connections.
Laboratory accreditation and a higher analyzed sample number have a positive influence of the percentage of correct results. Control charts have no influence on the percentage of correct results – only to have a control chart is not enough it must be used too! Laboratories with a higher percentage of correct results said more often that their staff must be trained on the method/analytical equipment than laboratories with lower percentage of correct results.

Figure 3: Types of control charts used in foliar laboratories

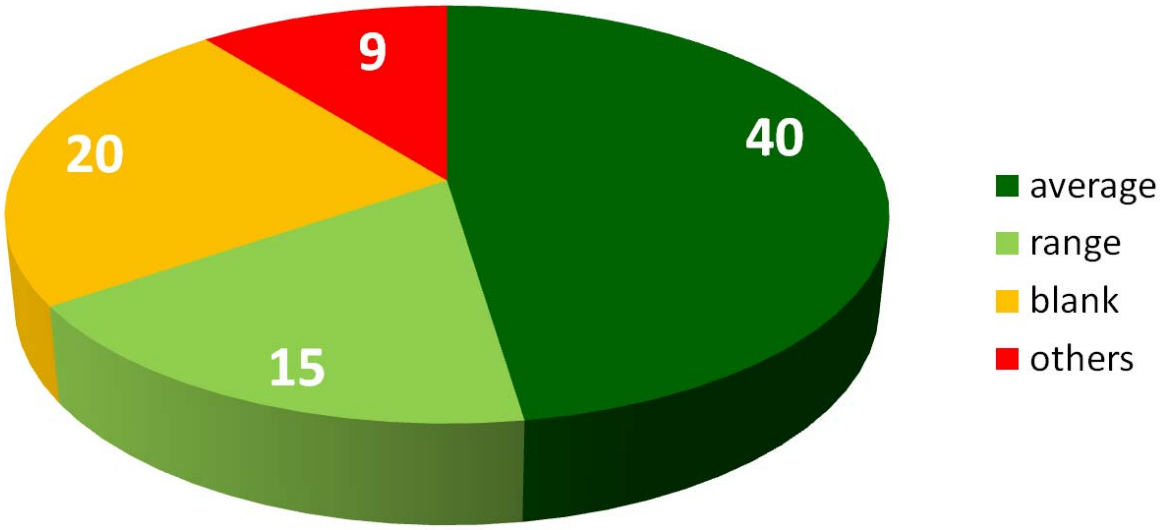


Table 6: Analytical knowledge *("Is your staff trained on the method/analytical equipment?"*)

"Analytical knowledge"	**Number of laboratories**
Excellent	11
Good	26
Medium	2
Poor	0
Improvement needed	0
No answer	5

Table 7: Analyzed foliage samples per year

Foliage samples/year	**Number of laboratories**
Less than 50 samples	2
50-100 samples	3
100-500 samples	13
500-1000 samples	10
1000-5000 samples	8
More than 5000 samples	3
No answer	5

3.2 Results of the 19th Interlaboratory Comparison Test

Table 8 gives an overview which laboratories analysed the test samples well and which laboratory encountered quality problems. This evaluation is based on the tolerable limits from table 3 and table 4 and on the maximum acceptable limit of quantification (LOQ) from table 5. A green marked field means all four samples are analysed well, a grey marked field means no results were sent from this laboratory till 1st of January 2017. The red marked "<" or ">" mean number of results lower or higher the tolerable limits.
If a LOQ is given from the laboratory, it will be first checked against the maximum acceptable LOQ from table 5. Is it higher than the maximum acceptable LOQ the lab will fail (marked with "L").

The following participants, which have a lower percentage of correct results (lower than 80% of correct results), have bigger QC/QA-problems in their laboratory:

A60 (77.4%), **A43** (75.0%), **F04** (75.0%), **A39** (73.6%), **F33** (67.3%), **A86** (66.7%), **A79** (60.0%), **A62** (57.1%), **A88** (51.4%) and **A59** (4.2%)

Laboratory A86 (66.7%) has only special interest in analyzing sulphur, nitrogen and carbon. This lab failed with all samples for sulphur. This fact was the reason for the "low percentage of correct results".

Some results (especially for calcium, magnesium, copper, cadmium and boron) are within the tolerable limits, but the statistical evaluation shows an excessive standard deviation (outlier type 1 or 3) or a high Vi (> 10%), that means these labs have e.g. contamination influences or methodical problems. These results are marked with "a" or with "c" or a red marked Vi in the detailed evaluation in the annex.

Table 8: Results of the 19th Interlaboratory Comparison Test – results marked with the limits from tables 3 and 4 (green = all samples were analysed well; < = too low; > = too high; grey = no results were sent) and with the maximum acceptable LOQ from table 5 (L = too high LOQ)

Labcode	N	S	P	Ca	Mg	K	C	Zn	Mn	Fe	Cu	Pb	Cd	B
A36											>			
A39		>	>>	>	>	>>>>			>	>	>>>			
A42														
A43					<<<	<<<								
A45											<<			
A47														
A49								>				*)		
A53				>										
A55	<						>							
A56							>>							
A57			>	>						>>				
A59	<<	>>>>	>>>>	>>>>	>>>>	>>>>	<<<<	>>>>	>>>>	>>>>	>>>>			>>>>
A60			<<<<						<<<<					>>>>
A61														
A62			>	<<<<	>>>>	<<<								

Labcode	N	S	P	Ca	Mg	K	C	Zn	Mn	Fe	Cu	Pb	Cd	B
A65			>											
A79				<	<<<<	<<		<<<	<<<	<<	<<<			
A80								<<<<						
A82						<<<<				>>>>				
A86		>>>>												
A88			<>>	<>>	>>	<>>		>>>			>>	<		
A91														
F01														
F02														
F03														
F04			>>	<		<<<<								
F05														
F06					<<<									
F07											>>			<
F08														
F09			>>>>	>							<<			
F12			<<											
F13														
F14														
F15													<>	
F16														
F18	>>>													L
F19														
F21														
F24				<										
F25														
F26														
F27											<	<		
F32														
F33	>	<<	<	<	<	<	>>>>	<		<<<<				

*) This laboratory report a too high limit of quantification. Due the fact that the samples 1, 2 and 4 were excluded from the evaluation the lab passed the test.

The following mean element concentrations were found in the test samples and the percentage of the laboratory results out of the tolerable limits are given in table 9.

Table 9: Mean element concentrations and percentage of non-tolerable results (results evaluated with the tolerable limits for low concentrations are marked in blue; not evaluated samples with very low concentrations are marked in grey)

Element	Unit	Sample 1 *Spruce needles*	Sample 2 *Spruce needles*	Sample 3 *Spruce needles*	Sample 4 *Pine needles*
N	mg/g	13.90	14.20	12.27	17.17
	%	5.26	5.26	5.26	2.63
S	mg/g	0.92	0.94	0.91	1.12
	%	8.11	8.11	5.41	8.11
P	mg/g	0.99	2.01	1.42	1.93
	%	14.63	19.51	14.63	13.00
Ca	mg/g	3.68	5.83	4.15	2.70
	%	9.52	16.67	7.14	11.90
Mg	mg/g	0.91	1.07	0.83	0.94
	%	9.52	14.29	11.90	16.67
K	mg/g	6.69	7.28	5.44	5.82
	%	14.29	16.67	19.05	16.67
C	g/100g	52.00	51.98	52.22	52.13
	%	5.88	8.83	8.83	8.83
Zn	µg/g	23.58	32.70	131.96	41.72
	%	12.12	15.15	9.09	12.12
Mn	µg/g	1483.5	359.3	671.6	183.1
	%	8.82	5.88	8.82	11.76
Fe	µg/g	80.55	73.73	91.00	36.86
	%	9.38	12.5	12.5	18.75
Cu	µg/g	3.26	3.16	4.00	3.03
	%	18.18	21.21	6.06	15.15
Pb	µg/g	*0.18*	*0.08*	27.06	*0.17*
	%	-	-	7.69	-
Cd	ng/g	73.71	28.14	249.09	75.42
	%	4.17	0.00	0.00	4.17
B	µg/g	22.56	12.06	16.27	5.09
	%	11.11	11.11	11.11	22.22

The lead concentrations of sample 1, 2 and 4 were too low for the evaluation.

3.3 Comparison between the 19th Interlaboratory Comparison Test and former tests

Sample 4 of the 19th and sample 1 of the 7th Interlaboratory Comparison Tests are identical (*Pine needles* - Finland). For most of the elements the mean values are identical (see Table 10). The results are good comparable and the sample is stable. Only the results of Cu, Cd and B seemed a little bit lower than in the 7th test, this could be explained with better avoiding contamination effects nowadays.

Table 10: Comparison between the 7th and 19th Interlaboratory Comparison Test

Element (Unit)	7th Interlaboratory Comparison Test 2004/05 (Sample 1) Mean	*Number of Labs*	19th Interlaboratory Comparison Test 2016/17 (Sample 4) Mean	*Number of Labs*
N mg/g	17.01	*39*	17.17	*38*
S mg/g	1.09	*39*	1.12	*37*
P mg/g	1.89	*41*	1.93	*41*
Ca mg/g	2.63	*41*	2.70	*42*
Mg mg/g	0.92	*41*	0.94	*42*
K mg/g	5.83	*42*	5.82	*42*
C g/100g	51.61	*29*	52.13	34
Zn µg/g	41.73	*36*	41.72	*33*
Mn µg/g	183.6	*35*	183.1	*34*
Fe µg/g	36.81	*34*	36.86	*32*
Cu µg/g	3.13	*31*	3.03	*33*
Pb µg/g	0.21	*15*	0.17	*26*
Cd ng/g	78.63	*20*	75.42	*24*
B µg/g	5.98	*21*	5.09	*18*

The ringtest is evaluated on the basis of fixed limits (table 3 and 4). These tolerable deviations from the mean were updated in Foliage Expert Panel Meetings in Bonn (1999), Prague (2003), and Madrid (2007) and in the 1st Meeting of the Heads of the Laboratories in Hamburg (2009) for some elements. Maximum acceptable limit of quantification (table 5) defined in the 3rd Meeting of the Heads of the Laboratories in Arcachon (2011) are used from the 14th to 19th ringtest. The changes of the tolerable results from the 6th to the 19th test are shown in tables 11a and 11b.

Table 11a: Percentage of non tolerable results from 6th to 12th test

Element	Tolerable limits [1]	6th Labtest 2003/2004		7th Labtest 2004/2005		8th Labtest 2005/2006		9th Labtest 2006/2007		10th Labtest 2007/2008		11th Labtest 2008/2009 [1]		12th Labtest 2009/2010 [1]	
	normal (low) (± %)	Non tolerable (%)	Number	Non tolerable (%)	Number	Non tolerable (%)	Number	Non tolerable (%)	Number of mean values	Non tolerable (%)	Number	Non tolerable (%)	Number	Non tolerable (%)	Number
N	10 (15)	**3,0**	*164*	**3,2**	*156*	**7,3**	*192*	**6,1**	*196*	**2,6**	*196*	**10,9**	*192*	**7,6**	*212*
S	15 (20)	**11,3**	*159*	**10,3**	*156*	**10,6**	*188*	**8,3**	*196*	**15,4**	*188*	**14,4**	*188*	**16,5**	*200*
P	10 (15)	**17,3**	*168*	**7,9**	*164*	**9,7**	*196*	**4,3**	*208*	**13,2**	*204*	**14,2**	*204*	**13,7**	*212*
Ca	10 (15)	**6,5**	*168*	**11,0**	*164*	**10,2**	*196*	**4,3**	*208*	**17,2**	*204*	**19,1**	*204*	**9,7**	*216*
Mg	10 (15)	**6,5**	*168*	**10,4**	*164*	**5,9**	*188*	**4,3**	*208*	**10,8**	*204*	**18,6**	*204*	**14,4**	*216*
K	10 (15)	**7,7**	*168*	**4,8**	*168*	**5,6**	*196*	**3,3**	*212*	**16,8**	*208*	**17,5**	*200*	**6,0**	*216*
C	5	**15,6**	*128*	**7,8**	*116*	**4,3**	*140*	**11,1**	*144*	**3,2**	*156*	**16,9**	*148*	**8,5**	*188*
Zn	15 (20)	**11,5**	*148*	**14,0**	*143*	**4,5**	*156*	**8,9**	*168*	**10,2**	*176*	**6,7**	*164*	**6,4**	*172*
Mn	15 (20)	**9,9**	*152*	**8,4**	*143*	**7,0**	*172*	**0,0**	*176*	**2,8**	*180*	**6,5**	*168*	**2,7**	*176*
Fe	20 (30)	**8,8**	*148*	**10,3**	*136*	**7,1**	*168*	**9,9**	*172*	**5,7**	*176*	**13,1**	*160*	**4,8**	*168*
Cu	20	**9,9**	*131*	**14,3**	*126*	**8,9**	*146*	**10,8**	*148*	**4,9**	*164*	**17,1**	*164*	**21,3**	*160*
Pb	30 (40)	**27,8**	*90*	**38,0**	*79*	**34,7**	*72*	**24,0**	*104*	**13,0**	*100*	**9,8**	*92*	**13,3**	*120*
Cd	30	**12,0**	*83*	**11,1**	*81*	**10,3**	*97*	**7,1**	*112*	**17,0**	*100*	**7,7**	*104*	**10,7**	*112*
B	20 (30)	**23,8**	*84*	**21,1**	*90*	**12,8**	*86*	**8,3**	*84*	**13,5**	*96*	**12,5**	*88*	**5,4**	*92*

[1] special tolerable limits for low concentrations in the 11th and 12th test

Table 11b: Percentage of non tolerable results from the 13th to the 19th test

Element	Tolerable limits [1]	13th Labtest 2010/2011		14th Labtest 2011/2012		15th Labtest 2012/2013		16th Labtest 2013/2014		17th Labtest 2014/2015		18th Labtest 2015/2016		19th Labtest 2016/2017	
	normal (low) (± %)	Non tolerable (%)	Number	Non tolerable (%)	Number	Non tolerable (%)	Number	Non tolerable (%)	Number of mean values	Non tolerable (%)	Number of mean values	Non tolerable (%)	Number of mean values	Non tolerable (%)	Number of mean values
N	10 (15)	**4,9**	*224*	**8,9**	*224*	**6,0**	*216*	**3,1**	*196*	**2,1**	*192*	**7,9**	*164*	**4,6**	*152*
S	15 (20)	**13,9**	*208*	**12,7**	*220*	**13,9**	*208*	**14,8**	*196*	**9,9**	*192*	**6,4**	*156*	**7,4**	*148*
P	10 (15)	**7,4**	*216*	**15,9**	*220*	**9,4**	*224*	**18,8**	*208*	**14,7**	*204*	**15,5**	*168*	**15,4**	*164*
Ca	10 (15)	**8,0**	*212*	**14,7**	*224*	**12,1**	*224*	**16,3**	*208*	**17,7**	*212*	**9,1**	*176*	**11,3**	*168*
Mg	10 (15)	**5,7**	*212*	**19,3**	*228*	**5,9**	*220*	**8,8**	*204*	**12,3**	*212*	**14,2**	*176*	**13,1**	*168*
K	10 (15)	**8,5**	*212*	**21,0**	*228*	**18,0**	*228*	**9,1**	*208*	**11,5**	*208*	**15,6**	*180*	**16,7**	*168*
C	5	**6,3**	*192*	**15,4**	*208*	**7,7**	*196*	**10,0**	*180*	**7,8**	*180*	**9,5**	*148*	**8,1**	*136*
Zn	15 (20)	**9,7**	*176*	**4,4**	*184*	**5,4**	*184*	**5,6**	*180*	**8,1**	*172*	**13,5**	*148*	**12,1**	*132*
Mn	15 (20)	**4,8**	*188*	**6,8**	*192*	**0,5**	*188*	**8,7**	*184*	**3,9**	*180*	**6,1**	*148*	**8,8**	*136*
Fe	20 (30)	**0,0**	*180*	**14,1**	*184*	**3,7**	*188*	**9,4**	*180*	**6,5**	*168*	**12,2**	*148*	**13,3**	*128*
Cu	20	**9,1**	*176*	**10,3**	*184*	**9,1**	*176*	**14,5**	*172*	**15,7**	*172*	**4,2**	*144*	**15,2**	*132*
Pb	30 (40)	**12,5**	*112*	**15,6**	*128*	**8,6**	*105* [2]	**10,7**	*56* [2]	**7,8**	*87* [2]	**16,0**	*75* [2]	**7,7**	*24* [2]
Cd	30	**9,5**	*116*	**10,0**	*140*	**7,1**	*140*	**4,8**	*62* [2]	**14,3**	*112*	**8,0**	*112*	**2,1**	*96*
B	20 (30)	**3,3**	*92*	**12,0**	*100*	**5,0**	*100*	**6,3**	*96*	**5,0**	*100*	**11,9**	*84*	**13,9**	*72*

[1] special tolerable limits for low concentrations [2] sample/s excluded because of very low concentration

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3.4 Evaluation by element

3.4.1 Nitrogen

Only 4.6 % of non-tolerable results this is a good result. Only the *ICP-Forests laboratory* F18 failed with three samples and has to re-qualify.

3.4.2 Sulphur

The laboratories A59 and A86 fail in analyzing all four samples. In comparison with the last Interlaboratory Comparison Tests the percentage of non-tolerable results is similar (9.9 → 6.4 → 7.4 %). Laboratory A59 uses a non-recommended open digestion method - the determined sulphur content is too high. Contamination could be an explanation for the too high sulphur content. Laboratory A86 uses an element analyzer – the determined sulphur content is too high. The reason for this could be a calibration error (e.g. wrong standard concentration or standard not dried enough).

3.4.3 Phosphorus

In comparison with the last Interlaboratory Comparison Tests the percentage of non-tolerable results is constant but still high (14.7 → 15.5 → 15.4 %). The laboratories A59, A60, A88 and F09 fail in analyzing three or all four samples. A re-qualification is needed for the *ICP-Forests laboratory* A60.
Laboratory A59 uses a non-recommended open digestion method - the determined phosphorous content is too high. Contamination could be an explanation for the too high phosphorous content.
The phosphor results of laboratory A88 shows a huge variation (methodical problem) – one sample result is too low two sample results are too high and one sample result is inside the tolerable limits but shows a high Vi (11.23%).
Laboratory F09 uses an X-ray method. The results are constantly too high (112-120%); this could be a calibration problem.

3.4.4 Calcium

In comparison with the last Interlaboratory Comparison Test the percentage of non-tolerable results is similar and better than before (17.7 → 9.1 → 11.3 %). The laboratories A59, A62 and A88 fail in analyzing three or all four samples.
Laboratory A59 uses a non-recommended open digestion method - the determined calcium content is too high. Contamination could be an explanation for the too high calcium content.
A re-qualification is needed for the *ICP-Forests laboratory* A62. This laboratory fails in the last test too. It seems to be a methodical problem (Flame-AAS). Matrix adapted standards and a buffer against chemical interferences must be added (La-nitrate or ETDA) to avoid chemical interferences if a C_2H_2/air flame is used.
The calcium results of laboratory A88 shows a huge variation (methodical problem) – one sample result is too low two sample results are too high.

3.4.5 Magnesium

In comparison with the last tests the percentage of non-tolerable results is similarly high (12.3 → 14.2 → 13.1 %). The laboratories A43, A59, A62, A79 and F06 fail with three of the four samples.
Laboratory A43 uses an open digestion method with HNO3/HClO4 and a flame-AAS determination. Matrix adapted standards (with the same HClO4 concentration) must be used to avoid chemical interferences.
Laboratory A59 uses a non-recommended open digestion method - the determined magnesium content is too high. Contamination could be an explanation for the too high magnesium content.
Laboratory A79 fails in the last test too. The magnesium content is in all samples constant to low (appr. 85 %), this could be a calibration problem with ICP-MS method.
A re-qualification is needed for the *ICP-Forests laboratories* A62 and F06.

3.4.6 Potassium

In comparison with the last tests the percentage of non-tolerable results is higher (11.5 → 15.6 → 16.7%). The laboratories A39, A43, A59, A62, A82, A88 and F04 fail in analyzing three or all four samples.
A re-qualification is needed for the *ICP-Forests laboratory* A62. Laboratory A62 fails also in the last test for potassium.

3.4.7 Carbon

The percentage of non tolerable results is similar to the last Interlaboratory Comparison Tests (7.8 → 9.5 → 8.1 %). The laboratories A59 and F33 fail in analyzing all four samples. It seems that these laboratories have calibration problems with their element-analyzers. Laboratory A59 failed already in the last test for carbon. A re-qualification is needed for the *ICP-Forests laboratory* F33.

3.4.8 Zinc

12.1 % of the results are non-tolerable – the result is similar compared with the last test (8.1 → 13.5 → 12.1 %). Four laboratories A59, A79, A80 and A88 fail in analyzing three or all four samples. It seems that the laboratories A59 and A88 have a contamination or a calibration problem with ICP-AES – the results are too high. The laboratories A79 and A80 use an ICP-MS method; a calibration error could be the reason for the wrong results. Laboratory A80 fails in the last test for zinc too.

3.4.9 Manganese

8.8 % of the results are non-tolerable. This is not bad but it has to be taken into account that only high concentrations in the samples (> 100 µg Mn/g) were tested. The laboratories A59, A60 and A79 fail with three or all four samples. A calibration error or a contamination seems to be possible cause for this. A re-qualification is needed for the *ICP-Forests laboratory* A60.

3.4.10 Iron

In comparison with the last tests the percentage of non-tolerable results is higher (6.5 → 12.2 → 13.3 %). The laboratories A59, A82 and F33 fail with all four samples. The cause for a too high content could be a contamination or a calibration error. The cause for a too low content could be a too short digestion time and/or a too low digestion temperature.
A re-qualification is needed for the *ICP-Forests laboratory F33*. Laboratory F33 failed in the last tests for iron, too.

3.4.11 Copper

15.2 % of the results are non-tolerable – this is higher than in the last test, but the copper concentrations in these test samples are low. The laboratories A39, A59 and A79 fail with three or all four samples.
Some laboratories (A59, A88, F07, F15, and F27) have a higher variation (Vi) in their copper results. Contamination effects or a methodical problem could be a reason for that. Laboratory F27 is using Flame-AAS as determination method; this method is not sensitive enough and the results show therefore a higher variation (Vi > 10%).

3.4.12 Lead

For passing this Interlaboratory Test only the result of sample 3 must be within the tolerable limits. The background samples 1, 2 and 4 (< 0.2 µg/g) are excluded from the evaluation.
In comparison with the last tests the percentage of non-tolerable results is lower (16.0 → 7.7 %), but this is influenced by the high lead concentration of sample 3. The laboratories A88 and F27 fail with this sample.
Laboratory A49 has a too high LOQ (<3 µg/g), because the ICP-AES method (without ultrasonic nebulizer) is not sensitive enough to detect concentrations below 0.50 µg/g (=maximum accepted LOQ).

3.4.13 Cadmium

In comparison with the last tests the percentage of non-tolerable results is lower (14.3 → 8.0 → 2.1%); this is an excellent result! No laboratory fails with three or four samples. The laboratory F15 shows a high variation in sample 3 (212-282 ng/g) and 4 (<20-143 ng/g). ICP-AES method (without ultrasonic nebulizer) is not sensitive enough to detect lower cadmium concentrations.

3.4.14 Boron

In comparison with the last test the percentage of non-tolerable results is higher (5.0 → 11.9 → 13.9 %). The laboratories A59 and A60 fail with all four samples. Laboratory F18 has a too high LOQ (<5 µg/g) - the maximum acceptable LOQ is 1 µg/g.

4 CONCLUSIONS

45 laboratories in 22 countries participated in the 19th Needle/Leaf Interlaboratory Test, but only 44 laboratories submitted their results in time.

A new system for qualification and re-qualification started with the 11th test in 2009. This system was enlarged after the manual update in 2010 to all ICP-Forests partners (see König et al. 2010 and 2013, Rautio et al. 2010 and 2013 Pitman et al. 2010). With the ring test report, each participant receives a qualification report which can be download from the webpage (https://bfw.ac.at/ws/ring_nadel.login). It has been decided to qualify the results of each parameter separately. A laboratory is qualified when 50% or more (generally two, three or all four samples) of the results for this parameter for all the samples of the ring test are within the tolerable limits. Re-qualification is mandatory for all *ICP-Forests laboratories* if monitoring results (foliage, litterfall, ground vegetation) from the vegetation period 2016 will be submitted to PCC in autumn 2017.

The usage of maximum acceptable limits of quantification (LOQ) has been included since the 14th Interlaboratory Test. These limits are needed, because many laboratories are using multi element methods (mostly ICP-AES) with higher LOQs for some elements. But for evaluation and classification of the monitoring samples *real* measured results and lower LOQ are needed. The Working Group QA/QC in Laboratories received a task to fix this problem from the Expert Panel Foliage and Litterfall (12th Meeting - Tallinn 2011). Maximum acceptable LOQs for mandatory and optional parameters for foliage, litterfall and ground vegetation were discussed and accepted in the 3rd Meeting of the Heads of the Laboratories (Arcachon 2011). This problem is more or less fixed now – only two laboratories submit LOQs higher than the maximum acceptable LOQs (**A49** for Pb and **F18** for B).

In case of very low concentrations of copper, cadmium and lead in the interlaboratory comparison test samples, results of these samples will be excluded from the evaluation (this happened for the lead results of the samples 1, 2 and 4). This procedure is needed to avoid wrong qualification results influenced by inaccurate measurements. And on the other hand there is no real need to detect these very low concentrations in real monitoring samples, because it gives no additional information of the nutrient status or of the pollution impact situation.

Overall, the results of the 19th Needle/Leaf Interlaboratory Test are comparable to previous tests.

The following participating laboratories with a percentage of correct results below 80% have severe QC/QA-problems and/or methodical problems:

A60 (77.4%), **A43** (75.0%), **F04** (75.0%), **A39** (73.6%), **F33** (67.3%), **A86** (66.7%), **A79** (60.0%), **A62** (57.1%), **A88** (51.4%) and **A59** (4.2%)

Laboratory **A86** (66.7%) has only special interest in analyzing sulphur, nitrogen and carbon and analyze not all mandatory/optional elements. This lab fails with all samples for sulphur. This fact was the reason for the “low percentage of correct results”.

Some of the *ICP-Forests laboratories* fail and have to do a re-qualification for certain parameters (**A60:** P and Mn; **A62**: Ca, Mg and K; **F06**: Mg; **F18**: N, **F33**: C and Fe). These (*ICP-Forests*) laboratories have to check and re-validate their method or employ a better method. FFCC offers old ringtest material if reference material is needed for this purpose (see: http://bfw.ac.at/rz/bfwcms2.web?dok=5146).

The laboratories **A59** (C), **A62** (Ca, Mg), **A79** (Mg), **A80** (Zn) and **F33** (Fe) failed with the same parameter in the last test. Therefore, their QC/QA-problem has not been solved!

All laboratories are invited to take part in the re-qualification program that starts up from now till 1st of September 2017 (see: http://bfw.ac.at/rz/bfwcms2.web?dok=7830).

Some words to the used analytical equipment. Microwave digestion method is being used more and more common.
A clear recommendation for ICP-AES as determination method can be given. Where ICP-AES is not sensitive enough, ICP-AES with ultrasonic nebulizer or better ICP-MS should be used. For nitrogen and carbon, element analyzers are the best choice.

5 OUTLOOK

More and more laboratories changed their method during the last years to microwave digestion and ICP-MS, so they are now able to determine heavy metals in one run simultaneously with the mandatory and optional elements with a sufficient accuracy. Mercury can be detected easily with a good accuracy with a special element analyzer or by AAS cold vapour technique. Heavy metals are an important air pollution indicator also with special interest within ICP-FORESTS.

The following additional elements will be evaluated according DIN 38402: As, Cr, Co, Hg, Mo, Ni, Tl and V. This “heavy metals” report will be available in February 2017 (see: http://bfw.ac.at/rz/bfwcms2.web?dok=7008224). It is further planned to set up tolerable limits and maximum accepted LOQs for some of these parameters and add them to the ICP-Forests monitoring parameters for foliage and litterfall samples. These steps will be discussed at the next ICP-Forests Expert Panel Meeting Foliage/Litterfall in Zagreb/Croatia end of March 2017 and at the next meeting of the Heads of the Laboratories in autumn 2017 in Pallanza/Italy (see: http://icp-forests.net/).

A special evaluation for aluminium and sodium is not planned at the moment. The results of aluminium scatter a lot, because most of the laboratories are not using HF for total digestion. The detected content depends on the digestion method (time, temperature, acid mixtures) and the sample matrix. Therefore, currently the results are not comparable. For sodium concentrations lower than 50µg/g the contamination effects are too high to evaluate the results in a proper way. For both elements improvements in the sample preparation and harmonisations in the digestion/determination methods are needed before they can be evaluated in the interlaboratory comparison test, too.

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Method Code – Pretreatment (P)

Extraction methods	
PA06	Extraction with diluted HNO_3
PA99	Other extraction method
Digestion methods (open system)	
PB02	Open digestion with H_2SO_4/H_2O_2
PB03	Open digestion with HNO_3
PB04	Open digestion with HNO_3 /H_2SO_4
PB05	Open digestion with HNO_3/H_2O_2
PB06	Open digestion with $HNO_3/HClO_4$
PB07	Kjeldahl H_2SO_4 with Se or Cu catalyst
PB08	Modified Kjeldahl H_2SO_4 with Ti/Cu catalyst
PB99	Other digestion method (open system)
Pressure digestion methods	
PC01	Pressure digestion HNO_3
PC02	Pressure digestion HNO_3/H_2O_2
PC03	Pressure digestion HNO_3/HF (total digestion)
PC99	Other pressure digestion method
Microwave pressure digestion methods	
PD01	Microwave pressure digestion HNO_3
PD02	Microwave pressure digestion HNO_3/H_2O_2
PD03	Microwave pressure digestion HNO_3/H_2O_2/HCl
PD04	Microwave digestion $HNO_3/HClO_4$
PD05	Microwave pressure digestion HNO_3/HF (total digestion)
PD99	Other microwave pressure digestion method
Dry ashing digestion methods	
PE01	Oxygen ashing (Schöniger)
PE99	Other dry ashing method
Other methods	
PZ01	Material melted and formed (tablet) for XRF methods
PZ02	Material pressed (pellet) for XRF methods
PZ98	No pretreatment
PZ99	Pretreatment method not in this list

Method Code – Determination (D)

Element analyzer	
DA01	Macro Elemental-analyzers for C, N or S for solids (Sample > 100mg)
DA02	Micro Elemental-analyzers for C, N or S for solids (Sample ≤ 100mg) with an extra milling step
DA05	Hg-Analyzer
DA99	Other Element analyzers method
Atomic Absorption or Emission Spectroscopy	
DB01	AAS-flame technique (C_2H_2/Air)
DB02	AAS-flame technique (C_2H_2/N_2O)
DB03	AAS-cold vapor technique
DB04	AAS-hydride technique
DB05	AAS-flameless (electrothermal technique)
DB06	AES-Flame technique (Flame photometry)
DB07	AFS-hydride-technique
DB08	ICP-AES without Ultrasonic nebulisation
DB09	ICP-AES with Ultrasonic nebulisation
DB10	ICP-MS
DB99	Other Atomic Absorption or Emission Spectroscopy method
Physical techniques	
DD01	X-ray-energy dispersive
DD02	X-ray-wavelength dispersive
DD99	Other physical technique
UV-VIS Spectrophotometry techniques	
DE01	UV-VIS-spectrophotometry-techniques
DE03	Continous flow UV-VIS-spectrophotometry-techniques
DE05	Flow injection UV-VIS-spectrophotometry-techniques
DE99	Other UV-VIS Spectrophotometry technique
Electrochemical methods	
DF03	Ion selective electrodes (except pH-Electrodes)
DF08	Other Potentiometric titration
DF99	Other Electrochemical method
Other methods	
DZ02	N-Determination (after Kjeldahl digestion)
DZ99	Detection method not in this list

List of abbreviation

No.	Number of result ordered by Lab. mean
Lab. Code	Code of the laboratory / Laboratory which are analysing level II samples are marked with x
P	Code for pre-treatment method (s. method code pre-treatment)
D	Code for determination method (s. method code determination)
Lab. mean	Mean of the results of each laboratory without outliers type 1
n	Number of all results from this laboratories without outliers type 1, 2, 3
N	Number of all results from all laboratories without outliers type 1, 2, 3
L	Number of all laboratories without outliers type 2, 3
Mean	Total mean value from all results without outliers type 1, 2, 3
Si	Standard deviation from each laboratory without outliers type 1
SI	Mean Standard deviation for all laboratories without outliers type 1, 2, 3
Vi	Si*100/Lab. mean
VI	SI*100/Mean
SR	Standard deviation from all results without outliers
VR	SR*100/Mean
Recovery %	Lab.mean * 100/Mean
a	Outlier type 1
b	Outlier type 2
c	Outlier type 3
*	Not tolerable mean value from one laboratory (see tables 3 & 4)
**	Higher than maximum acceptable limit of quantification (see table 5)

Annex - Results

Mandatory parameters (N, S, P, Ca, Mg, K, C)

Optional parameters (Zn, Mn, Fe, Cu, Pb, Cd, B)

Additional parameters

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: N **Sample: 1** Unit: mg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean			Lab.standard dev. Si	Vi	Recovery %
1	A59	PZ98	DA02	12,70	12,40	13,00	12,70	4	12,70			0,24	1,93	91,34
2	A91	PB02	DE01	12,72	13,00	13,81	12,84	4	13,09			0,49	3,76	94,16
3	A57	PZ98	DA01	12,93	13,46	13,97	12,91	4	13,32			0,50	3,79	95,78
4	F21x	PZ98	DA02	13,41	13,27	13,29	13,35	4	13,33			0,06	0,47	95,87
5	A36	PB07	DZ02	13,36	13,25	13,57	13,46	4	13,41			0,14	1,02	96,45
6	F01x	PB07	DZ02	13,58	13,49	13,43	13,48	4	13,49			0,06	0,46	97,05
7	F06x	PZ98	DA02	13,49	13,17	13,52	13,80	4	13,50			0,26	1,91	97,06
8	F07x	PZ98	DA01	13,08	13,59	13,53	13,97	4	13,54			0,36	2,69	97,40
9	F16x	PZ98	DA02	13,82	14,01	13,11	13,43	4	13,59			0,40	2,96	97,76
10	A45x	PZ98	DA01	13,70	13,70	13,60	13,50	4	13,63			0,10	0,70	97,99
11	A60x	PZ98	DA02	13,77	13,49	13,65	13,68	4	13,65			0,12	0,86	98,14
12	F05x	PZ98	DA01	13,77	13,71	13,72	13,77	4	13,74			0,03	0,23	98,84
13	F25	PZ98	DA01	13,75	13,68	13,73	13,91	4	13,77			0,10	0,72	99,02
14	F15x	PZ98	DA01	13,92	13,29	13,89	14,02	4	13,78			0,33	2,40	99,11
15	F04	PB07	DZ02	13,79	13,75	13,58	14,02	4	13,79			0,18	1,31	99,14
16	F03	PB07	DZ02	13,75	13,72	13,90	13,80	4	13,79			0,08	0,57	99,20
17	A56	PZ98	DA02	14,18	13,62	13,57	13,80	4	13,79			0,28	2,01	99,20
18	A55	PZ98	DA01	14,20	14,00	13,40	13,90	4	13,88			0,34	2,45	99,79
19	A49	PZ99	DA02	13,76	13,83	13,94	14,00	4	13,88			0,11	0,78	99,84
20	A61x	PZ98	DA02	13,84	13,73	13,86	14,11	4	13,89			0,16	1,16	99,86
21	A65	PZ98	DA02	14,10	14,20	13,60	13,70	4	13,90			0,29	2,12	99,97
22	A62x	PZ98	DA01	14,10	13,80	13,90	13,80	4	13,90			0,14	1,02	99,97
23	F24x	PB08	DZ02	13,76	13,83	13,88	14,28	4	13,94			0,23	1,68	100,24
24	A82	PZ98	DA02	14,10	14,20	14,20	13,80	4	14,08			0,19	1,34	101,23
25	A39	PZ98	DA02	14,44	14,00	14,28	13,87	4	14,15			0,26	1,83	101,75
26	F27	PZ98	DA01	14,11	13,94	14,25	14,38	4	14,17			0,19	1,33	101,91
27	F14x	PZ98	DA01	14,55	14,22	13,97	14,15	4	14,22			0,24	1,70	102,29
28	F13x	PZ98	DA01	14,40	14,20	14,22	14,24	4	14,27			0,09	0,64	102,59
29	F02x	PZ98	DA01	14,30	14,13	14,31	14,37	4	14,28			0,10	0,72	102,68
30	F08	PZ98	DA01	14,20	14,90	14,20	14,30	4	14,40			0,34	2,34	103,57
31	A43	PB08	DZ02	14,51	14,36	14,36	14,66	4	14,47			0,14	0,99	104,09
32	F32x	PZ98	DA01	14,50	14,60	14,40	14,40	4	14,48			0,10	0,66	104,10
33	A86	PZ98	DA01	14,49	14,45	14,52	14,48	4	14,49			0,03	0,20	104,18
34	F19x	PZ98	DA01	14,80	14,70	14,30	14,60	4	14,60			0,22	1,48	105,00
35	F26	PB07	DZ02	14,67	14,70	14,67	14,67	4	14,68			0,01	0,10	105,56
36	F12x	PZ98	DA02	15,00	15,29	15,02	14,69	4	15,00			0,25	1,64	107,88
37	F33x	PZ98	DA99	15,72	15,72	15,92	15,32	0	15,67	*b*	*	0,25	1,61	112,70
38	F18x	PB07	DZ02	15,70	16,00	15,90	16,10	0	15,93	*b*	*	0,17	1,07	114,53
39														
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	N	Mean	SI	VI
all labs	144	**13,90**	**0,199**	**1,433**
10	% from the mean			
	L		SR	VR
	36		**0,475**	**3,413**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: N **Sample: 2** Unit: mg/g

No.	Lab.	Method code		Replications				n	Lab.mean			Lab.standard dev.		Recovery
	Code	P	D	1	2	3	4					Si	Vi	%
1	A55	PZ98	DA01	12,00	12,60	11,50	11,80	0	11,98	*b*	*	0,46	3,88	84,32
2	A59	PZ98	DA02	12,90	12,80	12,70	12,80	0	12,80	*b*		0,08	0,64	90,13
3	F21x	PZ98	DA02	13,48	13,77	13,09	13,46	4	13,45			0,28	2,07	94,70
4	A91	PB02	DE01	13,44	13,44	13,62	13,60	4	13,53			0,10	0,73	95,23
5	A45x	PZ98	DA01	13,80	13,70	13,80	13,70	4	13,75			0,06	0,42	96,82
6	F06x	PZ98	DA02	13,56	13,75	13,77	13,93	4	13,75			0,15	1,10	96,83
7	F07x	PZ98	DA01	13,78	13,82	13,48	14,19	4	13,82			0,29	2,11	97,29
8	A36	PB07	DZ02	13,72	14,14	13,62	13,83	4	13,83			0,23	1,63	97,36
9	A57	PZ98	DA01	14,33	13,28	13,63	14,26	4	13,88			0,51	3,65	97,70
10	A65	PZ98	DA02	14,30	13,50	13,60	14,10	4	13,88			0,39	2,78	97,70
11	A43	PB08	DZ02	13,95	14,10	13,95	13,95	4	13,99			0,08	0,54	98,49
12	F25	PZ98	DA01	14,11	13,93	14,01	13,93	4	14,00			0,09	0,61	98,54
13	A61x	PZ98	DA02	14,02	13,76	14,17	14,05	4	14,00			0,17	1,23	98,58
14	F04	PB07	DZ02	14,08	14,25	13,81	13,92	4	14,02			0,19	1,37	98,68
15	F16x	PZ98	DA02	14,26	14,32	13,68	13,84	4	14,03			0,31	2,24	98,75
16	F15x	PZ98	DA01	14,10	14,12	14,06	13,98	4	14,07			0,06	0,44	99,04
17	F01x	PB07	DZ02	14,13	14,07	14,01	14,07	4	14,07			0,05	0,34	99,08
18	A60x	PZ98	DA02	13,91	13,96	14,04	14,41	4	14,08			0,23	1,61	99,13
19	A62x	PZ98	DA01	14,30	14,10	14,00	14,00	4	14,10			0,14	1,00	99,28
20	A49	PZ99	DA02	14,22	14,12	14,20	13,88	4	14,11			0,16	1,11	99,32
21	F03	PB07	DZ02	14,17	14,16	14,16	14,16	4	14,16			0,00	0,04	99,72
22	F05x	PZ98	DA01	14,20	14,19	14,18	14,16	4	14,18			0,02	0,12	99,86
23	A56	PZ98	DA02	14,29	14,10	14,13	14,27	4	14,20			0,10	0,68	99,97
24	A39	PZ98	DA02	14,18	14,42	14,12	14,19	4	14,23			0,13	0,93	100,18
25	F14x	PZ98	DA01	14,37	14,38	14,48	14,26	4	14,37			0,09	0,63	101,20
26	F27	PZ98	DA01	14,42	14,21	14,38	14,51	4	14,38			0,13	0,87	101,25
27	F24x	PB08	DZ02	14,26	14,29	14,29	14,79	4	14,41			0,26	1,77	101,45
28	F02x	PZ98	DA01	14,49	14,41	14,53	14,52	4	14,49			0,05	0,38	102,01
29	A82	PZ98	DA02	14,70	14,70	14,20	14,40	4	14,50			0,24	1,69	102,10
30	F13x	PZ98	DA01	14,51	14,48	14,51	14,58	4	14,52			0,04	0,29	102,24
31	F08	PZ98	DA01	14,80	14,50	14,70	14,40	4	14,60			0,18	1,25	102,80
32	F26	PB07	DZ02	14,67	14,67	14,70	14,71	4	14,69			0,02	0,14	103,42
33	F32x	PZ98	DA01	14,80	14,80	14,70	14,60	4	14,73			0,10	0,65	103,68
34	F19x	PZ98	DA01	14,70	14,60	14,80	14,80	4	14,73			0,10	0,65	103,68
35	A86	PZ98	DA01	14,81	14,83	14,82	14,83	4	14,82			0,01	0,06	104,37
36	F33x	PZ98	DA99	14,79	14,79	14,90	15,01	4	14,87			0,11	0,71	104,72
37	F12x	PZ98	DA02	14,65	15,14	15,24	14,51	4	14,89			0,36	2,41	104,81
38	F18x	PB07	DZ02	15,60	15,60	15,70	15,70	0	15,65	*b*	*	0,06	0,37	110,20
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	N	Mean	SI	VI
all labs	140	**14,20**	**0,154**	**1,086**
10	% from the mean			
	L		SR	VR
	35		**0,376**	**2,651**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: N **Sample: 3** Unit: mg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean		Lab.standard dev. Si	Vi	Recovery %
1	A59	PZ98	DA02	11,10	10,90	10,80	10,90	4	10,93	*	0,13	1,15	89,06
2	A55	PZ98	DA01	11,40	11,60	11,00	11,10	4	11,28		0,28	2,44	91,91
3	A91	PB02	DE01	11,22	11,31	11,55	11,57	4	11,41		0,17	1,53	93,04
4	F21x	PZ98	DA02	11,15	11,56	11,46	11,54	4	11,43		0,19	1,66	93,16
5	F06x	PZ98	DA02	11,66	11,79	11,69	11,95	4	11,77		0,13	1,11	95,97
6	A57	PZ98	DA01	11,79	12,11	12,21	11,61	4	11,93		0,28	2,34	97,25
7	F07x	PZ98	DA01	11,90	12,02	11,88	12,07	4	11,97		0,09	0,77	97,56
8	A36	PB07	DZ02	11,99	11,99	11,99	11,99	4	11,99		0,00	0,00	97,74
9	A45x	PZ98	DA01	12,00	12,00	12,00	12,00	4	12,00		0,00	0,00	97,82
10	A61x	PZ98	DA02	11,83	12,13	12,02	12,25	4	12,06		0,18	1,48	98,29
11	A43	PB08	DZ02	11,88	12,20	12,02	12,16	4	12,07		0,15	1,21	98,35
12	A62x	PZ98	DA01	12,20	12,10	12,00	12,00	4	12,08		0,10	0,79	98,44
13	F25	PZ98	DA01	12,02	12,06	12,17	12,17	4	12,11		0,08	0,63	98,68
14	A60x	PZ98	DA02	12,17	12,18	11,98	12,18	4	12,13		0,10	0,81	98,89
15	F16x	PZ98	DA02	11,98	12,07	12,50	12,12	4	12,17		0,23	1,88	99,19
16	A56	PZ98	DA02	12,30	12,19	12,11	12,10	4	12,18		0,09	0,76	99,25
17	A39	PZ98	DA02	12,30	12,37	12,14	12,03	4	12,21		0,15	1,26	99,54
18	F15x	PZ98	DA01	12,14	12,28	12,34	12,21	4	12,24		0,09	0,71	99,80
19	F05x	PZ98	DA01	12,26	12,27	12,24	12,25	4	12,26		0,01	0,11	99,90
20	F03	PB07	DZ02	12,25	12,28	12,35	12,31	4	12,30		0,04	0,35	100,25
21	F24x	PB08	DZ02	12,04	12,12	12,32	12,76	4	12,31		0,32	2,62	100,35
22	A49	PZ99	DA02	12,14	12,21	12,41	12,48	4	12,31		0,16	1,31	100,35
23	A82	PZ98	DA02	12,40	12,20	12,40	12,30	4	12,33		0,10	0,78	100,47
24	A65	PZ98	DA02	13,30	12,00	11,90	12,40	4	12,40		0,64	5,14	101,09
25	F27	PZ98	DA01	12,33	12,36	12,63	12,46	4	12,45		0,14	1,09	101,45
26	F04	PB07	DZ02	12,63	12,51	12,25	12,42	4	12,45		0,16	1,29	101,51
27	F08	PZ98	DA01	12,70	12,40	12,50	12,30	4	12,48		0,17	1,37	101,70
28	F02x	PZ98	DA01	12,54	12,49	12,54	12,40	4	12,49		0,07	0,53	101,84
29	F14x	PZ98	DA01	12,48	12,28	12,78	12,51	4	12,51		0,21	1,64	102,00
30	F26	PB07	DZ02	12,58	12,58	12,59	12,60	4	12,59		0,01	0,08	102,61
31	F33x	PZ98	DA99	12,61	12,40	12,72	12,72	4	12,61		0,15	1,20	102,82
32	F13x	PZ98	DA01	12,84	12,78	12,50	12,49	4	12,65		0,18	1,45	103,14
33	F19x	PZ98	DA01	12,70	12,90	12,60	12,70	4	12,73		0,13	0,99	103,73
34	A86	PZ98	DA01	12,73	12,74	12,76	12,75	4	12,75		0,01	0,10	103,90
35	F32x	PZ98	DA01	12,90	12,90	12,80	12,80	4	12,85		0,06	0,45	104,75
36	F01x	PB07	DZ02	12,91	13,15	13,11	12,99	4	13,04		0,11	0,85	106,29
37	F12x	PZ98	DA02	13,12	12,96	13,32	13,11	4	13,13		0,15	1,13	107,02
38	F18x	PB07	DZ02	13,60	13,80	13,40	13,60	4	13,60	*	0,16	1,20	110,87
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	N	Mean	SI	VI
all labs	152	**12,27**	**0,142**	**1,158**
10	% from the mean			
	L		SR	VR
	38		**0,507**	**4,133**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: N **Sample: 4** Unit: mg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean		Lab.standard dev. Si	Vi	Recovery %
1	A59	PZ98	DA02	15,50	15,60	15,20	15,40	4	15,43	*	0,17	1,11	89,84
2	A43	PB08	DZ02	15,63	15,92	15,92	15,92	4	15,85		0,15	0,91	92,30
3	A91	PB02	DE01	16,68	16,17	16,32	16,32	4	16,37		0,22	1,32	95,35
4	A57	PZ98	DA01	17,15	16,02	16,03	16,97	4	16,54		0,60	3,64	96,34
5	F21x	PZ98	DA02	16,65	16,70	16,52	16,56	4	16,61		0,08	0,50	96,72
6	A45x	PZ98	DA01	16,70	16,60	16,70	16,80	4	16,70		0,08	0,49	97,26
7	A60x	PZ98	DA02	16,61	16,60	16,87	16,73	4	16,70		0,12	0,74	97,27
8	F07x	PZ98	DA01	16,33	16,77	16,70	17,03	4	16,71		0,29	1,73	97,31
9	F14x	PZ98	DA01	16,77	16,78	16,72	16,66	4	16,73		0,06	0,33	97,45
10	F06x	PZ98	DA02	16,62	16,42	16,81	17,10	4	16,74		0,29	1,73	97,48
11	A62x	PZ98	DA01	16,90	16,70	16,90	16,60	4	16,78		0,15	0,89	97,70
12	A49	PZ99	DA02	16,70	16,92	16,96	16,71	4	16,82		0,14	0,81	97,98
13	F05x	PZ98	DA01	16,86	16,85	16,80	16,80	4	16,83		0,03	0,19	98,00
14	A36	PB07	DZ02	16,59	16,80	16,91	17,02	4	16,83		0,18	1,09	98,02
15	A56	PZ98	DA02	16,71	16,92	16,68	17,08	4	16,85		0,19	1,12	98,12
16	F04	PB07	DZ02	17,10	17,36	16,82	16,83	4	17,03		0,26	1,51	99,17
17	F01x	PB07	DZ02	16,86	17,14	16,98	17,16	4	17,04		0,14	0,83	99,22
18	F25	PZ98	DA01	17,08	16,99	16,89	17,21	4	17,04		0,14	0,80	99,26
19	A39	PZ98	DA02	17,33	16,98	17,08	16,95	4	17,09		0,17	1,01	99,50
20	A65	PZ98	DA02	17,30	17,40	17,30	16,80	4	17,20		0,27	1,57	100,17
21	A61x	PZ98	DA02	17,15	17,46	17,36	16,92	4	17,22		0,24	1,39	100,31
22	F16x	PZ98	DA02	16,84	17,65	17,02	17,50	4	17,25		0,38	2,23	100,48
23	A55	PZ98	DA01	17,50	17,50	17,90	16,50	4	17,35		0,60	3,44	101,05
24	F15x	PZ98	DA01	17,25	17,44	17,40	17,37	4	17,37		0,08	0,47	101,14
25	F27	PZ98	DA01	17,53	16,97	17,35	17,67	4	17,38		0,30	1,74	101,22
26	F03	PB07	DZ02	17,36	17,45	17,50	17,25	4	17,39		0,11	0,63	101,28
27	F02x	PZ98	DA01	17,54	17,36	17,49	17,40	4	17,45		0,08	0,47	101,62
28	F13x	PZ98	DA01	17,54	17,53	17,47	17,37	4	17,48		0,08	0,45	101,79
29	F26	PB07	DZ02	17,49	17,50	17,47	17,50	4	17,49		0,01	0,08	101,86
30	F08	PZ98	DA01	18,10	17,60	17,50	17,50	4	17,68		0,29	1,63	102,94
31	F24x	PB08	DZ02	17,21	17,66	17,94	18,03	4	17,71		0,37	2,08	103,14
32	F32x	PZ98	DA01	17,90	17,90	18,00	17,90	4	17,93		0,05	0,28	104,40
33	A82	PZ98	DA02	18,10	17,90	17,90	17,90	4	17,95		0,10	0,56	104,54
34	F19x	PZ98	DA01	18,10	18,00	17,90	17,90	4	17,98		0,10	0,53	104,69
35	A86	PZ98	DA01	18,03	18,02	18,08	18,05	4	18,05		0,03	0,15	105,10
36	F18x	PB07	DZ02	18,40	18,10	18,00	18,20	4	18,18		0,17	0,94	105,85
37	F12x	PZ98	DA02	18,04	18,19	18,38	18,17	4	18,20		0,14	0,77	105,97
38	F33x	PZ98	DA99	18,40	18,74	18,51	18,63	4	18,57		0,15	0,79	108,15
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	N	Mean	SI	VI
all labs	152	**17,17**	**0,184**	**1,073**
10	% from the mean			
	L		SR	VR
	38		**0,646**	**3,764**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: S **Sample: 1** Unit: mg/g

No.	Lab.	Method code		Replications				n	Lab.mean			Lab.standard dev.		Recovery
	Code	P	D	1	2	3	4					Si	Vi	%
1	F33x	PD01	DB10	0,71	0,80	0,74	0,80	4	0,76		*	0,05	6,34	83,12
2	F24x	PZ98	DA01	0,78	0,81	0,82	0,89	4	0,83			0,05	5,50	90,19
3	A56	PC01	DB08	0,83	0,81	0,86	0,88	4	0,85			0,03	3,48	92,29
4	F07x	PC01	DB08	0,87	0,85	0,87	0,87	4	0,86			0,01	1,19	94,03
5	F06x	PD02	DB08	0,85	0,86	0,86	0,89	4	0,86			0,02	1,99	94,41
6	A55	PD02	DB08	0,87	0,87	0,88	0,88	4	0,87			0,01	0,67	95,50
7	A39	PD02	DB08	0,89	0,87	0,88	0,86	4	0,88			0,01	1,51	95,64
8	F32x	PD02	DB08	0,89	0,87	0,89	0,87	4	0,88			0,01	1,01	96,08
9	F19x	PD02	DB08	0,87	0,87	0,89	0,90	4	0,88			0,02	1,72	96,11
10	A45x	PB99	DB08	0,88	0,88	0,88	0,89	4	0,88			0,00	0,47	96,16
11	F08	PZ99	DB08	0,87	0,91	0,87	0,90	4	0,89			0,02	2,49	97,15
12	F14x	PC01	DB08	0,90	0,89	0,89	0,89	4	0,89			0,00	0,53	97,17
13	F16x	PC01	DB08	0,92	0,86	0,92	0,87	4	0,89			0,03	3,24	97,64
14	A79	PD03	DB10	0,91	0,90	0,90	0,90	4	0,90			0,01	0,65	98,47
15	A82	PC01	DB08	0,91	0,89	0,91	0,90	4	0,90			0,01	0,89	98,54
16	A61x	PD01	DB08	0,91	0,91	0,92	0,92	4	0,91			0,00	0,52	99,85
17	F13x	PD01	DB08	0,91	0,90	0,93	0,92	4	0,92			0,01	1,41	99,90
18	F18x	PD99	DB08	0,91	0,92	0,92	0,92	4	0,92			0,00	0,51	100,26
19	F04	PD02	DB08	0,89	0,89	0,96	0,95	4	0,92			0,04	4,09	100,72
20	F02x	PZ98	DA01	0,92	0,93	0,94	0,91	4	0,92			0,01	1,21	100,75
21	F12x	PC01	DB08	0,92	0,93	0,93	0,92	4	0,93			0,01	0,66	101,35
22	A62x	PZ98	DA01	0,93	0,89	0,97	0,93	4	0,93			0,03	3,51	101,54
23	A60x	PD01	DB10	0,94	0,91	0,96	0,91	4	0,93			0,02	2,47	101,73
24	A88	PZ98	DA01	0,94	0,94	0,92	0,93	4	0,93			0,01	1,03	101,81
25	F03	PD02	DB08	0,92	0,94	0,94	0,93	4	0,93			0,01	0,92	101,84
26	F15x	PC01	DB08	0,93	0,96	0,95	0,94	4	0,95			0,01	1,37	103,18
27	F25	PB06	DB08	0,95	0,94	0,93	0,96	4	0,95			0,01	1,37	103,18
28	F05x	PZ98	DA01	0,95	0,94	0,95	0,96	4	0,95			0,01	0,70	103,86
29	A65	PD01	DB08	0,95	0,99	0,94	0,94	4	0,96			0,02	2,49	104,27
30	A36	PD02	DB08	1,00	1,00	0,91	0,94	4	0,96			0,04	4,68	105,09
31	A53	PZ02	DD02	0,96	0,97	0,98	0,98	4	0,97			0,01	0,98	106,18
32	F27	PZ98	DA01	1,02	0,95	0,94	1,01	4	0,98			0,04	3,97	106,78
33	A57	PZ98	DD02	1,02	1,03	1,03	0,98	4	1,02			0,02	2,35	110,82
34	A49	PD05	DB08	1,01	1,01	1,02	1,02	4	1,02			0,01	0,57	110,82
35	F09	PZ02	DD02	1,04	1,04	1,04	1,04	4	1,04			0,00	0,00	113,55
36	A59	PB03	DB08	1,14	1,13	1,06	1,11	0	1,11	*b*	*	0,04	3,21	121,19
37	A86	PZ98	DA01	1,28	1,27	1,29	1,29	0	1,28	*b*	*	0,01	0,68	140,08
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	N	Mean	SI	VI
all labs	140	**0,92**	**0,017**	**1,865**
15	% from the mean			
	L		SR	VR
	35		**0,055**	**5,977**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: S **Sample: 2** Unit: mg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean			Lab.standard dev. Si	Vi	Recovery %
1	F33x	PD01	DB10	0,67	0,74	0,76	0,74	0	0,72	*b*	*	0,04	5,54	76,79
2	F24x	PZ98	DA01	0,82	0,84	0,89	0,91	4	0,86			0,04	4,67	91,71
3	F08	PZ99	DB08	0,86	0,90	0,87	0,88	4	0,88			0,02	2,10	92,93
4	A56	PC01	DB08	0,89	0,88	0,88	0,86	4	0,88			0,01	1,65	93,10
5	A55	PD02	DB08	0,89	0,88	0,87	0,89	4	0,88			0,01	0,74	93,78
6	F07x	PC01	DB08	0,88	0,90	0,87	0,89	4	0,88			0,01	1,33	93,89
7	F19x	PD02	DB08	0,90	0,90	0,92	0,89	4	0,90			0,01	1,35	95,51
8	F02x	PZ98	DA01	0,90	0,89	0,91	0,90	4	0,90			0,01	0,85	95,67
9	F04	PD02	DB08	0,88	0,94	0,88	0,93	4	0,91			0,03	3,53	96,38
10	F14x	PC01	DB08	0,92	0,92	0,91	0,91	4	0,91			0,01	0,57	96,97
11	F18x	PD99	DB08	0,92	0,91	0,91	0,93	4	0,91			0,01	1,04	97,07
12	F32x	PD02	DB08	0,93	0,91	0,91	0,93	4	0,92			0,01	1,33	97,29
13	A82	PC01	DB08	0,92	0,92	0,92	0,93	4	0,92			0,01	0,60	97,87
14	A45x	PB99	DB08	0,93	0,93	0,92	0,91	4	0,92			0,01	1,03	97,87
15	F13x	PD01	DB08	0,93	0,92	0,93	0,92	4	0,93			0,01	0,62	98,24
16	F06x	PD02	DB08	0,94	0,95	0,91	0,91	4	0,93			0,02	1,87	98,59
17	F12x	PC01	DB08	0,94	0,94	0,94	0,92	4	0,94			0,01	0,81	99,33
18	A62x	PZ98	DA01	0,91	0,96	0,94	0,94	4	0,94			0,02	2,20	99,57
19	A61x	PD01	DB08	0,95	0,94	0,94	0,94	4	0,94			0,01	0,58	99,78
20	A79	PD03	DB10	0,95	0,96	0,94	0,92	4	0,94			0,02	1,70	99,88
21	A88	PZ98	DA01	0,94	0,95	0,93	0,96	4	0,95			0,01	1,37	100,37
22	F16x	PC01	DB08	0,98	0,95	0,94	0,94	4	0,95			0,02	2,01	101,15
23	F27	PZ98	DA01	0,96	0,97	0,95	0,94	4	0,95			0,01	1,29	101,38
24	F15x	PC01	DB08	0,96	0,96	0,96	0,94	4	0,96			0,01	1,05	101,43
25	F03	PD02	DB08	0,95	0,95	0,95	0,97	4	0,96			0,01	0,66	101,51
26	A60x	PD01	DB10	0,96	0,92	1,00	0,95	4	0,96			0,03	3,49	101,75
27	A65	PD01	DB08	0,97	0,95	0,97	0,97	4	0,97			0,01	1,04	102,49
28	F05x	PZ98	DA01	0,98	0,97	0,98	0,97	4	0,98			0,00	0,51	103,66
29	F25	PB06	DB08	0,99	0,98	0,98	0,98	4	0,98			0,01	0,51	104,35
30	A53	PZ02	DD02	0,99	0,98	0,98	0,98	4	0,98			0,01	0,51	104,35
31	A39	PD02	DB08	1,02	0,98	0,94	1,00	4	0,99			0,03	3,38	104,83
32	A36	PD02	DB08	0,98	1,01	1,01	0,98	4	1,00			0,02	1,74	105,68
33	A57	PZ98	DD02	1,01	1,02	1,03	0,99	4	1,01			0,02	1,69	107,54
34	A49	PD05	DB08	1,03	1,05	1,03	1,06	4	1,04			0,02	1,44	110,72
35	F09	PZ02	DD02	1,05	1,05	1,08	1,09	4	1,07			0,02	1,93	113,38
36	A59	PB03	DB08	1,15	1,17	1,09	1,13	0	1,14	*b*	*	0,03	3,01	120,55
37	A86	PZ98	DA01	1,24	1,18	1,22	1,21	0	1,21	*b*	*	0,03	2,13	128,70
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	N	Mean	SI	VI
all labs	136	**0,94**	**0,014**	**1,501**
15	% from the mean			
	L		SR	VR
	34		**0,047**	**4,950**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: S **Sample: 3** Unit: mg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean			Lab.standard dev. Si	Vi	Recovery %
1	F33x	PD01	DB10	0,72	0,85	0,88	0,78	4	0,81			0,07	8,89	89,36
2	A56	PC01	DB08	0,85	0,85	0,84	0,84	4	0,84			0,01	0,67	93,20
3	F07x	PC01	DB08	0,84	0,86	0,83	0,86	4	0,85			0,01	1,65	93,50
4	F24x	PZ98	DA01	0,82	0,85	0,87	0,87	4	0,85			0,02	2,67	94,13
5	F04	PD02	DB08	0,84	0,88	0,87	0,83	4	0,86			0,02	2,78	94,47
6	A55	PD02	DB08	0,86	0,86	0,85	0,86	4	0,86			0,00	0,32	94,66
7	A79	PD03	DB10	0,86	0,83	0,85	0,89	4	0,86			0,03	3,08	94,76
8	F19x	PD02	DB08	0,86	0,87	0,87	0,86	4	0,87			0,00	0,55	95,60
9	F08	PZ99	DB08	0,85	0,89	0,85	0,88	4	0,87			0,02	2,58	95,96
10	F02x	PZ98	DA01	0,87	0,86	0,87	0,88	4	0,87			0,01	0,96	95,96
11	A61x	PD01	DB08	0,88	0,88	0,87	0,86	4	0,87			0,01	0,99	96,48
12	F14x	PC01	DB08	0,88	0,88	0,89	0,88	4	0,88			0,00	0,48	97,39
13	F16x	PC01	DB08	0,87	0,87	0,90	0,89	4	0,88			0,01	1,54	97,65
14	F06x	PD02	DB08	0,89	0,89	0,89	0,89	4	0,89			0,00	0,29	98,20
15	F18x	PD99	DB08	0,90	0,89	0,88	0,89	4	0,89			0,01	0,87	98,39
16	F13x	PD01	DB08	0,91	0,89	0,89	0,91	4	0,90			0,01	1,28	99,44
17	A82	PC01	DB08	0,90	0,90	0,90	0,90	4	0,90			0,00	0,14	99,71
18	F12x	PC01	DB08	0,91	0,91	0,91	0,90	4	0,91			0,01	0,59	100,07
19	F27	PZ98	DA01	0,93	0,90	0,91	0,89	4	0,91			0,02	1,80	100,51
20	A45x	PB99	DB08	0,90	0,92	0,92	0,91	4	0,91			0,01	1,07	100,57
21	A60x	PD01	DB10	0,95	0,88	0,96	0,89	4	0,92			0,04	4,51	101,51
22	A88	PZ98	DA01	0,93	0,92	0,92	0,91	4	0,92			0,01	0,89	101,65
23	F32x	PD02	DB08	0,90	0,93	0,92	0,94	4	0,92			0,02	1,80	101,92
24	A62x	PZ98	DA01	0,94	0,92	0,92	0,92	4	0,93			0,01	1,08	102,20
25	F03	PD02	DB08	0,93	0,92	0,94	0,93	4	0,93			0,01	0,85	102,53
26	A36	PD02	DB08	0,94	0,95	0,97	0,88	4	0,94			0,04	4,14	103,30
27	A53	PZ02	DD02	0,93	0,94	0,94	0,93	4	0,94			0,01	0,62	103,30
28	A57	PZ98	DD02	0,92	0,92	0,99	0,92	4	0,94			0,04	3,73	103,58
29	F25	PB06	DB08	0,92	0,93	0,96	0,94	4	0,94			0,02	1,82	103,58
30	A65	PD01	DB08	0,94	0,94	0,95	0,94	4	0,94			0,01	0,53	104,13
31	F15x	PC01	DB08	0,96	0,94	0,95	0,93	4	0,95			0,01	1,37	104,41
32	F05x	PZ98	DA01	0,96	0,96	0,96	0,96	4	0,96			0,00	0,36	106,09
33	A39	PD02	DB08	0,99	0,94	1,00	1,00	4	0,98			0,03	3,07	108,61
34	F09	PZ02	DD02	0,99	1,00	1,01	1,02	4	1,01			0,01	1,28	111,04
35	A49	PD05	DB08	1,01	1,02	1,02	1,01	4	1,02			0,01	0,57	112,14
36	A59	PB03	DB08	1,16	1,14	*1,05a*	1,15	0	1,15	*b*	*	0,01	0,87	127,06
37	A86	PZ98	DA01	1,26	1,26	1,26	1,26	0	1,26	*b*	*	0,00	0,06	139,54
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	N	Mean	SI	VI
all labs	140	**0,91**	**0,015**	**1,688**
15	% from the mean			
	L		SR	VR
	35		**0,046**	**5,119**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: S **Sample: 4** Unit: mg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean			Lab.standard dev. Si	Lab.standard dev. Vi	Recovery %
1	F33x	PD01	DB10	1,01	1,09	0,88	0,96	4	0,99			0,09	8,98	87,91
2	A79	PD03	DB10	1,03	0,99	1,04	1,00	4	1,01			0,02	2,14	90,50
3	A56	PC01	DB08	1,03	1,03	1,04	1,04	4	1,04			0,01	0,71	92,41
4	F08	PZ99	DB08	1,03	1,08	1,05	1,05	4	1,05			0,02	2,11	93,91
5	F16x	PC01	DB08	1,06	1,04	1,09	1,05	4	1,06			0,02	2,09	94,67
6	A55	PD02	DB08	1,07	1,07	1,06	1,06	4	1,07			0,01	0,49	95,07
7	F19x	PD02	DB08	1,07	1,08	1,07	1,05	4	1,07			0,01	1,18	95,25
8	F07x	PC01	DB08	1,05	1,07	1,09	1,07	4	1,07			0,01	1,39	95,50
9	F02x	PZ98	DA01	1,08	1,06	1,09	1,08	4	1,08			0,01	1,17	96,14
10	F18x	PD99	DB08	1,08	1,08	1,10	1,10	4	1,09			0,01	1,06	97,26
11	F14x	PC01	DB08	1,10	1,09	1,08	1,09	4	1,09			0,01	0,68	97,41
12	F06x	PD02	DB08	1,10	1,11	1,12	1,09	4	1,10			0,01	1,35	98,35
13	A45x	PB99	DB08	1,12	1,11	1,09	1,09	4	1,10			0,02	1,36	98,37
14	F13x	PD01	DB08	1,10	1,10	1,09	1,12	4	1,10			0,01	1,14	98,37
15	A62x	PZ98	DA01	1,10	1,10	1,11	1,15	4	1,12			0,02	2,13	99,49
16	F27	PZ98	DA01	1,12	1,14	1,10	1,11	4	1,12			0,01	1,33	99,49
17	F12x	PC01	DB08	1,12	1,14	1,11	1,11	4	1,12			0,01	1,26	99,93
18	F32x	PD02	DB08	1,15	1,15	1,10	1,10	4	1,12			0,03	2,78	100,20
19	A88	PZ98	DA01	1,14	1,13	1,13	1,11	4	1,13			0,01	1,12	100,60
20	A36	PD02	DB08	1,13	1,15	1,16	1,08	4	1,13			0,04	3,15	100,83
21	A61x	PD01	DB08	1,16	1,13	1,12	1,12	4	1,13			0,02	1,54	101,21
22	A82	PC01	DB08	1,14	1,13	1,13	1,15	4	1,14			0,01	0,84	101,50
23	F15x	PC01	DB08	1,14	1,14	1,15	1,14	4	1,14			0,01	0,44	101,94
24	F03	PD02	DB08	1,14	1,15	1,15	1,15	4	1,15			0,00	0,32	102,39
25	A60x	PD01	DB10	1,21	1,09	1,18	1,14	4	1,15			0,05	4,57	102,83
26	A57	PZ98	DD02	1,11	1,12	1,21	1,17	4	1,15			0,05	4,03	102,83
27	A53	PZ02	DD02	1,14	1,16	1,17	1,16	4	1,16			0,01	1,09	103,28
28	F05x	PZ98	DA01	1,16	1,16	1,16	1,16	4	1,16			0,00	0,00	103,50
29	A65	PD01	DB08	1,18	1,17	1,16	1,15	4	1,17			0,01	1,11	103,95
30	F04	PD02	DB08	1,14	1,17	1,23	1,14	4	1,17			0,04	3,63	104,40
31	F25	PB06	DB08	1,18	1,21	1,22	1,20	4	1,20			0,02	1,42	107,30
32	F09	PZ02	DD02	1,22	1,24	1,23	1,26	4	1,24			0,02	1,38	110,42
33	A49	PD05	DB08	1,26	1,24	1,22	1,25	4	1,24			0,02	1,37	110,87
34	F24x	PZ98	DA01	1,18	1,25	1,26	1,33	4	1,25			0,06	4,93	111,91
35	A39	PD02	DB08	1,33	1,37	1,36	1,34	0	1,35	*b*	*	0,02	1,35	120,43
36	A59	PB03	DB08	1,40	1,50	1,46	1,33	0	1,42	*b*	*	0,07	5,21	126,93
37	A86	PZ98	DA01	1,62	1,67	1,68	1,64	0	1,65	*b*	*	0,03	1,62	147,25
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	N	Mean	SI	VI
all labs	136	**1,12**	**0,021**	**1,881**
15	% from the mean			
	L		SR	VR
	34		**0,061**	**5,434**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: P **Sample: 1** Unit: mg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean			Lab.standard dev. Si	Vi	Recovery %
1	A60x	PD01	DB10	0,89	0,88	0,89	0,88	4	0,88		*	0,01	1,01	89,39
2	A49	PD05	DB08	0,92	0,93	0,92	0,93	4	0,93			0,00	0,34	93,54
3	A56	PC01	DB08	0,92	0,91	0,93	0,95	4	0,93			0,02	1,72	93,90
4	A45x	PB99	DB08	0,93	0,94	0,92	0,93	4	0,93			0,01	0,71	94,02
5	A79	PD03	DB10	0,94	0,93	0,93	0,93	4	0,93			0,01	0,65	94,04
6	F06x	PD02	DB08	0,92	0,93	0,92	0,96	4	0,93			0,02	2,16	94,45
7	F27	PD01	DE01	0,93	0,94	0,94	0,94	4	0,94			0,00	0,53	94,73
8	A55	PD02	DB08	0,94	0,94	0,94	0,95	4	0,94			0,01	0,58	95,33
9	A43	PB06	DE01	0,95	0,96	0,95	0,95	4	0,95			0,01	0,68	96,27
10	F14x	PC01	DB08	0,96	0,95	0,96	0,96	4	0,96			0,01	0,61	96,67
11	F07x	PC01	DB08	0,96	0,97	0,96	0,96	4	0,96			0,00	0,37	97,00
12	A91	PB02	DE01	0,95	0,95	0,95	0,99	4	0,96			0,02	2,08	97,03
13	A88	PD99	DB08	1,01	0,87	1,09	0,88	4	0,96			0,11	**11,23**	97,25
14	F12x	PC01	DB08	0,97	0,96	0,95	0,97	4	0,96			0,01	1,05	97,33
15	F02x	PD02	DB08	0,97	0,96	0,97	0,97	4	0,97			0,01	0,74	97,66
16	A61x	PD01	DB08	0,97	0,97	0,97	0,97	4	0,97			0,00	0,33	97,93
17	F24x	PB03	DE01	0,96	0,97	0,97	1,01	4	0,98			0,02	2,06	98,77
18	F32x	PD02	DB08	0,98	0,98	0,99	0,97	4	0,98			0,01	0,77	99,00
19	F19x	PD02	DB08	0,99	0,98	0,98	0,98	4	0,98			0,00	0,47	99,32
20	F08	PZ99	DB08	0,97	0,97	1,00	1,00	4	0,99			0,02	1,76	99,55
21	F18x	PD99	DB08	0,99	0,99	0,99	0,99	4	0,99			0,00	0,35	100,03
22	F21x	PD02	DE01	1,01	0,99	1,00	0,97	4	0,99			0,02	1,72	100,31
23	F03	PD02	DB08	0,99	0,99	0,99	1,00	4	0,99			0,01	0,50	100,31
24	A82	PC01	DB08	1,00	0,98	1,00	0,99	4	0,99			0,01	0,81	100,46
25	F05x	PD02	DB08	1,00	0,99	1,00	1,00	4	1,00			0,00	0,24	100,71
26	A36	PD02	DB08	1,02	1,02	0,98	0,98	4	1,00			0,02	2,31	101,07
27	F16x	PC01	DB08	0,98	1,04	0,98	1,04	4	1,01			0,03	3,18	101,80
28	F13x	PD01	DB08	1,00	0,99	1,03	1,01	4	1,01			0,02	1,70	101,83
29	F33x	PD01	DB10	0,97	1,11	0,95	1,03	4	1,02			0,07	7,09	102,69
30	F25	PB06	DB08	1,04	0,98	0,99	1,06	4	1,02			0,04	3,80	102,84
31	F15x	PC01	DB08	1,03	1,04	1,05	1,03	4	1,04			0,01	0,92	104,86
32	F26	PB05	DB09	1,05	1,03	1,05	1,03	4	1,04			0,01	1,11	105,11
33	F01x	PB04	DE01	1,06	1,02	1,04	1,04	4	1,04			0,02	1,65	105,30
34	F04	PD02	DB08	0,96	1,06	1,14	1,09	4	1,06			0,08	7,14	107,38
35	A39	PD02	DB08	1,09	1,06	1,08	1,05	4	1,07			0,02	1,49	107,84
36	A53	PZ02	DD02	1,06	1,08	1,09	1,08	4	1,08			0,01	1,17	108,90
37	A57	PZ98	DD02	1,12	1,13	1,11	1,06	4	1,11		*	0,03	2,81	111,68
38	A65	PD01	DB08	1,17	1,17	1,12	1,04	4	1,13		*	0,06	5,46	113,70
39	F09	PZ02	DD02	1,15	1,17	1,19	1,21	0	1,18	*b*	*	0,03	2,19	119,26
40	A62x	PA99	DE01	1,18	1,39	1,32	1,14	0	1,26	*b*	*	0,12	9,33	127,09
41	A59	PB03	DB08	1,31	1,32	1,25	1,29	0	1,29	*b*	*	0,03	2,40	130,63
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	N	Mean	SI	VI
all labs	152	**0,99**	**0,019**	**1,966**
10	% from the mean			
	L		SR	VR
	38		**0,052**	**5,288**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: P **Sample: 2** Unit: mg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean			Lab.standard dev. Si	Vi	Recovery %
1	F12x	PC01	DB08	1,46	1,55	1,57	1,49	0	1,52	*b*	*	0,05	3,38	75,57
2	A88	PD99	DB08	1,77	1,71	1,70	1,58	4	1,69		*	0,08	4,59	84,23
3	F33x	PD01	DB10	1,76	1,88	1,69	1,70	4	1,76		*	0,09	4,97	87,53
4	A60x	PD01	DB10	1,80	1,76	1,85	1,81	4	1,81		*	0,03	1,86	89,93
5	A49	PD05	DB08	1,84	1,85	1,85	1,86	4	1,85			0,01	0,44	92,13
6	A56	PC01	DB08	1,93	1,90	1,92	1,86	4	1,90			0,03	1,42	94,69
7	F07x	PC01	DB08	1,92	1,90	1,93	1,95	4	1,92			0,02	0,96	95,77
8	F27	PD01	DE01	1,94	1,94	1,92	1,89	4	1,92			0,02	1,16	95,84
9	A43	PB06	DE01	1,93	1,94	1,92	1,94	4	1,93			0,01	0,35	96,30
10	A82	PC01	DB08	1,95	1,94	1,94	1,92	4	1,94			0,01	0,65	96,49
11	A45x	PB99	DB08	1,93	1,94	1,95	1,93	4	1,94			0,01	0,49	96,49
12	A79	PD03	DB10	1,98	1,95	1,92	1,92	4	1,94			0,03	1,57	96,86
13	F06x	PD02	DB08	1,99	2,00	1,92	1,92	4	1,96			0,04	2,19	97,36
14	F32x	PD02	DB08	1,97	1,97	1,97	1,97	4	1,97			0,00	0,00	98,11
15	A61x	PD01	DB08	1,97	2,00	1,99	1,94	4	1,97			0,02	1,23	98,28
16	F02x	PD02	DB08	1,99	1,96	1,97	1,98	4	1,98			0,01	0,66	98,42
17	A36	PD02	DB08	1,90	1,99	2,05	2,00	4	1,99			0,06	3,15	98,86
18	A55	PD02	DB08	2,00	2,00	1,97	1,99	4	1,99			0,01	0,56	99,02
19	F18x	PD99	DB08	1,98	2,00	1,99	1,99	4	1,99			0,01	0,41	99,11
20	F14x	PC01	DB08	1,99	2,00	2,00	1,99	4	2,00			0,01	0,30	99,44
21	F03	PD02	DB08	2,00	2,00	2,00	2,00	4	2,00			0,00	0,00	99,60
22	A91	PB02	DE01	1,98	2,01	2,00	2,05	4	2,01			0,03	1,46	100,10
23	F13x	PD01	DB08	2,03	2,02	2,05	2,00	4	2,03			0,02	1,03	100,85
24	F08	PZ99	DB08	2,00	2,04	2,06	2,00	4	2,03			0,03	1,48	100,85
25	F24x	PB03	DE01	2,01	2,03	2,05	2,02	4	2,03			0,01	0,72	100,89
26	F16x	PC01	DB08	2,01	2,09	2,02	2,03	4	2,04			0,04	1,76	101,40
27	F19x	PD02	DB08	2,04	2,03	2,07	2,01	4	2,04			0,03	1,23	101,47
28	F21x	PD02	DE01	2,02	2,00	2,14	2,06	4	2,06			0,06	3,01	102,34
29	F05x	PD02	DB08	2,04	2,06	2,06	2,06	4	2,06			0,01	0,49	102,34
30	F01x	PB04	DE01	2,08	2,09	2,02	2,04	4	2,06			0,03	1,52	102,52
31	A53	PZ02	DD02	2,07	2,05	2,06	2,06	4	2,06			0,01	0,40	102,59
32	A57	PZ98	DD02	2,07	2,09	2,08	2,01	4	2,06			0,04	1,74	102,72
33	A62x	PA99	DE01	2,07	2,14	2,14	2,03	4	2,10			0,05	2,60	104,34
34	F15x	PC01	DB08	2,11	2,11	2,13	2,10	4	2,11			0,01	0,60	105,21
35	A65	PD01	DB08	2,12	2,10	2,12	2,13	4	2,12			0,01	0,59	105,46
36	F26	PB05	DB09	2,16	2,16	2,18	2,14	4	2,16			0,02	0,76	107,57
37	F25	PB06	DB08	2,18	2,16	2,16	2,16	4	2,17			0,01	0,46	107,82
38	A39	PD02	DB08	2,38	2,12	2,27	2,17	4	2,24		*	0,11	5,05	111,32
39	F09	PZ02	DD02	2,18	2,22	2,31	2,32	4	2,26		*	0,07	3,03	112,43
40	F04	PD02	DB08	2,21	2,29	2,24	2,36	4	2,28		*	0,07	2,88	113,30
41	A59	PB03	DB08	2,64	2,64	2,59	2,62	0	2,62	*b*	*	0,02	0,90	130,61
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	N	Mean	SI	VI
all labs	156	**2,01**	**0,030**	**1,479**
10	% from the mean			
	L		SR	VR
	39		**0,121**	**6,048**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: P **Sample: 3** Unit: mg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean			Lab.standard dev. Si	Vi	Recovery %
1	F12x	PC01	DB08	1,23	1,25	1,24	1,24	4	1,24		*	0,01	0,66	87,16
2	A60x	PD01	DB10	1,30	1,26	1,29	1,26	4	1,28		*	0,02	1,52	89,68
3	A49	PD05	DB08	1,32	1,32	1,32	1,30	4	1,32			0,01	0,76	92,43
4	F33x	PD01	DB10	1,29	1,38	1,18	1,44	4	1,32			0,11	8,56	92,96
5	A56	PC01	DB08	1,33	1,33	1,34	1,34	4	1,33			0,00	0,37	93,80
6	A43	PB06	DE01	1,31	1,37	1,34	1,35	4	1,34			0,03	1,95	94,40
7	A79	PD03	DB10	1,36	1,37	1,33	1,32	4	1,34			0,02	1,67	94,42
8	F27	PD01	DE01	1,36	1,35	1,35	1,35	4	1,35			0,01	0,48	95,02
9	F07x	PC01	DB08	1,37	1,36	1,34	1,38	4	1,36			0,02	1,19	95,86
10	F06x	PD02	DB08	1,38	1,36	1,35	1,38	4	1,37			0,02	1,11	96,09
11	F25	PB06	DB08	1,37	1,34	1,39	1,41	4	1,38			0,03	2,17	96,83
12	A55	PD02	DB08	1,39	1,37	1,37	1,38	4	1,38			0,01	0,54	96,85
13	A45x	PB99	DB08	1,38	1,39	1,37	1,38	4	1,38			0,01	0,59	97,00
14	A91	PB02	DE01	1,36	1,42	1,34	1,43	4	1,39			0,04	3,19	97,53
15	F24x	PB03	DE01	1,38	1,39	1,41	1,39	4	1,39			0,01	0,84	97,74
16	F02x	PD02	DB08	1,38	1,41	1,39	1,39	4	1,39			0,01	1,00	97,85
17	F32x	PD02	DB08	1,40	1,40	1,40	1,40	4	1,40			0,00	0,00	98,41
18	A61x	PD01	DB08	1,42	1,38	1,41	1,39	4	1,40			0,02	1,29	98,41
19	A62x	PA99	DE01	1,39	1,36	1,36	1,50	4	1,40			0,07	4,74	98,59
20	F14x	PC01	DB08	1,40	1,40	1,42	1,41	4	1,41			0,01	0,72	98,90
21	A82	PC01	DB08	1,40	1,43	1,40	1,41	4	1,41			0,01	1,00	99,11
22	A36	PD02	DB08	1,41	1,43	1,44	1,37	4	1,41			0,03	2,19	99,29
23	F18x	PD99	DB08	1,41	1,42	1,41	1,42	4	1,42			0,01	0,41	99,46
24	F03	PD02	DB08	1,42	1,42	1,42	1,42	4	1,42			0,00	0,00	99,82
25	F21x	PD02	DE01	1,40	1,40	1,39	1,52	4	1,43			0,06	4,33	100,34
26	F19x	PD02	DB08	1,44	1,44	1,44	1,39	4	1,43			0,03	1,75	100,34
27	F16x	PC01	DB08	1,41	1,45	1,44	1,42	4	1,43			0,02	1,26	100,40
28	F13x	PD01	DB08	1,46	1,46	1,42	1,43	4	1,44			0,02	1,43	101,40
29	F08	PZ99	DB08	1,45	1,45	1,47	1,48	4	1,46			0,02	1,03	102,80
30	F05x	PD02	DB08	1,47	1,47	1,46	1,46	4	1,47			0,01	0,39	102,98
31	F01x	PB04	DE01	1,49	1,44	1,47	1,49	4	1,47			0,02	1,56	103,43
32	A65	PD01	DB08	1,52	1,51	1,52	1,51	4	1,52			0,01	0,38	106,49
33	A57	PZ98	DD02	1,49	1,50	1,61	1,50	4	1,53			0,06	3,73	107,20
34	F15x	PC01	DB08	1,56	1,53	1,54	1,53	4	1,54			0,01	0,92	108,25
35	A39	PD02	DB08	1,49	1,59	1,51	1,59	4	1,54			0,05	3,44	108,37
36	A53	PZ02	DD02	1,54	1,55	1,55	1,53	4	1,54			0,01	0,62	108,43
37	F26	PB05	DB09	1,56	1,53	1,58	1,55	4	1,56			0,02	1,34	109,30
38	F04	PD02	DB08	1,62	1,69	1,59	1,62	4	1,63		*	0,04	2,60	114,58
39	F09	PZ02	DD02	1,64	1,67	1,69	1,72	4	1,68		*	0,03	2,00	118,09
40	A88	PD99	DB08	1,76	1,82	1,84	1,87	0	1,82	*b*	*	0,04	2,43	128,18
41	A59	PB03	DB08	1,96	1,93	1,95	*1,81a*	0	1,95	*b*	*	0,02	0,78	136,84
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	N	Mean	SI	VI
all labs	156	**1,42**	**0,023**	**1,638**
10	% from the mean			
	L		SR	VR
	39		**0,091**	**6,389**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: P **Sample: 4** Unit: mg/g

No.	Lab.	Method code		Replications				n	Lab.mean			Lab.standard dev.		Recovery
	Code	P	D	1	2	3	4					Si	Vi	%
1	A60x	PD01	DB10	1,81	1,68	1,72	1,74	4	1,74		*	0,06	3,21	89,86
2	F33x	PD01	DB10	1,88	1,68	1,62	1,82	4	1,75			0,12	6,89	90,58
3	A49	PD05	DB08	1,75	1,75	1,75	1,78	4	1,76			0,02	0,85	90,97
4	A56	PC01	DB08	1,78	1,76	1,80	1,78	4	1,78			0,01	0,76	92,06
5	A79	PD03	DB10	1,77	1,80	1,81	1,75	4	1,78			0,03	1,53	92,12
6	F21x	PD02	DE01	1,89	1,88	1,82	1,69	4	1,82			0,09	5,06	94,21
7	A45x	PB99	DB08	1,84	1,80	1,79	1,85	4	1,82			0,03	1,62	94,21
8	F27	PD01	DE01	1,82	1,81	1,85	1,81	4	1,82			0,02	0,94	94,22
9	F07x	PC01	DB08	1,83	1,83	1,88	1,86	4	1,85			0,02	1,27	95,80
10	A91	PB02	DE01	1,89	1,90	1,84	1,84	4	1,87			0,03	1,71	96,67
11	A43	PB06	DE01	1,86	1,84	1,91	1,87	4	1,87			0,03	1,55	96,68
12	A61x	PD01	DB08	1,87	1,85	1,90	1,88	4	1,88			0,02	1,07	97,08
13	F06x	PD02	DB08	1,86	1,89	1,93	1,85	4	1,88			0,03	1,83	97,28
14	F18x	PD99	DB08	1,90	1,89	1,89	1,89	4	1,89			0,01	0,26	97,96
15	F12x	PC01	DB08	1,89	1,92	1,88	1,89	4	1,90			0,02	0,91	98,09
16	A36	PD02	DB08	1,88	1,91	1,93	1,86	4	1,90			0,03	1,64	98,09
17	F03	PD02	DB08	1,89	1,90	1,90	1,90	4	1,90			0,01	0,26	98,22
18	A82	PC01	DB08	1,90	1,88	1,89	1,93	4	1,90			0,02	1,14	98,35
19	F02x	PD02	DB08	1,86	1,92	1,87	1,95	4	1,90			0,04	2,11	98,36
20	F19x	PD02	DB08	1,93	1,93	1,91	1,85	4	1,91			0,04	1,99	98,61
21	F14x	PC01	DB08	1,92	1,91	1,91	1,92	4	1,91			0,01	0,33	99,06
22	F13x	PD01	DB08	1,91	1,91	1,89	1,95	4	1,92			0,03	1,31	99,13
23	A55	PD02	DB08	1,92	1,91	1,92	1,92	4	1,92			0,00	0,09	99,19
24	F32x	PD02	DB08	1,92	1,92	1,93	1,93	4	1,93			0,01	0,30	99,64
25	A62x	PA99	DE01	1,96	1,82	1,93	2,00	4	1,93			0,08	4,00	99,77
26	F16x	PC01	DB08	1,91	1,92	1,93	1,98	4	1,93			0,03	1,53	100,10
27	F24x	PB03	DE01	1,95	1,95	1,97	1,95	4	1,95			0,01	0,57	101,02
28	F01x	PB04	DE01	1,97	1,94	2,00	1,95	4	1,96			0,03	1,30	101,70
29	F15x	PC01	DB08	2,04	1,95	1,94	1,95	4	1,97			0,05	2,38	101,97
30	F05x	PD02	DB08	1,97	1,98	1,97	1,98	4	1,98			0,01	0,29	102,23
31	F26	PB05	DB09	1,99	1,99	1,98	1,98	4	1,99			0,01	0,29	102,75
32	F08	PZ99	DB08	1,97	1,98	2,05	1,99	4	2,00			0,04	1,80	103,40
33	A65	PD01	DB08	2,05	2,05	2,04	2,01	4	2,04			0,02	0,93	105,47
34	A57	PZ98	DD02	1,97	1,99	2,15	2,08	4	2,05			0,08	4,07	105,98
35	F25	PB06	DB08	2,08	2,10	2,07	2,05	4	2,08			0,02	1,00	107,41
36	A53	PZ02	DD02	2,07	2,10	2,12	2,10	4	2,10			0,02	0,98	108,57
37	F04	PD02	DB08	2,17	2,11	2,04	2,11	4	2,11			0,05	2,52	109,09
38	A39	PD02	DB08	2,12	2,17	2,18	2,11	4	2,14		*	0,03	1,56	110,91
39	F09	PZ02	DD02	2,16	2,22	2,27	2,33	4	2,25		*	0,07	3,22	116,21
40	A88	PD99	DB08	2,44	2,18	2,03	2,39	4	2,26		*	0,19	8,39	116,97
41	A59	PB03	DB08	2,54	2,77	2,66	2,46	0	2,61	*b*	*	0,14	5,22	134,97
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	N	Mean	SI	VI
all labs	160	**1,93**	**0,036**	**1,859**
10	% from the mean			
	L		SR	VR
	40		**0,122**	**6,319**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Ca **Sample: 1** Unit: mg/g

No.	Lab.	Method code		Replications				n	Lab.mean			Lab.standard dev.		Recovery
	Code	P	D	1	2	3	4					Si	Vi	%
1	A62x	PD02	DB01	3,27	2,81	3,07	2,73	0	2,97	*b*	*	0,25	8,32	80,61
2	A79	PD03	DB10	3,40	3,31	3,29	3,26	4	3,31		*	0,06	1,78	89,95
3	F04	PC02	DB01	3,40	3,33	3,28	3,43	4	3,36			0,07	2,02	91,20
4	F06x	PD02	DB08	3,36	3,36	*3,294a*	3,38	3	3,37			0,01	0,27	91,34
5	F14x	PC01	DB08	3,40	3,35	3,36	3,38	4	3,37			0,02	0,59	91,48
6	F21x	PD02	DB01	3,38	3,39	3,41	3,37	4	3,39			0,02	0,50	91,95
7	A45x	PB99	DB08	3,48	3,53	3,47	3,50	4	3,50			0,03	0,76	94,86
8	A61x	PD01	DB08	3,52	3,49	3,56	3,48	4	3,51			0,04	1,03	95,32
9	A56	PC01	DB08	3,50	3,56	3,56	3,68	4	3,58			0,08	2,12	97,06
10	F32x	PD02	DB08	3,59	3,58	3,58	3,59	4	3,59			0,01	0,16	97,31
11	A91	PB02	DB08	3,40	4,20	3,74	3,02	0	3,59	*c*		0,50	**13,98**	97,44
12	F19x	PD02	DB08	3,54	3,55	3,63	3,66	4	3,60			0,06	1,65	97,58
13	A43	PB06	DB01	3,55	3,60	3,65	3,60	4	3,60			0,04	1,13	97,71
14	A49	PD05	DB08	3,59	3,64	3,61	3,58	4	3,61			0,03	0,73	97,85
15	A55	PD02	DB08	3,61	3,60	3,64	3,64	4	3,62			0,02	0,60	98,34
16	A82	PC01	DB08	3,63	3,56	3,68	3,66	4	3,63			0,05	1,45	98,62
17	F05x	PD02	DB08	3,67	3,67	3,65	3,65	4	3,66			0,01	0,32	99,34
18	F13x	PD01	DB08	3,70	3,65	3,73	3,56	4	3,66			0,07	2,03	99,34
19	F18x	PD99	DB08	3,63	3,69	3,73	3,62	4	3,67			0,05	1,41	99,55
20	F02x	PD02	DB08	3,68	3,66	3,64	3,69	4	3,67			0,02	0,60	99,61
21	F15x	PC01	DB08	3,65	3,72	3,69	3,64	4	3,68			0,04	1,01	99,75
22	F12x	PC01	DB08	3,67	3,73	3,68	3,70	4	3,70			0,03	0,72	100,29
23	F03	PD02	DB08	3,67	3,70	3,69	3,72	4	3,70			0,02	0,56	100,29
24	F07x	PC01	DB08	3,71	3,62	3,75	3,72	4	3,70			0,05	1,45	100,37
25	A36	PD02	DB08	3,69	3,74	3,75	3,65	4	3,71			0,05	1,25	100,63
26	F16x	PC01	DB08	3,66	3,84	3,59	3,78	4	3,72			0,12	3,11	100,91
27	F24x	PB03	DB01	3,57	3,64	3,77	3,90	4	3,72			0,15	4,00	100,99
28	F27	PD01	DB01	3,80	3,87	3,60	3,62	4	3,72			0,13	3,57	101,02
29	F08	PZ99	DB08	3,71	3,71	3,72	3,75	4	3,72			0,02	0,51	101,04
30	F26	PB05	DB09	3,75	3,71	3,72	3,75	4	3,73			0,02	0,55	101,31
31	A65	PD01	DB08	3,71	3,86	3,70	3,86	4	3,78			0,09	2,37	102,67
32	F33x	PD01	DB10	3,70	4,12	3,53	3,82	4	3,79			0,25	6,56	102,94
33	F25	PB06	DB08	3,82	3,80	3,80	3,84	4	3,82			0,02	0,50	103,55
34	A60x	PD01	DB10	3,86	3,77	3,86	3,87	4	3,84			0,05	1,19	104,20
35	A42	PB04	DB01	3,98	3,73	3,81	3,87	4	3,85			0,10	2,68	104,41
36	A88	PD99	DB08	4,02	3,41	4,07	3,96	4	3,87			0,30	7,89	104,91
37	F01x	PB04	DB01	3,93	3,88	3,82	3,86	4	3,87			0,05	1,18	105,11
38	A39	PD02	DB08	4,06	3,95	3,78	3,75	4	3,88			0,14	3,68	105,43
39	F09	PZ02	DD02	3,90	3,98	4,05	4,11	4	4,01			0,09	2,26	108,84
40	A53	PZ02	DD02	4,01	4,03	4,05	4,05	4	4,04			0,02	0,47	109,52
41	A57	PZ98	DD02	4,11	4,15	4,08	4,05	4	4,10		*	0,04	1,04	111,22
42	A59	PB03	DB08	4,64	4,64	4,65	4,67	0	4,65	*b*	*	0,01	0,30	126,21
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	N	Mean	SI	VI
all labs	155	**3,68**	**0,063**	**1,706**
10	% from the mean			
	L		SR	VR
	39		**0,182**	**4,930**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Ca **Sample: 2** Unit: mg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean			Lab.standard dev. Si	Vi	Recovery %
1	A62x	PD02	DB01	3,80	3,82	3,66	3,49	0	3,69	*b*	*	0,15	4,13	63,36
2	A88	PD99	DB08	5,37	5,13	5,03	4,66	4	5,05		*	0,30	5,88	86,58
3	F33x	PD01	DB10	5,34	5,55	5,01	4,89	4	5,20		*	0,30	5,82	89,18
4	F04	PC02	DB01	5,23	5,21	5,13	5,30	4	5,22		*	0,07	1,34	89,52
5	A79	PD03	DB10	5,36	5,44	5,46	5,40	4	5,41			0,04	0,79	92,90
6	F24x	PB03	DB01	5,23	5,25	5,50	5,79	4	5,44			0,26	4,76	93,39
7	F27	PD01	DB01	5,44	5,70	5,39	5,31	4	5,46			0,17	3,13	93,68
8	F14x	PC01	DB08	5,52	5,53	5,50	5,50	4	5,51			0,02	0,32	94,57
9	F06x	PD02	DB08	5,62	5,67	5,40	5,41	4	5,53			0,14	2,59	94,80
10	A43	PB06	DB01	5,61	5,56	5,45	5,51	4	5,53			0,07	1,24	94,93
11	A39	PD02	DB08	5,66	5,61	5,35	5,63	4	5,56			0,14	2,60	95,42
12	A56	PC01	DB08	5,61	5,55	5,65	5,54	4	5,59			0,05	0,96	95,86
13	A61x	PD01	DB08	5,61	5,69	5,65	5,61	4	5,64			0,04	0,69	96,75
14	F32x	PD02	DB08	5,72	5,67	5,78	5,77	4	5,74			0,05	0,88	98,40
15	A45x	PB99	DB08	5,89	5,74	5,78	5,82	4	5,81			0,06	1,10	99,65
16	F13x	PD01	DB08	5,85	5,83	5,74	5,81	4	5,81			0,05	0,82	99,65
17	F15x	PC01	DB08	5,79	5,88	5,88	5,78	4	5,83			0,05	0,94	100,08
18	F19x	PD02	DB08	5,83	5,82	5,91	5,77	4	5,83			0,06	0,99	100,08
19	A82	PC01	DB08	5,88	5,82	5,82	5,87	4	5,84			0,03	0,53	100,29
20	F02x	PD02	DB08	5,80	5,89	5,85	5,86	4	5,85			0,04	0,66	100,34
21	F07x	PC01	DB08	5,87	5,81	5,98	5,75	4	5,85			0,10	1,66	100,40
22	A49	PD05	DB08	5,76	5,86	5,88	5,91	4	5,85			0,07	1,11	100,42
23	F18x	PD99	DB08	5,91	5,95	5,82	5,89	4	5,89			0,05	0,92	101,11
24	F12x	PC01	DB08	5,90	5,91	5,94	5,82	4	5,89			0,05	0,87	101,11
25	A55	PD02	DB08	5,92	5,98	5,93	5,90	4	5,93			0,04	0,62	101,78
26	F21x	PD02	DB01	6,00	5,96	5,87	5,91	4	5,94			0,06	0,96	101,83
27	F01x	PB04	DB01	5,94	5,92	6,01	5,89	4	5,94			0,05	0,86	101,92
28	A36	PD02	DB08	6,03	5,84	6,01	5,95	4	5,96			0,09	1,43	102,22
29	F03	PD02	DB08	5,94	5,93	5,97	6,01	4	5,96			0,04	0,60	102,31
30	F16x	PC01	DB08	5,94	5,93	6,02	6,01	4	5,98			0,05	0,81	102,53
31	F08	PZ99	DB08	5,96	5,94	6,03	5,98	4	5,98			0,04	0,65	102,56
32	A91	PB02	DB08	5,85	5,79	6,00	6,28	4	5,98			0,22	3,66	102,61
33	F05x	PD02	DB08	5,99	5,97	5,99	5,99	4	5,99			0,01	0,17	102,69
34	A42	PB04	DB01	5,77	6,05	5,96	6,18	4	5,99			0,17	2,89	102,79
35	A60x	PD01	DB10	5,98	5,95	6,13	6,04	4	6,03			0,08	1,31	103,38
36	F25	PB06	DB08	6,17	6,18	6,20	6,04	4	6,15			0,07	1,18	105,48
37	A65	PD01	DB08	6,17	6,15	6,17	6,19	4	6,17			0,02	0,26	105,87
38	F26	PB05	DB09	6,17	6,22	6,16	6,20	4	6,19			0,03	0,45	106,17
39	A57	PZ98	DD02	6,42	6,44	6,26	6,33	4	6,36			0,08	1,31	109,17
40	A53	PZ02	DD02	6,54	6,54	6,48	6,55	4	6,53		*	0,03	0,49	112,00
41	F09	PZ02	DD02	6,56	6,66	6,86	6,87	4	6,74		*	0,15	2,27	115,60
42	A59	PB03	DB08	7,35	7,50	7,43	7,95	0	7,56	*b*	*	0,27	3,56	129,67
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	N	Mean	SI	VI
all labs	160	**5,83**	**0,086**	**1,475**
10	% from the mean			
	L		SR	VR
	40		**0,339**	**5,815**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Ca **Sample: 3** Unit: mg/g

No.	Lab.	Method code		Replications				n	Lab.mean			Lab.standard dev.		Recovery
	Code	P	D	1	2	3	4					Si	Vi	%
1	A62x	PD02	DB01	2,92	2,69	2,76	2,75	0	2,78	*b*	*	0,10	3,54	66,91
2	A43	PB06	DB01	3,64	3,69	3,89	3,79	4	3,75			0,11	2,95	90,31
3	A79	PD03	DB10	3,86	3,78	3,79	3,75	4	3,79			0,05	1,19	91,33
4	F04	PC02	DB01	3,82	3,74	3,98	3,80	4	3,84			0,10	2,67	92,30
5	F33x	PD01	DB10	3,63	3,94	3,58	4,23	4	3,85			0,30	7,86	92,54
6	F14x	PC01	DB08	3,86	3,86	3,89	3,86	4	3,87			0,01	0,36	93,10
7	F21x	PD02	DB01	4,07	3,88	3,95	3,90	4	3,95			0,09	2,16	95,07
8	A82	PC01	DB08	3,97	3,95	3,97	3,99	4	3,97			0,01	0,36	95,55
9	F06x	PD02	DB08	4,05	4,00	3,98	4,02	4	4,01			0,03	0,77	96,55
10	F27	PD01	DB01	3,99	4,02	3,99	4,05	4	4,01			0,03	0,64	96,57
11	F24x	PB03	DB01	3,61	4,05	4,07	4,34	4	4,02			0,30	7,48	96,67
12	A56	PC01	DB08	4,06	4,00	4,02	4,04	4	4,03			0,02	0,61	97,00
13	A61x	PD01	DB08	4,12	3,98	4,09	3,97	4	4,04			0,08	1,91	97,20
14	F19x	PD02	DB08	4,07	4,07	4,09	3,98	4	4,05			0,05	1,22	97,53
15	F18x	PD99	DB08	4,13	4,05	4,07	4,04	4	4,07			0,04	0,99	98,02
16	A49	PD05	DB08	4,12	4,15	4,11	4,11	4	4,12			0,02	0,46	99,22
17	A45x	PB99	DB08	4,11	4,16	4,13	4,14	4	4,14			0,02	0,50	99,52
18	F32x	PD02	DB08	4,13	4,15	4,15	4,14	4	4,14			0,01	0,23	99,70
19	A91	PB02	DB08	3,99	4,00	4,24	4,36	4	4,15			0,18	4,41	99,82
20	F02x	PD02	DB08	4,21	4,10	4,19	4,14	4	4,16			0,05	1,17	100,10
21	F13x	PD01	DB08	4,23	4,18	4,11	4,14	4	4,17			0,05	1,25	100,24
22	F16x	PC01	DB08	4,24	4,10	4,25	4,12	4	4,18			0,08	1,88	100,52
23	A55	PD02	DB08	4,18	4,19	4,18	4,18	4	4,18			0,00	0,10	100,66
24	F26	PB05	DB09	4,22	4,19	4,21	4,17	4	4,20			0,02	0,53	101,02
25	A36	PD02	DB08	4,25	4,16	4,26	4,17	4	4,21			0,05	1,24	101,33
26	F07x	PC01	DB08	4,22	4,24	4,24	4,15	4	4,21			0,04	1,00	101,44
27	F12x	PC01	DB08	4,22	4,25	4,23	4,19	4	4,22			0,02	0,59	101,63
28	F01x	PB04	DB01	4,16	4,24	4,21	4,29	4	4,23			0,05	1,29	101,69
29	A42	PB04	DB01	4,22	4,17	4,23	4,35	4	4,24			0,08	1,79	102,10
30	F05x	PD02	DB08	4,24	4,22	4,24	4,27	4	4,24			0,02	0,49	102,11
31	F08	PZ99	DB08	4,26	4,25	4,25	4,25	4	4,25			0,00	0,12	102,35
32	F15x	PC01	DB08	4,29	4,23	4,32	4,21	4	4,26			0,05	1,20	102,59
33	F03	PD02	DB08	4,33	4,28	4,29	4,26	4	4,29			0,03	0,69	103,25
34	A60x	PD01	DB10	4,32	4,14	4,48	4,25	4	4,30			0,14	3,31	103,46
35	F25	PB06	DB08	4,37	4,39	4,32	4,38	4	4,37			0,03	0,71	105,06
36	A65	PD01	DB08	4,44	4,38	4,42	4,38	4	4,41			0,03	0,68	106,02
37	A53	PZ02	DD02	4,52	4,46	4,53	4,51	4	4,51			0,03	0,69	108,43
38	A39	PD02	DB08	4,41	4,76	4,56	4,39	4	4,53			0,17	3,75	108,95
39	F09	PZ02	DD02	4,42	4,51	4,56	4,64	4	4,53			0,09	2,03	109,09
40	A57	PZ98	DD02	4,57	4,60	4,54	4,57	4	4,57			0,02	0,54	109,99
41	A88	PD99	DB08	5,28	5,49	5,45	5,67	0	5,47	*b*	*	0,16	2,97	131,70
42	A59	PB03	DB08	5,45	5,77	5,69	5,82	0	5,68	*b*	*	0,16	2,89	136,76
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	N	Mean	SI	VI
all labs	156	**4,15**	**0,065**	**1,566**
10	% from the mean			
	L		SR	VR
	39		**0,201**	**4,835**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Ca **Sample: 4** Unit: mg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean		Lab.standard dev. Si	Vi	Recovery %
1	A62x	PD02	DB01	1,93	2,02	1,98	1,90	4	1,96	*	0,05	2,72	72,46
2	F24x	PB03	DB01	2,10	2,15	2,20	2,56	4	2,25	*	0,21	9,26	83,30
3	A79	PD03	DB10	2,36	2,36	2,38	2,36	4	2,36		0,01	0,34	87,47
4	F14x	PC01	DB08	2,45	2,44	2,43	2,44	4	2,44		0,01	0,31	90,32
5	A49	PD05	DB08	2,61	2,48	2,51	2,55	4	2,54		0,06	2,21	93,93
6	F33x	PD01	DB10	2,56	2,67	2,42	2,57	4	2,56		0,10	4,02	94,58
7	A82	PC01	DB08	2,55	2,54	2,55	2,59	4	2,56		0,02	0,80	94,60
8	A91	PB02	DB08	2,43	2,37	2,90	2,55	4	2,56		0,24	9,25	94,86
9	A43	PB06	DB01	2,47	2,47	2,63	2,69	4	2,57		0,11	4,38	94,95
10	F04	PC02	DB01	2,54	2,57	2,63	2,56	4	2,58		0,04	1,50	95,32
11	F18x	PD99	DB08	2,60	2,57	2,58	2,57	4	2,58		0,01	0,55	95,51
12	A61x	PD01	DB08	2,62	2,57	2,58	2,56	4	2,58		0,03	0,98	95,57
13	F19x	PD02	DB08	2,61	2,63	2,61	2,51	4	2,59		0,05	2,09	95,88
14	F06x	PD02	DB08	2,57	2,61	2,65	2,54	4	2,59		0,05	1,93	95,94
15	A45x	PB99	DB08	2,63	2,65	2,59	2,63	4	2,63		0,03	0,96	97,17
16	A56	PC01	DB08	2,64	2,59	2,70	2,59	4	2,63		0,05	2,06	97,41
17	F02x	PD02	DB08	2,63	2,66	2,64	2,60	4	2,63		0,03	1,06	97,42
18	A55	PD02	DB08	2,64	2,67	2,65	2,68	4	2,66		0,02	0,60	98,39
19	F32x	PD02	DB08	2,68	2,67	2,67	2,69	4	2,68		0,01	0,36	99,12
20	F12x	PC01	DB08	2,71	2,67	2,65	2,71	4	2,69		0,03	1,12	99,39
21	F13x	PD01	DB08	2,69	2,66	2,69	2,72	4	2,69		0,02	0,91	99,58
22	F16x	PC01	DB08	2,63	2,68	2,76	2,70	4	2,69		0,05	2,01	99,74
23	F05x	PD02	DB08	2,70	2,71	2,70	2,69	4	2,70		0,01	0,30	99,95
24	A36	PD02	DB08	2,72	2,70	2,71	2,68	4	2,70		0,02	0,63	100,04
25	F26	PB05	DB09	2,68	2,79	2,75	2,72	4	2,74		0,05	1,70	101,24
26	F07x	PC01	DB08	2,72	2,78	2,71	2,74	4	2,74		0,03	1,09	101,32
27	F27	PD01	DB01	2,77	2,84	2,63	2,74	4	2,75		0,09	3,15	101,65
28	F03	PD02	DB08	2,74	2,76	2,76	2,74	4	2,75		0,01	0,42	101,80
29	A65	PD01	DB08	2,77	2,74	2,75	2,78	4	2,76		0,02	0,66	102,17
30	F01x	PB04	DB01	2,69	2,80	2,85	2,71	4	2,76		0,08	2,73	102,26
31	F08	PZ99	DB08	2,70	2,80	2,77	2,79	4	2,77		0,05	1,63	102,36
32	F15x	PC01	DB08	2,77	2,74	2,77	2,78	4	2,77		0,02	0,63	102,36
33	F21x	PD02	DB01	2,76	2,86	2,66	2,80	4	2,77		0,08	3,03	102,54
34	A53	PZ02	DD02	2,78	2,75	2,76	2,79	4	2,77		0,02	0,66	102,54
35	A60x	PD01	DB10	2,85	2,77	2,74	2,86	4	2,80		0,06	2,17	103,81
36	A42	PB04	DB01	2,99	2,92	2,66	2,69	4	2,82		0,17	5,92	104,24
37	F09	PZ02	DD02	2,74	2,79	2,85	2,89	4	2,82		0,07	2,34	104,30
38	F25	PB06	DB08	2,83	2,85	2,90	2,91	4	2,87		0,04	1,34	106,33
39	A57	PZ98	DD02	3,00	3,02	2,99	2,93	4	2,99		0,04	1,30	110,50
40	A88	PD99	DB08	3,56	3,17	3,18	3,47	4	3,34	*	0,20	6,01	123,71
41	A59	PB03	DB08	3,29	3,60	3,47	3,29	4	3,41	*	0,15	4,43	126,32
42	A39	PD02	DB08	3,38	3,55	3,49	3,37	4	3,45	*	0,09	2,55	127,63
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	N	Mean	SI	VI
all labs	168	**2,70**	**0,059**	**2,202**
15	% from the mean			
	L		SR	VR
	42		**0,261**	**9,651**

* = non tolerable mean because more than +/- limit for the lower concentration range

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Mg **Sample: 1** Unit: mg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean			Lab.standard dev. Si	Vi	Recovery %
1	A79	PD03	DB10	0,80	0,80	0,77	0,78	4	0,78		*	0,01	1,82	85,71
2	F06x	PD02	DB08	0,79	0,78	0,78	0,80	4	0,79		*	0,01	1,06	86,03
3	A43	PB06	DB01	0,82	0,82	0,87	0,85	4	0,84			0,03	3,14	91,79
4	A56	PC01	DB08	0,83	0,83	0,84	0,87	4	0,84			0,02	2,15	91,98
5	A91	PB02	DB08	0,89	0,96	0,87	0,76	4	0,87			0,08	9,52	95,21
6	F07x	PC01	DB08	0,88	0,87	0,88	0,88	4	0,88			0,01	0,64	96,19
7	A45x	PB99	DB08	0,88	0,89	0,88	0,88	4	0,88			0,01	0,72	96,58
8	F14x	PC01	DB08	0,89	0,88	0,89	0,89	4	0,89			0,00	0,56	97,10
9	F32x	PD02	DB08	0,89	0,88	0,89	0,89	4	0,89			0,01	0,56	97,12
10	A61x	PD01	DB08	0,89	0,88	0,89	0,89	4	0,89			0,01	0,58	97,15
11	F13x	PD01	DB08	0,90	0,89	0,90	0,87	4	0,89			0,01	1,50	97,34
12	A49	PD05	DB08	0,88	0,90	0,90	0,89	4	0,89			0,01	0,78	97,59
13	F18x	PD99	DB08	0,89	0,90	0,89	0,89	4	0,89			0,01	0,65	97,78
14	A82	PC01	DB08	0,89	0,88	0,91	0,89	4	0,89			0,01	1,05	97,83
15	F03	PD02	DB08	0,89	0,90	0,89	0,90	4	0,90			0,01	0,65	97,94
16	A53	PZ02	DD02	0,90	0,91	0,92	0,91	4	0,91			0,01	0,90	99,58
17	F27	PD01	DB01	0,92	0,86	0,95	0,92	4	0,91			0,04	3,93	99,86
18	F04	PD02	DB01	0,92	0,93	0,89	0,92	4	0,92			0,02	1,89	100,13
19	F19x	PD02	DB08	0,91	0,93	0,91	0,91	4	0,92			0,01	1,07	100,38
20	F26	PB05	DB09	0,93	0,91	0,92	0,92	4	0,92			0,01	0,89	100,68
21	F33x	PD01	DB10	0,91	1,00	0,87	0,92	4	0,92			0,06	6,20	101,17
22	F01x	PB04	DB01	0,92	0,93	0,94	0,91	4	0,93			0,01	1,40	101,23
23	A36	PD02	DB08	0,92	0,94	0,94	0,90	4	0,93			0,02	2,07	101,23
24	A42	PB04	DB01	0,92	0,91	0,93	0,94	4	0,93			0,01	1,50	101,28
25	F05x	PD02	DB08	0,93	0,92	0,93	0,92	4	0,93			0,01	0,61	101,34
26	A88	PD99	DB08	1,02	0,89	1,02	0,77	0	0,93	*c*		0,12	**13,05**	101,42
27	F02x	PD02	DB08	0,94	0,93	0,95	0,92	4	0,94			0,01	1,23	102,38
28	F12x	PD01	DB08	0,92	0,94	0,95	0,94	4	0,94			0,01	1,14	102,40
29	A39	PD02	DB08	0,92	0,92	0,98	0,95	4	0,94			0,03	2,89	103,09
30	F09	PZ02	DD02	0,91	0,94	0,95	0,98	4	0,95			0,03	3,05	103,41
31	F25	PB06	DB08	0,94	0,95	0,95	0,94	4	0,95			0,01	0,61	103,41
32	A60x	PD01	DB10	0,95	0,93	0,96	0,94	4	0,95			0,01	1,30	103,47
33	F15x	PC01	DB08	0,94	0,96	0,95	0,95	4	0,95			0,01	0,86	103,96
34	A65	PD01	DB08	0,94	0,98	0,95	0,98	4	0,96			0,02	2,27	105,14
35	F16x	PC01	DB08	0,98	0,93	1,00	0,94	4	0,96			0,03	3,55	105,28
36	A55	PD02	DB08	0,96	0,96	0,96	0,97	4	0,96			0,01	0,64	105,30
37	F24x	PB03	DB01	0,97	0,97	0,99	1,00	4	0,98			0,01	1,45	107,05
38	F08	PZ99	DB08	0,99	0,97	0,98	0,98	4	0,98			0,01	0,88	107,11
39	A57	PZ98	DD02	1,04	1,05	0,95	0,91	4	0,99			0,07	6,94	108,07
40	F21x	PD02	DB01	0,97	0,99	1,01	1,04	4	1,00			0,03	2,98	109,71
41	A62x	PC02	DB01	1,27	1,23	1,25	1,19	0	1,24	*b*	*	0,03	2,77	135,15
42	A59	PB03	DB08	1,27	1,25	1,21	1,24	0	1,24	*b*	*	0,03	2,01	135,97
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	N	Mean	SI	VI
all labs	156	**0,91**	**0,018**	**1,948**
10	% from the mean			
	L		SR	VR
	39		**0,048**	**5,267**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Mg **Sample: 2** Unit: mg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean			Lab.standard dev. Si	Vi	Recovery %
1	F33x	PD01	DB10	0,96	0,98	0,90	0,87	4	0,93		*	0,05	5,44	86,57
2	A79	PD03	DB10	0,94	0,94	0,93	0,92	4	0,94		*	0,01	1,15	87,43
3	F06x	PD02	DB08	0,96	0,96	0,91	0,91	4	0,94		*	0,03	3,12	87,48
4	A43	PB06	DB01	1,00	0,94	0,92	0,97	4	0,96		*	0,03	3,55	89,49
5	A56	PC01	DB08	1,00	0,98	0,99	0,97	4	0,98			0,02	1,55	91,98
6	F27	PD01	DB01	0,96	1,03	1,04	1,02	4	1,01			0,04	3,62	94,68
7	F13x	PD01	DB08	1,04	1,03	1,02	1,03	4	1,03			0,01	0,79	96,29
8	A82	PC01	DB08	1,04	1,04	1,03	1,03	4	1,04			0,01	0,56	96,76
9	F18x	PD99	DB08	1,04	1,04	1,03	1,04	4	1,04			0,01	0,48	96,99
10	F07x	PC01	DB08	1,03	1,02	1,06	1,04	4	1,04			0,02	1,74	97,15
11	F14x	PC01	DB08	1,05	1,04	1,04	1,04	4	1,04			0,01	0,62	97,43
12	A61x	PD01	DB08	1,03	1,06	1,04	1,04	4	1,04			0,01	1,07	97,60
13	F03	PD02	DB08	1,05	1,06	1,06	1,06	4	1,06			0,01	0,47	98,86
14	A88	PD99	DB08	1,02	1,40	0,95	0,87	0	1,06	*c*		0,24	**22,38**	99,05
15	F32x	PD02	DB08	1,05	1,07	1,11	1,05	4	1,07			0,03	2,64	100,03
16	F01x	PB04	DB01	1,07	1,08	1,06	1,07	4	1,07			0,01	0,76	100,03
17	A45x	PB99	DB08	1,07	1,08	1,06	1,07	4	1,07			0,01	0,76	100,03
18	A49	PD05	DB08	1,08	1,07	1,07	1,08	4	1,07			0,01	0,51	100,17
19	F04	PD02	DB01	1,08	1,09	1,07	1,07	4	1,08			0,01	0,89	100,73
20	A53	PZ02	DD02	1,10	1,09	1,07	1,08	4	1,09			0,01	1,19	101,43
21	F09	PZ02	DD02	1,06	1,06	1,11	1,13	4	1,09			0,04	3,27	101,90
22	A42	PB04	DB01	1,05	1,05	1,13	1,15	4	1,09			0,05	4,80	102,27
23	A57	PZ98	DD02	1,11	1,12	1,11	1,05	4	1,10			0,03	2,92	102,60
24	A36	PD02	DB08	1,10	1,10	1,08	1,11	4	1,10			0,01	1,15	102,60
25	F02x	PD02	DB08	1,12	1,10	1,08	1,11	4	1,10			0,02	1,40	102,78
26	F05x	PD02	DB08	1,10	1,10	1,10	1,10	4	1,10			0,00	0,00	102,83
27	F26	PB05	DB09	1,08	1,12	1,11	1,09	4	1,10			0,02	1,66	102,83
28	F15x	PC01	DB08	1,09	1,10	1,11	1,10	4	1,10			0,01	0,74	102,83
29	F19x	PD02	DB08	1,11	1,11	1,11	1,08	4	1,10			0,02	1,36	103,07
30	A91	PB02	DB08	1,11	1,11	1,05	1,15	4	1,11			0,04	3,73	103,30
31	F08	PZ99	DB08	1,10	1,12	1,10	1,11	4	1,11			0,01	0,90	103,56
32	A39	PD02	DB08	1,14	1,09	1,06	1,16	4	1,11			0,05	4,07	103,81
33	A60x	PD01	DB10	1,11	1,09	1,14	1,12	4	1,11			0,02	1,72	104,21
34	F25	PB06	DB08	1,11	1,12	1,13	1,10	4	1,12			0,01	1,16	104,23
35	F12x	PD01	DB08	1,13	1,13	1,13	1,10	4	1,12			0,01	1,34	104,93
36	F16x	PC01	DB08	1,14	1,10	1,14	1,13	4	1,13			0,02	1,74	105,36
37	F21x	PD02	DB01	1,14	1,16	1,11	1,12	4	1,13			0,02	1,96	105,87
38	A55	PD02	DB08	1,14	1,13	1,13	1,14	4	1,14			0,01	0,62	106,10
39	F24x	PB03	DB01	1,13	1,13	1,14	1,15	4	1,14			0,01	0,95	106,27
40	A65	PD01	DB08	1,15	1,14	1,15	1,16	4	1,15			0,01	0,81	107,55
41	A62x	PC02	DB01	1,33	1,35	1,36	1,37	0	1,35	*b*	*	0,02	1,26	126,44
42	A59	PB03	DB08	1,42	1,45	1,45	1,40	0	1,43	*b*	*	0,02	1,71	133,68
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	N	Mean	SI	VI
all labs	156	**1,07**	**0,018**	**1,703**
10	% from the mean			
	L		SR	VR
	39		**0,058**	**5,415**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Mg **Sample: 3** Unit: mg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean			Lab.standard dev. Si	Vi	Recovery %
1	A43	PB06	DB01	0,68	0,71	0,73	0,71	4	0,71		*	0,02	2,89	84,71
2	A79	PD03	DB10	0,71	0,73	0,71	0,71	4	0,72		*	0,01	1,43	85,67
3	F06x	PD02	DB08	0,76	0,75	0,76	0,75	4	0,75			0,00	0,27	90,44
4	F33x	PD01	DB10	0,73	0,78	0,70	0,84	4	0,76			0,06	7,88	91,27
5	A56	PC01	DB08	0,76	0,76	0,76	0,77	4	0,76			0,00	0,57	91,40
6	A82	PC01	DB08	0,78	0,78	0,78	0,78	4	0,78			0,00	0,23	93,09
7	F27	PD01	DB01	0,77	0,80	0,82	0,81	4	0,80			0,02	2,78	95,94
8	F14x	PC01	DB08	0,80	0,81	0,82	0,81	4	0,81			0,01	0,66	96,99
9	F18x	PD99	DB08	0,81	0,81	0,81	0,81	4	0,81			0,00	0,21	97,32
10	F13x	PD01	DB08	0,82	0,82	0,81	0,81	4	0,81			0,01	0,99	97,38
11	F07x	PC01	DB08	0,82	0,82	0,82	0,81	4	0,82			0,00	0,56	97,77
12	F32x	PD02	DB08	0,82	0,82	0,82	0,82	4	0,82			0,00	0,21	98,04
13	A61x	PD01	DB08	0,83	0,81	0,83	0,80	4	0,82			0,02	2,01	98,10
14	F03	PD02	DB08	0,83	0,82	0,83	0,83	4	0,83			0,01	0,60	99,15
15	F19x	PD02	DB08	0,83	0,83	0,84	0,82	4	0,83			0,01	0,77	99,23
16	A49	PD05	DB08	0,83	0,82	0,84	0,83	4	0,83			0,01	0,92	99,59
17	A42	PB04	DB01	0,82	0,84	0,83	0,84	4	0,83			0,01	1,38	99,71
18	F04	PD02	DB01	0,83	0,83	0,84	0,84	4	0,84			0,01	0,69	100,04
19	F01x	PB04	DB01	0,85	0,82	0,84	0,83	4	0,84			0,01	1,55	100,04
20	A45x	PB99	DB08	0,84	0,84	0,84	0,84	4	0,84			0,00	0,41	100,43
21	A36	PD02	DB08	0,85	0,84	0,85	0,83	4	0,84			0,01	1,14	100,94
22	A91	PB02	DB08	0,84	0,85	0,80	0,89	4	0,85			0,04	4,37	101,24
23	F21x	PD02	DB01	0,85	0,85	0,84	0,85	4	0,85			0,01	0,59	101,54
24	F02x	PD02	DB08	0,84	0,86	0,85	0,87	4	0,85			0,01	1,56	102,29
25	F25	PB06	DB08	0,85	0,86	0,85	0,86	4	0,86			0,01	0,68	102,44
26	F12x	PD01	DB08	0,87	0,86	0,86	0,86	4	0,86			0,00	0,29	103,46
27	A57	PZ98	DD02	0,87	0,87	*0,94a*	0,86	3	0,87			0,01	0,67	103,84
28	F05x	PD02	DB08	0,87	0,87	0,87	0,87	4	0,87			0,00	0,15	103,91
29	F16x	PC01	DB08	0,88	0,88	0,86	0,85	4	0,87			0,02	1,77	104,20
30	A60x	PD01	DB10	0,91	0,85	0,88	0,85	4	0,87			0,03	3,21	104,63
31	F08	PZ99	DB08	0,88	0,88	0,86	0,87	4	0,87			0,01	1,15	104,63
32	F26	PB05	DB09	0,87	0,87	0,88	0,88	4	0,88			0,01	0,66	104,84
33	F15x	PC01	DB08	0,89	0,87	0,88	0,88	4	0,88			0,01	0,93	105,44
34	A53	PZ02	DD02	0,88	0,89	0,88	0,88	4	0,88			0,01	0,57	105,73
35	A55	PD02	DB08	0,89	0,88	0,88	0,89	4	0,88			0,01	0,62	105,82
36	F24x	PB03	DB01	0,88	0,89	0,90	0,89	4	0,89			0,01	0,74	106,54
37	F09	PZ02	DD02	0,87	0,89	0,90	0,93	4	0,90			0,03	2,79	107,53
38	A39	PD02	DB08	0,95	0,90	0,87	0,87	4	0,90			0,04	4,02	107,77
39	A65	PD01	DB08	0,91	0,90	0,90	0,89	4	0,90			0,01	0,91	107,86
40	A88	PD99	DB08	1,02	1,05	1,06	1,09	0	1,06	*b*	*	0,03	2,69	126,46
41	A59	PB03	DB08	1,18	1,15	1,17	1,12	0	1,16	*b*	*	0,03	2,29	138,38
42	A62x	PC02	DB01	1,28	*1,22a*	1,29	1,29	0	1,29	*b*	*	0,01	0,45	154,16
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	N	Mean	SI	VI
all labs	155	**0,83**	**0,011**	**1,369**
10	% from the mean			
	L		SR	VR
	39		**0,048**	**5,716**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Mg **Sample: 4** Unit: mg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean		Lab.standard dev. Si	Vi	Recovery %
1	A43	PB06	DB01	0,82	0,79	0,79	0,71	4	0,78	*	0,05	6,12	82,37
2	A79	PD03	DB10	0,78	0,79	0,79	0,79	4	0,79	*	0,01	0,74	83,49
3	F06x	PD02	DB08	0,83	0,84	0,87	0,82	4	0,84	*	0,02	2,62	89,26
4	A56	PC01	DB08	0,85	0,84	0,86	0,85	4	0,85		0,01	0,61	90,28
5	A82	PC01	DB08	0,86	0,85	0,86	0,88	4	0,86		0,01	1,19	91,56
6	F27	PD01	DB01	0,90	0,89	0,88	0,91	4	0,89		0,01	1,11	94,77
7	F33x	PD01	DB10	0,91	0,95	0,84	0,88	4	0,89		0,05	5,14	95,01
8	F14x	PC01	DB08	0,90	0,90	0,90	0,89	4	0,90		0,00	0,43	95,40
9	F18x	PD99	DB08	0,90	0,90	0,90	0,90	4	0,90		0,00	0,11	95,75
10	A49	PD05	DB08	0,90	0,91	0,91	0,91	4	0,91		0,00	0,24	96,31
11	F13x	PD01	DB08	0,91	0,91	0,90	0,91	4	0,91		0,01	0,65	96,33
12	A61x	PD01	DB08	0,91	0,92	0,91	0,90	4	0,91		0,01	0,89	96,63
13	F07x	PC01	DB08	0,91	0,92	0,93	0,91	4	0,92		0,01	1,16	97,42
14	A91	PB02	DB08	0,93	0,92	0,95	0,88	4	0,92		0,03	3,20	97,69
15	F19x	PD02	DB08	0,94	0,93	0,92	0,91	4	0,93		0,01	1,35	98,27
16	F32x	PD02	DB08	0,93	0,92	0,93	0,92	4	0,93		0,00	0,45	98,27
17	F03	PD02	DB08	0,93	0,92	0,93	0,93	4	0,93		0,01	0,54	98,48
18	A45x	PB99	DB08	0,93	0,93	0,92	0,94	4	0,93		0,01	1,03	98,59
19	F01x	PB04	DB01	0,94	0,95	0,93	0,91	4	0,93		0,02	1,83	99,01
20	F26	PB05	DB09	0,94	0,95	0,94	0,92	4	0,94		0,01	1,34	99,55
21	F21x	PD02	DB01	0,93	0,94	0,94	0,94	4	0,94		0,00	0,53	99,55
22	F02x	PD02	DB08	0,94	0,96	0,91	0,94	4	0,94		0,02	2,09	99,65
23	F12x	PD01	DB08	0,94	0,95	0,93	0,95	4	0,94		0,01	0,99	100,00
24	A42	PB04	DB01	0,97	0,95	0,94	0,93	4	0,95		0,02	1,60	100,42
25	F04	PD02	DB01	0,93	0,92	0,96	0,98	4	0,95		0,03	2,91	100,61
26	A36	PD02	DB08	0,96	0,94	0,95	0,95	4	0,95		0,01	0,86	100,87
27	F05x	PD02	DB08	0,96	0,96	0,95	0,96	4	0,96		0,00	0,15	101,40
28	A60x	PD01	DB10	0,96	0,95	0,98	0,95	4	0,96		0,01	1,26	101,96
29	F15x	PC01	DB08	0,98	0,96	0,96	0,95	4	0,96		0,01	1,31	102,20
30	F25	PB06	DB08	0,97	0,98	0,98	0,96	4	0,97		0,01	0,98	103,26
31	A57	PZ98	DD02	0,95	0,96	1,02	0,98	4	0,98		0,03	3,17	103,79
32	F16x	PC01	DB08	0,97	1,02	0,99	0,96	4	0,98		0,03	2,68	104,49
33	F24x	PB03	DB01	0,98	0,99	0,99	0,99	4	0,99		0,00	0,37	104,83
34	A53	PZ02	DD02	0,98	0,99	0,99	0,99	4	0,99		0,01	0,51	104,85
35	A65	PD01	DB08	1,00	0,99	0,99	0,98	4	0,99		0,00	0,48	104,93
36	A55	PD02	DB08	1,00	0,99	0,99	0,99	4	0,99		0,00	0,39	105,32
37	F09	PZ02	DD02	0,96	1,00	1,03	1,06	4	1,01		0,04	4,22	107,51
38	F08	PZ99	DB08	1,03	0,99	1,04	1,01	4	1,02		0,02	2,31	107,77
39	A39	PD02	DB08	1,06	1,10	1,10	1,06	4	1,08	*	0,02	2,22	114,68
40	A88	PD99	DB08	1,17	1,08	0,97	1,16	4	1,09	*	0,09	8,51	116,14
41	A62x	PC02	DB01	1,22	1,20	1,15	1,00	4	1,14	*	0,10	8,71	121,31
42	A59	PB03	DB08	1,25	1,38	1,31	1,25	0	1,30	*b* *	0,06	4,77	137,77
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	N	Mean	SI	VI
all labs	164	**0,94**	**0,018**	**1,933**
10	% from the mean			
	L		SR	VR
	41		**0,070**	**7,453**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: K **Sample: 1** Unit: mg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean			Lab.standard dev. Si	Vi	Recovery %
1	F04	PC02	DB06	3,42	3,11	3,12	3,46	0	3,28	*b*	*	0,19	5,75	49,02
2	A43	PB06	DB01	4,83	4,96	4,58	4,85	0	4,81	*b*	*	0,16	3,34	71,87
3	A82	PC01	DB08	5,86	5,81	5,98	5,86	4	5,88		*	0,07	1,23	87,91
4	A62x	PD02	DB01	6,31	5,51	6,45	5,68	4	5,99		*	0,46	7,72	89,55
5	F08	PZ99	DB08	6,16	6,20	6,15	6,14	4	6,16			0,03	0,43	92,17
6	A79	PD03	DB10	6,10	6,20	6,43	6,35	4	6,27			0,15	2,37	93,77
7	A49	PD05	DB08	6,24	6,32	6,29	6,34	4	6,30			0,04	0,66	94,20
8	A56	PC01	DB08	6,30	6,35	6,29	6,37	4	6,33			0,04	0,65	94,63
9	F07x	PC01	DB08	6,35	6,44	6,35	6,32	4	6,36			0,05	0,82	95,16
10	A61x	PD01	DB08	6,41	6,40	6,43	6,34	4	6,39			0,04	0,58	95,64
11	F06x	PD02	DB08	6,40	6,40	6,36	6,49	4	6,41			0,06	0,89	95,89
12	F03	PD02	DB08	6,44	6,50	6,47	6,46	4	6,47			0,02	0,39	96,73
13	A60x	PD01	DB10	6,72	6,14	6,83	6,20	4	6,47			0,35	5,43	96,81
14	F18x	PD99	DB08	6,48	6,48	6,50	6,51	4	6,49			0,01	0,23	97,11
15	F19x	PD02	DB07	6,43	6,44	6,55	6,68	4	6,53			0,12	1,79	97,59
16	A45x	PB99	DB08	6,53	6,63	6,53	6,59	4	6,57			0,05	0,75	98,26
17	F27	PD01	DB06	6,53	6,68	6,51	6,61	4	6,58			0,08	1,21	98,47
18	F13x	PD01	DB08	6,81	6,73	6,84	6,52	4	6,73			0,14	2,15	100,58
19	A91	PB02	DB08	6,61	6,75	6,77	6,77	4	6,73			0,08	1,15	100,58
20	F14x	PC01	DB08	6,77	6,70	6,72	6,73	4	6,73			0,03	0,43	100,68
21	A88	PD99	DB08	7,10	6,35	7,10	6,43	4	6,75			0,41	6,10	100,92
22	A42	PB04	DB01	6,77	6,72	6,79	6,74	4	6,76			0,03	0,47	101,04
23	F24x	PB03	DB01	6,66	6,74	6,81	6,93	4	6,78			0,11	1,69	101,46
24	F01x	PB04	DB01	6,84	6,70	6,78	6,87	4	6,80			0,07	1,10	101,67
25	F02x	PD02	DB08	6,80	6,71	6,83	6,86	4	6,80			0,06	0,92	101,69
26	F05x	PD02	DB08	6,81	6,86	6,82	6,80	4	6,82			0,03	0,39	102,04
27	A57	PZ98	DD02	6,85	6,91	6,78	6,76	4	6,83			0,07	1,00	102,08
28	A36	PD02	DB08	6,83	6,89	6,90	6,73	4	6,84			0,08	1,14	102,27
29	F26	PB05	DB09	6,85	6,88	6,83	6,80	4	6,84			0,03	0,49	102,30
30	F33x	PD01	DB10	6,71	7,37	6,38	6,92	4	6,85			0,41	6,06	102,38
31	F16x	PC01	DB08	6,70	6,65	7,08	7,05	4	6,87			0,22	3,26	102,77
32	F25	PB06	DB08	6,83	6,95	6,91	6,86	4	6,89			0,05	0,77	103,01
33	A55	PD02	DB08	6,96	6,88	6,86	6,88	4	6,90			0,04	0,65	103,17
34	F15x	PC01	DB08	6,94	6,97	6,92	6,90	4	6,93			0,03	0,43	103,69
35	F12x	PC01	DB08	6,90	7,00	6,99	6,95	4	6,96			0,05	0,65	104,10
36	A53	PZ02	DD02	6,96	6,98	7,02	6,97	4	6,98			0,03	0,38	104,43
37	F09	PZ02	DD02	6,80	6,96	7,04	7,16	4	6,99			0,15	2,16	104,55
38	A65	PD01	DB08	6,97	7,29	6,95	6,79	4	7,00			0,21	2,99	104,70
39	F21x	PD02	DB01	7,03	7,11	7,13	7,04	4	7,08			0,05	0,71	105,85
40	F32x	PD02	DB08	7,28	7,26	7,21	7,22	4	7,24			0,03	0,46	108,32
41	A39	PD02	DB08	7,52	7,42	7,71	7,27	4	7,48		*	0,19	2,51	111,86
42	A59	PB03	DB08	8,63	8,49	8,41	8,50	0	8,51	*b*	*	0,09	1,07	127,24
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	N	Mean	SI	VI
all labs	156	**6,69**	**0,108**	**1,609**
10	% from the mean			
	L		SR	VR
	39		**0,328**	**4,912**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: K **Sample: 2** Unit: mg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean			Lab.standard dev. Si	Vi	Recovery %
1	F04	PC02	DB06	3,78	3,75	3,57	3,68	0	3,70	*b*	*	0,09	2,52	50,74
2	A43	PB06	DB01	5,72	5,30	5,45	5,35	0	5,46	*b*	*	0,19	3,43	74,91
3	A88	PD99	DB08	6,68	6,21	6,25	5,74	4	6,22		*	0,39	6,20	85,43
4	F33x	PD01	DB10	6,56	6,79	6,19	6,01	4	6,39		*	0,35	5,52	87,71
5	A82	PC01	DB08	6,47	6,49	6,49	6,58	4	6,51		*	0,05	0,76	89,36
6	A62x	PD02	DB01	6,96	7,03	6,78	6,57	4	6,84			0,21	3,01	93,86
7	F07x	PC01	DB08	6,89	6,92	6,80	6,83	4	6,86			0,06	0,81	94,23
8	A79	PD03	DB10	6,78	6,96	6,83	6,89	4	6,86			0,08	1,11	94,26
9	A56	PC01	DB08	6,90	6,93	6,96	6,78	4	6,89			0,08	1,12	94,68
10	F08	PZ99	DB08	6,96	6,98	6,96	6,89	4	6,95			0,04	0,57	95,40
11	A61x	PD01	DB08	6,98	7,08	7,00	6,96	4	7,00			0,05	0,74	96,17
12	F27	PD01	DB06	7,01	6,94	7,15	7,25	4	7,09			0,14	1,98	97,30
13	A49	PD05	DB08	7,05	7,02	7,08	7,22	4	7,09			0,09	1,23	97,40
14	F03	PD02	DB08	7,12	7,09	7,14	7,08	4	7,11			0,03	0,39	97,60
15	A60x	PD01	DB10	7,30	6,74	7,54	6,95	4	7,13			0,36	5,03	97,96
16	F06x	PD02	DB08	7,28	7,27	7,05	7,02	4	7,15			0,14	1,93	98,24
17	F18x	PD99	DB08	7,22	7,14	7,17	7,17	4	7,18			0,03	0,46	98,53
18	F01x	PB04	DB01	7,07	7,25	7,14	7,31	4	7,19			0,11	1,50	98,77
19	A42	PB04	DB01	7,18	7,13	7,30	7,27	4	7,22			0,08	1,10	99,13
20	F19x	PD02	DB07	7,25	7,24	7,33	7,28	4	7,28			0,04	0,56	99,90
21	A57	PZ98	DD02	7,32	7,38	7,31	7,23	4	7,31			0,06	0,84	100,38
22	A91	PB02	DB08	7,46	7,31	7,46	7,05	4	7,32			0,19	2,64	100,52
23	F13x	PD01	DB08	7,43	7,35	7,17	7,35	4	7,33			0,11	1,50	100,59
24	F24x	PB03	DB01	7,25	7,35	7,46	7,49	4	7,39			0,11	1,47	101,43
25	A45x	PB99	DB08	7,40	7,46	7,48	7,38	4	7,43			0,05	0,64	102,03
26	F21x	PD02	DB01	7,37	7,36	7,42	7,60	4	7,44			0,11	1,50	102,13
27	F15x	PC01	DB08	7,48	7,47	7,44	7,47	4	7,47			0,02	0,23	102,51
28	A65	PD01	DB08	7,50	7,52	7,44	7,54	4	7,50			0,04	0,58	102,99
29	F14x	PC01	DB08	7,55	7,52	7,51	7,46	4	7,51			0,04	0,49	103,12
30	A53	PZ02	DD02	7,53	7,50	7,52	7,53	4	7,52			0,01	0,19	103,27
31	F16x	PC01	DB08	7,49	7,49	7,76	7,53	4	7,56			0,13	1,70	103,87
32	F02x	PD02	DB08	7,64	7,50	7,60	7,54	4	7,57			0,06	0,83	103,94
33	F25	PB06	DB08	7,63	7,61	7,55	7,50	4	7,57			0,06	0,78	103,99
34	F05x	PD02	DB08	7,56	7,61	7,59	7,55	4	7,58			0,03	0,36	104,06
35	F09	PZ02	DD02	7,36	7,49	7,74	7,75	4	7,59			0,19	2,53	104,16
36	A36	PD02	DB08	7,66	7,68	7,48	7,69	4	7,63			0,10	1,30	104,74
37	A55	PD02	DB08	7,60	7,68	7,62	7,66	4	7,64			0,03	0,45	104,92
38	F12x	PC01	DB08	7,68	7,69	7,70	7,55	4	7,66			0,07	0,92	105,12
39	F26	PB05	DB09	7,52	7,71	7,80	7,81	4	7,71			0,13	1,74	105,88
40	F32x	PD02	DB08	8,04	7,91	7,88	8,02	4	7,96			0,08	1,00	109,34
41	A39	PD02	DB08	8,56	8,23	8,29	8,44	4	8,38		*	0,15	1,79	115,06
42	A59	PB03	DB08	9,20	9,40	9,48	9,24	0	9,33	*b*	*	0,13	1,42	128,12
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	N	Mean	SI	VI
all labs	156	**7,28**	**0,105**	**1,440**
10	% from the mean			
	L		SR	VR
	39		**0,413**	**5,677**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: K **Sample: 3** Unit: mg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean			Lab.standard dev. Si	Vi	Recovery %
1	F04	PC02	DB06	2,66	2,69	2,61	2,61	0	2,64	*b*	*	0,04	1,49	48,53
2	A43	PB06	DB01	3,53	3,48	3,48	3,54	0	3,51	*b*	*	0,03	0,91	64,42
3	A79	PD03	DB10	4,83	4,75	4,78	4,66	4	4,75		*	0,07	1,51	87,31
4	A62x	PD02	DB01	4,95	*4,36a*	4,84	4,89	3	4,89		*	0,06	1,13	89,87
5	A82	PC01	DB08	4,78	4,80	4,79	4,82	4	4,80		*	0,02	0,36	88,11
6	F33x	PD01	DB10	4,79	5,11	4,66	5,50	4	5,02			0,37	7,47	92,11
7	A49	PD05	DB08	5,13	4,98	5,09	5,07	4	5,07			0,07	1,32	93,07
8	A56	PC01	DB08	5,11	5,07	5,11	5,15	4	5,11			0,03	0,65	93,79
9	F07x	PC01	DB08	5,13	5,10	5,18	5,15	4	5,14			0,03	0,65	94,47
10	A61x	PD01	DB08	5,24	5,17	5,26	5,12	4	5,20			0,07	1,27	95,42
11	F08	PZ99	DB08	5,16	5,39	5,21	5,15	4	5,23			0,11	2,13	96,01
12	F27	PD01	DB06	5,15	5,33	5,35	5,14	4	5,24			0,11	2,19	96,31
13	F03	PD02	DB08	5,24	5,32	5,32	5,28	4	5,29			0,04	0,72	97,16
14	A60x	PD01	DB10	5,56	5,07	5,54	5,06	4	5,31			0,28	5,25	97,46
15	F18x	PD99	DB08	5,33	5,32	5,31	5,31	4	5,32			0,01	0,18	97,66
16	F19x	PD02	DB07	5,33	5,30	5,37	5,36	4	5,34			0,03	0,59	98,08
17	F14x	PC01	DB08	5,39	5,35	5,43	5,39	4	5,39			0,03	0,64	98,99
18	F06x	PD02	DB08	5,44	5,37	5,41	5,42	4	5,41			0,03	0,55	99,31
19	A91	PB02	DB08	5,34	5,52	5,46	5,32	4	5,41			0,10	1,77	99,36
20	A57	PZ98	DD02	5,39	5,43	5,51	5,40	4	5,43			0,05	1,00	99,77
21	F13x	PD01	DB08	5,61	5,48	5,40	5,44	4	5,48			0,09	1,66	100,69
22	F25	PB06	DB08	5,51	5,52	5,51	5,52	4	5,52			0,01	0,10	101,29
23	F02x	PD02	DB08	5,56	5,52	5,59	5,42	4	5,52			0,08	1,40	101,43
24	F16x	PC01	DB08	5,63	5,55	5,49	5,44	4	5,52			0,08	1,47	101,47
25	A45x	PB99	DB08	5,55	5,60	5,54	5,57	4	5,57			0,03	0,48	102,21
26	A36	PD02	DB08	5,62	5,53	5,62	5,50	4	5,57			0,06	1,11	102,25
27	A55	PD02	DB08	5,56	5,58	5,62	5,58	4	5,58			0,02	0,45	102,57
28	A65	PD01	DB08	5,65	5,57	5,61	5,55	4	5,60			0,04	0,79	102,76
29	A53	PZ02	DD02	5,63	5,66	5,64	5,61	4	5,64			0,02	0,37	103,49
30	F01x	PB04	DB01	5,69	5,67	5,63	5,64	4	5,66			0,03	0,49	103,91
31	F24x	PB03	DB01	5,63	5,65	5,68	5,79	4	5,69			0,07	1,28	104,49
32	F09	PZ02	DD02	5,56	5,68	5,75	5,83	4	5,71			0,11	2,01	104,78
33	F05x	PD02	DB08	5,73	5,71	5,70	5,69	4	5,71			0,02	0,30	104,83
34	A42	PB04	DB01	5,57	5,77	5,70	5,79	4	5,71			0,10	1,75	104,86
35	F12x	PC01	DB08	5,73	5,75	5,72	5,64	4	5,71			0,05	0,85	104,87
36	F15x	PC01	DB08	5,75	5,70	5,77	5,67	4	5,72			0,05	0,80	105,10
37	F26	PB05	DB09	5,72	5,75	5,76	5,74	4	5,74			0,02	0,30	105,47
38	F21x	PD02	DB01	5,84	5,82	5,85	5,92	4	5,86			0,04	0,74	107,58
39	F32x	PD02	DB08	5,88	5,86	5,87	5,86	4	5,87			0,01	0,16	107,76
40	A39	PD02	DB08	6,08	5,85	6,14	6,19	4	6,06		*	0,15	2,49	111,38
41	A88	PD99	DB08	6,33	6,50	6,51	6,69	0	6,51	*b*	*	0,15	2,23	119,52
42	A59	PB03	DB08	7,40	7,30	7,36	7,04	0	7,28	*b*	*	0,16	2,23	133,61
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	N	Mean	SI	VI
all labs	151	**5,44**	**0,068**	**1,255**
10	% from the mean			
	L		SR	VR
	38		**0,302**	**5,543**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: K **Sample: 4** Unit: mg/g

No.	Lab.	Method code		Replications				n	Lab.mean			Lab.standard dev.		Recovery
	Code	P	D	1	2	3	4					Si	Vi	%
1	F04	PC02	DB06	2,72	3,14	2,81	2,76	0	2,86	*b*	*	0,19	6,72	49,10
2	A79	PD03	DB10	4,99	4,96	4,97	5,06	4	4,99		*	0,04	0,86	85,81
3	A62x	PD02	DB01	4,49	5,21	5,50	5,04	4	5,06		*	0,42	8,40	86,95
4	A82	PC01	DB08	5,16	5,17	5,20	5,32	4	5,21		*	0,07	1,41	89,57
5	A56	PC01	DB08	5,42	5,36	5,45	5,42	4	5,41			0,04	0,67	93,00
6	F27	PD01	DB06	5,47	5,42	5,53	5,45	4	5,47			0,04	0,82	93,93
7	A61x	PD01	DB08	5,50	5,54	5,59	5,56	4	5,55			0,04	0,67	95,30
8	F08	PZ99	DB08	5,58	5,60	5,48	5,53	4	5,55			0,05	0,97	95,33
9	F07x	PC01	DB08	5,51	5,60	5,57	5,53	4	5,55			0,04	0,76	95,42
10	A60x	PD01	DB10	6,06	5,39	5,49	5,53	4	5,62			0,30	5,41	96,49
11	F33x	PD01	DB10	5,68	5,96	5,35	5,63	4	5,66			0,25	4,42	97,17
12	F18x	PD99	DB08	5,66	5,66	5,67	5,66	4	5,66			0,00	0,09	97,30
13	A49	PD05	DB08	5,32	5,74	5,87	5,83	4	5,69			0,25	4,42	97,77
14	F19x	PD02	DB07	5,73	5,71	5,65	5,70	4	5,70			0,03	0,60	97,90
15	F03	PD02	DB08	5,69	5,71	5,70	5,74	4	5,71			0,02	0,38	98,12
16	F14x	PC01	DB08	5,85	5,83	5,76	5,76	4	5,80			0,05	0,79	99,66
17	A57	PZ98	DD02	5,76	5,83	5,92	5,83	4	5,84			0,07	1,12	100,27
18	F01x	PB04	DB01	5,77	5,94	5,78	5,87	4	5,84			0,08	1,38	100,35
19	F06x	PD02	DB08	5,82	5,88	5,96	5,77	4	5,86			0,08	1,43	100,62
20	A42	PB04	DB01	5,96	5,82	5,85	5,84	4	5,87			0,06	1,03	100,81
21	A65	PD01	DB08	5,92	5,89	5,84	5,83	4	5,87			0,04	0,72	100,87
22	F13x	PD01	DB08	5,88	5,91	5,80	5,92	4	5,88			0,05	0,93	101,00
23	A45x	PB99	DB08	5,93	5,99	5,87	5,97	4	5,94			0,05	0,89	102,07
24	F26	PB05	DB09	5,92	5,95	6,03	5,89	4	5,95			0,06	1,01	102,20
25	A91	PB02	DB08	5,77	5,77	6,14	6,14	4	5,96			0,21	3,59	102,33
26	F16x	PC01	DB08	5,84	5,91	6,10	6,02	4	5,97			0,11	1,93	102,50
27	F02x	PD02	DB08	6,01	5,92	5,99	5,97	4	5,97			0,04	0,65	102,63
28	F24x	PB03	DB01	5,91	5,96	5,98	6,12	4	5,99			0,09	1,50	102,94
29	F25	PB06	DB08	5,87	6,01	6,11	5,98	4	5,99			0,10	1,65	102,97
30	F05x	PD02	DB08	5,98	6,00	5,98	6,01	4	5,99			0,01	0,25	102,97
31	A43	PB06	DB01	6,05	5,98	6,03	5,95	4	6,00			0,05	0,76	103,14
32	A36	PD02	DB08	6,05	5,93	6,03	6,01	4	6,01			0,05	0,88	103,19
33	A53	PZ02	DD02	5,99	6,00	6,04	6,00	4	6,01			0,02	0,37	103,23
34	F09	PZ02	DD02	5,86	5,99	6,09	6,22	4	6,04			0,15	2,53	103,79
35	F15x	PC01	DB08	6,13	6,01	6,06	6,04	4	6,06			0,05	0,84	104,13
36	A55	PD02	DB08	6,08	6,04	6,07	6,06	4	6,06			0,02	0,31	104,19
37	F12x	PC01	DB08	6,10	6,13	5,98	6,07	4	6,07			0,06	1,07	104,30
38	F21x	PD02	DB01	6,17	6,07	6,08	6,09	4	6,10			0,05	0,75	104,86
39	F32x	PD02	DB08	6,35	6,32	6,36	6,36	4	6,35			0,02	0,30	109,07
40	A88	PD99	DB08	6,97	6,40	6,76	6,84	4	6,74		*	0,25	3,64	115,83
41	A59	PB03	DB08	7,54	8,11	7,83	7,62	0	7,78	*b*	*	0,25	3,27	133,60
42	A39	PD02	DB08	8,21	8,42	8,46	8,21	0	8,32	*b*	*	0,14	1,64	143,04
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	N	Mean	SI	VI
all labs	156	**5,82**	**0,089**	**1,522**
10	% from the mean			
	L		SR	VR
	39		**0,325**	**5,580**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: C **Sample: 1** Unit: g/100g

No.	Lab.	Method code		Replications				n	Lab.mean			Lab.standard dev.		Recovery
	Code	P	D	1	2	3	4					Si	Vi	%
1	A59	PZ98	DA02	48,12	48,47	48,26	48,29	0	48,29	*b*	*	0,14	0,30	92,85
2	A49	PZ98	DA02	50,77	50,64	50,61	50,63	4	50,66			0,07	0,14	97,42
3	F26x	PZ98	DA02	50,80	50,60	50,80	50,60	4	50,70			0,12	0,23	97,49
4	F02x	PZ98	DA01	50,75	51,12	51,02	50,84	4	50,93			0,17	0,33	97,94
5	F06x	PZ98	DA02	51,26	51,25	51,20	51,36	4	51,27			0,07	0,13	98,58
6	F07x	PZ98	DA01	50,36	51,60	51,61	51,59	4	51,29			0,62	1,21	98,63
7	F21x	PZ98	DA02	51,35	51,25	51,15	51,50	4	51,31			0,15	0,29	98,67
8	A45x	PZ98	DA01	51,40	51,40	51,50	51,40	4	51,43			0,05	0,10	98,89
9	A60x	PZ98	DA02	51,25	51,32	51,51	51,66	4	51,43			0,19	0,36	98,90
10	F13x	PZ98	DA01	51,63	51,54	51,46	51,55	4	51,55			0,07	0,13	99,12
11	F32x	PZ98	DA01	51,60	51,60	51,50	51,50	4	51,55			0,06	0,11	99,13
12	A39	PZ98	DA02	51,85	51,43	51,44	51,49	4	51,55			0,20	0,39	99,13
13	F25	PZ98	DA01	51,52	51,64	51,60	51,56	4	51,58			0,05	0,10	99,18
14	A57	PZ98	DA01	51,73	51,51	51,79	51,57	4	51,65			0,13	0,25	99,32
15	A86	PZ98	DA01	51,67	51,61	51,69	51,66	4	51,66			0,03	0,07	99,34
16	F16x	PZ98	DA02	51,69	51,81	51,73	51,83	4	51,77			0,07	0,13	99,54
17	F14x	PZ98	DA01	52,00	51,80	51,70	51,70	4	51,80			0,14	0,27	99,61
18	A61x	PZ98	DA02	52,54	51,66	51,60	51,43	4	51,81			0,50	0,96	99,62
19	F05x	PZ98	DA01	51,91	51,89	51,89	51,90	4	51,90			0,01	0,02	99,79
20	A82	PZ98	DA02	51,90	51,90	52,00	51,80	4	51,90			0,08	0,16	99,80
21	A65	PZ98	DA02	51,90	52,00	52,00	51,70	4	51,90			0,14	0,27	99,80
22	F08	PZ98	DA01	51,90	51,90	51,80	52,20	4	51,95			0,17	0,33	99,89
23	F18x	PZ98	DA99	51,60	51,60	52,60	52,60	4	52,10			0,58	1,11	100,18
24	F19x	PD02	DB08	52,30	52,10	52,00	52,20	4	52,15			0,13	0,25	100,28
25	F12x	PZ98	DA02	52,55	52,47	52,51	52,63	4	52,54			0,07	0,13	101,03
26	F24x	PZ98	DA01	52,55	52,64	52,74	52,89	4	52,71			0,15	0,28	101,35
27	F03	PZ98	DA01	52,97	52,61	52,64	53,00	4	52,81			0,21	0,39	101,54
28	F27	PZ98	DA01	52,86	52,88	52,86	53,29	4	52,97			0,21	0,40	101,86
29	A62x	PZ98	DA01	53,15	52,99	*59,15a*	52,92	3	53,02			0,12	0,22	101,95
30	A55	PZ98	DA01	52,80	53,10	53,50	53,90	4	53,33			0,48	0,90	102,54
31	F15x	PZ98	DA01	53,37	53,56	53,28	53,34	4	53,39			0,12	0,23	102,66
32	A56	PZ98	DA02	53,79	53,80	53,90	53,89	4	53,85			0,06	0,11	103,54
33	F04	PC99	DZ99	53,94	54,13	54,07	53,74	4	53,97			0,17	0,32	103,78
34	F33x	PZ98	DA99	54,90	55,23	55,29	55,00	0	55,11	*b*	*	0,19	0,34	105,96
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	N	Mean	SI	VI
all labs	127	**52,00**	**0,168**	**0,323**
5	% from the mean			

L	SR	VR
32	**0,850**	**1,634**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: C **Sample: 2** Unit: g/100g

No.	Lab.	Method code		Replications				n	Lab.mean		Lab.standard dev.		Recovery
	Code	P	D	1	2	3	4				Si	Vi	%
1	A59	PZ98	DA02	49,05	49,06	48,98	49,03	4	49,03	*	0,04	0,07	94,32
2	A49	PZ98	DA02	50,33	50,32	50,28	50,36	4	50,32		0,03	0,07	96,81
3	F26x	PZ98	DA02	50,70	50,50	50,30	50,50	4	50,50		0,16	0,32	97,15
4	F21x	PZ98	DA02	50,94	51,05	50,83	50,93	4	50,94		0,09	0,18	97,99
5	F13x	PZ98	DA01	51,11	51,20	51,14	51,21	4	51,17		0,05	0,09	98,43
6	F06x	PZ98	DA02	51,10	51,33	51,24	51,23	4	51,23		0,09	0,18	98,54
7	F02x	PZ98	DA01	51,10	51,29	51,46	51,42	4	51,32		0,16	0,32	98,72
8	F07x	PZ98	DA01	51,04	51,43	51,02	51,79	4	51,32		0,37	0,71	98,73
9	F25	PZ98	DA01	51,43	51,36	51,34	51,43	4	51,39		0,05	0,09	98,86
10	A45x	PZ98	DA01	51,50	51,50	51,40	51,40	4	51,45		0,06	0,11	98,98
11	F32x	PZ98	DA01	51,70	51,60	51,60	51,60	4	51,63		0,05	0,10	99,31
12	A86	PZ98	DA01	51,63	51,61	51,63	51,63	4	51,63		0,01	0,02	99,31
13	A39	PZ98	DA02	51,84	51,55	51,63	51,67	4	51,67		0,12	0,24	99,40
14	F14x	PZ98	DA01	51,70	51,70	51,60	51,70	4	51,68		0,05	0,10	99,41
15	A61x	PZ98	DA02	51,60	51,64	51,65	51,85	4	51,69		0,11	0,22	99,43
16	A82	PZ98	DA02	52,00	52,10	51,00	51,70	4	51,70		0,50	0,96	99,46
17	F18x	PZ98	DA99	51,20	51,20	52,30	52,30	4	51,75		0,64	1,23	99,55
18	F16x	PZ98	DA02	51,83	51,70	51,77	51,74	4	51,76		0,05	0,11	99,57
19	F08	PZ98	DA01	51,90	52,00	51,80	51,90	4	51,90		0,08	0,16	99,84
20	F05x	PZ98	DA01	51,96	51,93	51,93	51,96	4	51,95		0,02	0,03	99,93
21	A60x	PZ98	DA02	51,86	51,91	52,09	52,19	4	52,01		0,15	0,29	100,06
22	A65	PZ98	DA02	52,00	52,20	52,20	52,20	4	52,15		0,10	0,19	100,32
23	F03	PZ98	DA01	51,75	52,59	52,09	52,24	4	52,17		0,35	0,67	100,36
24	F19x	PD02	DB08	52,20	52,00	52,30	52,60	4	52,28		0,25	0,48	100,56
25	F12x	PZ98	DA02	52,37	52,50	52,40	52,70	4	52,49		0,15	0,28	100,98
26	A57	PZ98	DA01	53,01	52,69	52,51	52,41	4	52,66		0,26	0,50	101,30
27	F27	PZ98	DA01	52,55	52,67	52,69	53,04	4	52,74		0,21	0,40	101,45
28	F15x	PZ98	DA01	52,79	52,86	52,98	52,91	4	52,89		0,08	0,15	101,74
29	A62x	PZ98	DA01	53,06	53,01	53,10	52,96	4	53,03		0,06	0,11	102,02
30	F24x	PZ98	DA01	52,84	53,10	53,15	53,23	4	53,08		0,17	0,32	102,11
31	A55	PZ98	DA01	53,00	53,10	53,30	53,00	4	53,10		0,14	0,27	102,15
32	F04	PC99	DZ99	53,67	53,67	53,85	53,95	4	53,79		0,14	0,26	103,47
33	A56	PZ98	DA02	54,84	*55a*	54,84	54,82	3	54,83	*	0,01	0,02	105,49
34	F33x	PZ98	DA99	54,87	54,54	54,90	55,21	4	54,88	*	0,27	0,50	105,58
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	N	Mean	SI	VI
all labs	135	**51,98**	**0,149**	**0,287**
5	% from the mean			

L	SR	VR
34	**1,152**	**2,216**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: C **Sample: 3** Unit: g/100g

No.	Lab.	Method code		Replications				n	Lab.mean		Lab.standard dev.		Recovery
	Code	P	D	1	2	3	4				Si	Vi	%
1	A59	PZ98	DA02	48,80	48,79	48,77	48,78	4	48,79	*	0,01	0,03	93,42
2	F21x	PZ98	DA02	50,65	50,76	50,68	50,86	4	50,74		0,09	0,19	97,15
3	F26x	PZ98	DA02	51,00	50,60	50,70	50,70	4	50,75		0,17	0,34	97,18
4	A49	PZ98	DA02	50,77	50,86	50,92	51,00	4	50,89		0,10	0,19	97,44
5	F06x	PZ98	DA02	51,41	51,38	51,37	51,32	4	51,37		0,04	0,07	98,37
6	F07x	PZ98	DA01	51,07	51,46	51,84	51,53	4	51,48		0,32	0,61	98,57
7	F13x	PZ98	DA01	51,57	51,56	51,50	51,53	4	51,54		0,03	0,06	98,69
8	F02x	PZ98	DA01	51,47	51,62	51,52	51,64	4	51,56		0,08	0,16	98,73
9	F25	PZ98	DA01	51,58	51,62	51,58	51,53	4	51,58		0,04	0,07	98,76
10	A39	PZ98	DA02	51,78	51,59	51,62	51,64	4	51,66		0,09	0,17	98,92
11	A86	PZ98	DA01	51,79	51,68	51,82	51,80	4	51,77		0,06	0,12	99,14
12	F32x	PZ98	DA01	51,90	51,80	51,70	51,80	4	51,80		0,08	0,16	99,19
13	A61x	PZ98	DA02	51,87	51,91	51,88	51,71	4	51,84		0,09	0,17	99,27
14	A45x	PZ98	DA01	51,80	51,90	51,80	51,90	4	51,85		0,06	0,11	99,28
15	F14x	PZ98	DA01	52,00	51,90	51,90	51,80	4	51,90		0,08	0,16	99,38
16	F03	PZ98	DA01	52,06	52,03	51,70	51,97	4	51,94		0,16	0,32	99,46
17	A60x	PZ98	DA02	51,83	51,90	52,15	52,05	4	51,98		0,14	0,28	99,54
18	A82	PZ98	DA02	51,90	51,80	52,40	52,00	4	52,03		0,26	0,51	99,62
19	F16x	PZ98	DA02	51,94	52,15	52,07	51,98	4	52,04		0,09	0,18	99,64
20	F08	PZ98	DA01	52,10	52,00	52,00	52,10	4	52,05		0,06	0,11	99,67
21	F05x	PZ98	DA01	52,11	52,11	52,11	52,11	4	52,11		0,00	0,00	99,78
22	A65	PZ98	DA02	52,40	52,40	52,40	52,20	4	52,35		0,10	0,19	100,24
23	F18x	PZ98	DA99	52,40	52,40	53,40	51,40	4	52,40		0,82	1,56	100,34
24	F19x	PD02	DB08	52,30	52,40	52,60	52,40	4	52,43		0,13	0,24	100,39
25	F12x	PZ98	DA02	52,57	52,61	52,56	52,65	4	52,60		0,04	0,08	100,72
26	A57	PZ98	DA01	52,95	52,95	52,76	52,48	4	52,79		0,22	0,42	101,08
27	F27	PZ98	DA01	52,86	52,94	53,01	53,17	4	53,00		0,13	0,25	101,48
28	A62x	PZ98	DA01	53,42	53,22	52,88	53,05	4	53,14		0,23	0,44	101,76
29	F15x	PZ98	DA01	53,09	53,40	53,45	53,39	4	53,33		0,16	0,31	102,12
30	F24x	PZ98	DA01	53,38	53,48	53,68	54,17	4	53,68		0,35	0,65	102,78
31	A55	PZ98	DA01	53,10	54,10	53,00	55,50	4	53,93		1,16	2,15	103,26
32	F04	PC99	DZ99	54,21	53,66	54,02	53,97	4	53,97		0,23	0,42	103,33
33	A56	PZ98	DA02	54,94	55,05	54,97	54,94	4	54,98	*	0,05	0,09	105,27
34	F33x	PZ98	DA99	55,29	55,64	55,46	55,13	4	55,38	*	0,22	0,40	106,04
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	N	Mean	SI	VI
all labs	136	**52,22**	**0,174**	**0,333**
5	% from the mean			

L	SR	VR
34	**1,240**	**2,374**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: C **Sample: 4** Unit: g/100g

No.	Lab.	Method code		Replications				n	Lab.mean			Lab.standard dev.		Recovery
	Code	P	D	1	2	3	4					Si	Vi	%
1	A59	PZ98	DA02	48,14	48,18	47,70	48,00	0	48,01	*b*	*	0,22	0,45	92,08
2	F26x	PZ98	DA02	50,10	50,00	50,20	50,20	4	50,13			0,10	0,19	96,15
3	A49	PZ98	DA02	50,33	50,46	50,52	50,41	4	50,43			0,08	0,16	96,73
4	F21x	PZ98	DA02	50,46	50,74	50,71	50,74	4	50,66			0,14	0,27	97,18
5	F13x	PZ98	DA01	51,11	51,12	51,11	51,10	4	51,11			0,01	0,02	98,04
6	F25	PZ98	DA01	51,16	51,23	51,17	51,17	4	51,18			0,03	0,06	98,17
7	F06x	PZ98	DA02	51,17	51,12	51,24	51,24	4	51,19			0,06	0,11	98,19
8	F02x	PZ98	DA01	51,53	50,91	51,34	51,31	4	51,27			0,26	0,51	98,35
9	A61x	PZ98	DA02	51,44	51,51	51,38	51,33	4	51,42			0,08	0,15	98,62
10	A86	PZ98	DA01	51,41	51,58	51,43	51,43	4	51,46			0,08	0,15	98,71
11	A60x	PZ98	DA02	51,40	51,41	51,69	51,57	4	51,52			0,14	0,27	98,81
12	A82	PZ98	DA02	51,50	51,70	51,90	51,60	4	51,68			0,17	0,33	99,12
13	A39	PZ98	DA02	51,73	51,80	51,49	51,71	4	51,68			0,14	0,26	99,13
14	A57	PZ98	DA01	52,02	51,66	51,58	51,55	4	51,70			0,22	0,42	99,17
15	F03	PZ98	DA01	51,94	51,67	51,82	51,86	4	51,82			0,11	0,22	99,40
16	A45x	PZ98	DA01	51,80	51,80	51,90	51,80	4	51,83			0,05	0,10	99,41
17	F14x	PZ98	DA01	51,90	51,80	51,80	51,80	4	51,83			0,05	0,10	99,41
18	F08	PZ98	DA01	51,80	51,90	51,80	51,80	4	51,83			0,05	0,10	99,41
19	F07x	PZ98	DA01	50,13	51,04	54,45	51,77	4	51,85			1,86	3,59	99,45
20	F19x	PD02	DB08	52,00	51,90	52,00	52,10	4	52,00			0,08	0,16	99,74
21	F16x	PZ98	DA02	52,07	51,92	51,97	52,05	4	52,00			0,07	0,13	99,75
22	A65	PZ98	DA02	52,00	52,10	52,00	52,00	4	52,03			0,05	0,10	99,79
23	F05x	PZ98	DA01	52,08	52,01	52,01	52,06	4	52,04			0,04	0,07	99,82
24	A62x	PZ98	DA01	52,27	51,97	52,16	51,95	4	52,09			0,15	0,30	99,91
25	F32x	PZ98	DA01	52,30	52,30	52,20	52,20	4	52,25			0,06	0,11	100,22
26	F27	PZ98	DA01	52,18	52,64	52,23	52,54	4	52,40			0,23	0,43	100,50
27	F18x	PZ98	DA99	52,70	51,70	52,70	52,70	4	52,45			0,50	0,95	100,61
28	F12x	PZ98	DA02	52,58	52,62	52,64	52,67	4	52,63			0,04	0,07	100,95
29	F24x	PZ98	DA01	52,91	53,45	53,68	53,79	4	53,46			0,39	0,73	102,54
30	F15x	PZ98	DA01	53,47	53,55	53,62	53,60	4	53,56			0,07	0,12	102,73
31	A56	PZ98	DA02	54,01	54,10	54,29	54,01	4	54,10			0,13	0,24	103,78
32	F04	PC99	DZ99	54,35	54,10	54,08	54,20	4	54,18			0,12	0,23	103,93
33	A55	PZ98	DA01	54,60	54,90	55,50	55,90	4	55,23		*	0,59	1,06	105,93
34	F33x	PZ98	DA99	55,37	55,58	55,48	55,39	4	55,46		*	0,10	0,17	106,37
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	N	Mean	SI	VI
all labs	132	**52,13**	**0,189**	**0,362**
5	% from the mean			

L	SR	VR
33	**1,225**	**2,350**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Zn **Sample: 1** Unit: µg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean			Lab.standard dev. Si	Vi	Recovery %
1	A80	PD03	DB10	18,40	18,70	18,50	19,20	4	18,70		*	0,36	1,90	79,30
2	A79	PD03	DB10	19,17	19,01	19,57	19,65	4	19,35		*	0,31	1,61	82,05
3	F07x	PC01	DB08	20,62	20,90	20,63	21,03	4	20,80			0,20	0,98	88,19
4	F06x	PD02	DB08	21,50	20,96	20,93	21,36	4	21,19			0,29	1,35	89,85
5	F27	PD01	DB01	21,12	21,71	20,48	21,46	4	21,19			0,53	2,52	89,87
6	F19x	PD02	DB08	21,70	21,70	22,20	22,50	4	22,03			0,39	1,79	93,40
7	F33x	PD01	DB10	21,80	25,10	21,50	23,00	4	22,85			1,63	7,15	96,90
8	F02x	PD02	DB08	22,77	22,85	22,95	23,15	4	22,93			0,16	0,72	97,24
9	F14x	PC01	DB10	23,20	22,96	22,80	22,80	4	22,94			0,19	0,82	97,29
10	F13x	PD01	DB08	23,10	23,20	23,60	23,30	4	23,30			0,22	0,93	98,81
11	A45x	PB99	DB08	23,10	23,70	23,20	23,30	4	23,33			0,26	1,13	98,92
12	F12x	PC01	DB09	23,39	23,23	23,59	23,70	4	23,48			0,21	0,89	99,56
13	F32x	PD02	DB08	23,50	23,40	23,50	23,80	4	23,55			0,17	0,74	99,87
14	A36	PD02	DB09	24,40	24,40	23,10	23,00	4	23,73			0,78	3,29	100,61
15	A39	PD02	DB08	23,67	24,55	24,03	23,64	4	23,97			0,42	1,77	101,66
16	F03	PC02	DB08	24,02	23,79	24,05	24,21	4	24,02			0,17	0,72	101,85
17	A55	PD02	DB10	24,14	23,85	24,57	23,75	4	24,08			0,37	1,53	102,11
18	A65	PD01	DB08	24,40	25,00	24,00	23,50	4	24,23			0,63	2,62	102,73
19	F05x	PD02	DB08	24,40	24,20	24,30	24,30	4	24,30			0,08	0,34	103,05
20	F08	PD02	DB10	24,30	24,10	24,60	24,60	4	24,40			0,24	1,00	103,47
21	F25	PB06	DB08	24,67	23,90	24,17	25,76	4	24,63			0,82	3,33	104,43
22	A61x	PD01	DB08	25,00	24,40	24,80	24,30	4	24,63			0,33	1,34	104,43
23	F16x	PC01	DB08	25,38	24,88	23,91	24,36	4	24,63			0,64	2,58	104,46
24	F15x	PC01	DB08	24,00	25,00	25,00	25,00	4	24,75			0,50	2,02	104,96
25	A57	PZ98	DD02	25,20	25,00	24,60	24,40	4	24,80			0,37	1,47	105,17
26	A60x	PD01	DB10	23,43	24,39	28,31	23,19	4	24,83			2,38	9,58	105,30
27	A53	PZ02	DD02	24,90	25,00	25,10	24,80	4	24,95			0,13	0,52	105,81
28	A82	PC01	DB08	25,10	25,80	25,10	25,60	4	25,40			0,36	1,40	107,72
29	F09	PZ02	DD02	25,30	25,40	26,00	26,10	4	25,70			0,41	1,59	108,99
30	F18x	PD99	DB10	26,70	25,90	25,70	25,20	4	25,88			0,62	2,41	109,73
31	A49	PD05	DB08	26,30	26,40	26,70	26,50	4	26,48			0,17	0,65	112,27
32	A59	PB03	DB08	33,63	32,30	31,30	32,52	0	32,44	*b*	*	0,96	2,95	137,56
33	A88	PD99	DB08	40,30	34,90	34,50	37,60	0	36,83	*b*	*	2,69	7,32	156,17
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	N	Mean	SI	VI
all labs	124	**23,58**	**0,463**	**1,964**
15	% from the mean			
	L		SR	VR
	31		**1,808**	**7,669**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Zn **Sample: 2** Unit: µg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean		Lab.standard dev. Si	Vi	Recovery %
1	F33x	PD01	DB10	27,00	28,50	25,80	27,10	4	27,10	*	1,10	4,08	82,86
2	A80	PD03	DB10	28,40	26,80	27,20	27,30	4	27,43	*	0,68	2,50	83,86
3	A79	PD03	DB10	27,73	27,27	27,82	27,87	4	27,67	*	0,28	1,00	84,62
4	F27	PD01	DB01	28,28	28,90	28,41	28,18	4	28,44		0,32	1,12	86,97
5	F07x	PC01	DB08	29,01	28,81	29,17	29,20	4	29,05		0,18	0,62	88,82
6	F06x	PD02	DB08	30,93	31,22	29,55	29,50	4	30,30		0,90	2,98	92,65
7	F19x	PD02	DB08	31,00	30,80	31,30	30,50	4	30,90		0,34	1,09	94,48
8	F12x	PC01	DB09	31,58	31,68	31,51	31,81	4	31,65		0,13	0,41	96,76
9	F13x	PD01	DB08	31,90	32,20	32,10	31,80	4	32,00		0,18	0,57	97,85
10	F02x	PD02	DB08	31,80	31,98	32,14	32,27	4	32,05		0,20	0,63	97,99
11	F14x	PC01	DB10	31,96	32,16	32,21	31,96	4	32,07		0,13	0,41	98,06
12	F18x	PD99	DB10	33,30	32,60	32,90	32,70	4	32,88		0,31	0,94	100,52
13	F32x	PD02	DB08	32,70	32,50	33,30	33,10	4	32,90		0,37	1,11	100,60
14	A45x	PB99	DB08	33,30	33,50	32,80	33,00	4	33,15		0,31	0,94	101,36
15	F03	PC02	DB08	33,26	32,91	32,95	33,69	4	33,20		0,36	1,09	101,52
16	F25	PB06	DB08	33,47	33,27	33,15	33,19	4	33,27		0,14	0,43	101,73
17	A36	PD02	DB09	32,70	33,70	33,10	33,80	4	33,33		0,52	1,56	101,90
18	A65	PD01	DB08	33,20	33,00	33,60	33,70	4	33,38		0,33	0,99	102,05
19	A60x	PD01	DB10	32,70	32,98	35,71	32,71	4	33,52		1,46	4,36	102,51
20	F08	PD02	DB10	33,40	33,90	33,30	33,50	4	33,53		0,26	0,78	102,51
21	A61x	PD01	DB08	33,60	34,10	33,40	33,70	4	33,70		0,29	0,87	103,04
22	F05x	PD02	DB08	33,70	33,80	33,90	33,80	4	33,80		0,08	0,24	103,35
23	A55	PD02	DB10	33,91	34,47	33,73	33,73	4	33,96		0,35	1,03	103,84
24	F16x	PC01	DB08	33,56	34,96	33,77	33,98	4	34,07		0,62	1,82	104,17
25	A82	PC01	DB08	*37,7a*	34,00	34,30	34,50	3	34,27		0,25	0,73	104,78
26	A39	PD02	DB08	35,95	34,63	34,56	33,81	4	34,74		0,89	2,56	106,22
27	F15x	PC01	DB08	33,00	37,00	35,00	34,00	4	34,75		1,71	4,91	106,25
28	A57	PZ98	DD02	35,30	35,00	34,60	34,80	4	34,93		0,30	0,85	106,79
29	A53	PZ02	DD02	35,00	35,00	35,10	35,30	4	35,10		0,14	0,40	107,33
30	F09	PZ02	DD02	34,90	36,00	36,20	35,70	4	35,70		0,57	1,60	109,16
31	A88	PD99	DB08	34,40	37,30	36,30	37,80	4	36,45		1,50	4,12	111,45
32	A49	PD05	DB08	37,10	38,50	38,00	37,10	4	37,68	*	0,69	1,84	115,20
33	A59	PB03	DB08	43,37	44,38	42,67	41,76	0	43,05	*b* *	1,11	2,57	131,62
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	N	Mean	SI	VI
all labs	127	**32,70**	**0,497**	**1,521**
15	% from the mean			
	L		SR	VR
	32		**2,574**	**7,868**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Zn **Sample: 3** Unit: µg/g

No.	Lab.	Method code		Replications				n	Lab.mean			Lab.standard dev.		Recovery
	Code	P	D	1	2	3	4					Si	Vi	%
1	A80	PD03	DB10	*108a*	109,00	109,00	109,00	3	109,00		*	0,00	0,00	82,60
2	A79	PD03	DB10	112,65	114,98	110,42	113,29	4	112,84			1,89	1,67	85,51
3	F07x	PC01	DB08	115,10	116,00	115,40	115,10	4	115,40			0,42	0,37	87,45
4	F27	PD01	DB01	119,60	121,30	120,70	118,60	4	120,05			1,20	1,00	90,98
5	F06x	PD02	DB08	124,80	120,20	120,70	122,00	4	121,93			2,06	1,69	92,40
6	F19x	PD02	DB08	124,00	124,00	124,00	121,00	4	123,25			1,50	1,22	93,40
7	F12x	PC01	DB09	129,98	129,49	127,43	128,53	4	128,86			1,13	0,87	97,65
8	F03	PC02	DB08	131,01	129,75	130,19	130,15	4	130,28			0,53	0,41	98,72
9	F14x	PC01	DB10	131,05	129,57	129,64	131,01	4	130,32			0,82	0,63	98,76
10	A55	PD02	DB10	129,50	131,70	129,60	131,60	4	130,60			1,21	0,93	98,97
11	F13x	PD01	DB08	131,30	129,90	129,90	131,40	4	130,63			0,84	0,64	98,99
12	F33x	PD01	DB10	121,60	130,80	140,00	131,00	4	130,85			7,51	5,74	99,16
13	F18x	PD99	DB10	131,00	134,00	131,00	132,00	4	132,00			1,41	1,07	100,03
14	F25	PB06	DB08	131,20	132,10	134,40	133,30	4	132,75			1,40	1,05	100,60
15	A65	PD01	DB08	133,40	133,70	132,40	132,40	4	132,98			0,68	0,51	100,77
16	F02x	PD02	DB08	132,10	132,90	133,50	134,10	4	133,15			0,85	0,64	100,90
17	A36	PD02	DB09	131,60	132,60	134,80	133,70	4	133,18			1,38	1,04	100,92
18	A60x	PD01	DB10	134,55	133,94	133,91	130,33	4	133,18			1,93	1,45	100,93
19	A82	PC01	DB08	134,00	134,00	134,00	134,00	4	134,00			0,00	0,00	101,55
20	F16x	PC01	DB08	133,30	136,00	131,60	135,80	4	134,18			2,11	1,57	101,68
21	A39	PD02	DB08	132,00	135,50	129,80	140,60	4	134,48			4,71	3,50	101,91
22	F32x	PD02	DB08	135,00	135,00	135,00	135,00	4	135,00			0,00	0,00	102,31
23	A45x	PB99	DB08	134,00	136,00	135,00	135,00	4	135,00			0,82	0,60	102,31
24	F09	PZ02	DD02	133,00	135,00	136,00	137,00	4	135,25			1,71	1,26	102,49
25	F05x	PD02	DB08	137,00	136,00	136,00	138,00	4	136,75			0,96	0,70	103,63
26	A61x	PD01	DB08	136,90	139,60	136,90	136,00	4	137,35			1,56	1,13	104,09
27	F08	PD02	DB10	139,00	143,00	143,00	138,00	4	140,75			2,63	1,87	106,66
28	A53	PZ02	DD02	141,00	141,00	141,00	142,00	4	141,25			0,50	0,35	107,04
29	A57	PZ98	DD02	143,80	144,70	143,80	143,70	4	144,00			0,47	0,33	109,13
30	F15x	PC01	DB08	148,00	142,00	147,00	142,00	4	144,75			3,20	2,21	109,69
31	A49	PD05	DB08	149,00	153,00	151,00	151,00	4	151,00			1,63	1,08	114,43
32	A59	PB03	DB08	171,17	169,75	165,27	172,92	0	169,78	*b*	*	3,27	1,93	128,66
33	A88	PD99	DB08	194,00	203,60	214,80	221,40	0	208,45	*b*	*	12,12	5,81	157,97
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	N	Mean	SI	VI
all labs	123	**131,96**	**1,518**	**1,150**
15	% from the mean			
	L		SR	VR
	31		**9,022**	**6,847**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Zn **Sample: 4** Unit: µg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean			Lab.standard dev. Si	Vi	Recovery %
1	A79	PD03	DB10	34,78	*33,189a*	34,57	34,86	3	34,74		*	0,15	0,43	83,27
2	A80	PD03	DB10	34,10	35,30	33,80	34,60	4	34,45		*	0,66	1,90	82,58
3	F27	PD01	DB01	36,47	36,39	36,62	37,11	4	36,65			0,32	0,88	87,84
4	F33x	PD01	DB10	40,30	35,00	33,80	38,20	4	36,83			2,97	8,06	88,27
5	F07x	PC01	DB08	36,65	37,51	36,64	36,63	4	36,86			0,44	1,18	88,35
6	F06x	PD02	DB08	38,51	38,94	40,13	37,75	4	38,83			1,00	2,56	93,08
7	F19x	PD02	DB08	39,40	39,30	38,90	38,20	4	38,95			0,54	1,40	93,36
8	F12x	PC01	DB09	40,73	40,74	40,19	40,49	4	40,54			0,26	0,64	97,17
9	F18x	PD99	DB10	41,30	41,20	41,20	41,50	4	41,30			0,14	0,34	99,00
10	F13x	PD01	DB08	41,40	41,50	41,20	41,50	4	41,40			0,14	0,34	99,24
11	A39	PD02	DB08	39,83	41,76	42,47	42,20	4	41,57			1,19	2,87	99,63
12	F14x	PC01	DB10	41,57	42,14	41,59	41,49	4	41,70			0,30	0,71	99,95
13	F02x	PD02	DB08	41,36	41,59	41,90	42,48	4	41,83			0,49	1,16	100,27
14	A55	PD02	DB10	42,00	41,74	41,71	42,03	4	41,87			0,17	0,40	100,36
15	F16x	PC01	DB08	41,70	42,23	42,63	41,55	4	42,03			0,50	1,18	100,74
16	A45x	PB99	DB08	42,60	41,80	41,50	43,00	4	42,23			0,69	1,65	101,21
17	A36	PD02	DB09	42,20	43,00	43,20	41,40	4	42,45			0,82	1,94	101,75
18	F03	PC02	DB08	42,07	42,63	42,60	42,84	4	42,54			0,33	0,77	101,96
19	F32x	PD02	DB08	43,20	42,80	43,20	42,70	4	42,98			0,26	0,61	103,01
20	F05x	PD02	DB08	43,00	43,00	43,00	43,10	4	43,03			0,05	0,12	103,13
21	A60x	PD01	DB10	44,26	42,51	43,81	42,12	4	43,17			1,02	2,37	103,49
22	F08	PD02	DB10	42,60	43,60	43,20	43,60	4	43,25			0,47	1,09	103,67
23	F25	PB06	DB08	42,73	43,67	43,94	44,02	4	43,59			0,59	1,36	104,49
24	F09	PZ02	DD02	43,40	43,70	44,10	44,10	4	43,83			0,34	0,78	105,05
25	A65	PD01	DB08	46,10	43,40	43,50	43,10	4	44,03			1,39	3,17	105,53
26	A82	PC01	DB08	45,20	44,60	43,60	44,30	4	44,43			0,67	1,50	106,49
27	A61x	PD01	DB08	44,20	44,60	44,60	44,50	4	44,48			0,19	0,43	106,61
28	F15x	PC01	DB08	46,00	44,00	44,00	44,00	4	44,50			1,00	2,25	106,67
29	A53	PZ02	DD02	45,20	45,00	45,10	45,10	4	45,10			0,08	0,18	108,11
30	A57	PZ98	DD02	45,20	45,70	46,10	45,50	4	45,63			0,38	0,83	109,36
31	A49	PD05	DB08	47,10	46,10	46,50	47,50	4	46,80			0,62	1,33	112,18
32	A59	PB03	DB08	54,76	60,16	57,49	54,75	0	56,79	*b*	*	2,59	4,56	136,13
33	A88	PD99	DB08	69,90	63,90	67,70	65,20	0	66,68	*b*	*	2,67	4,00	159,82
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	N	Mean	SI	VI
all labs	123	**41,72**	**0,586**	**1,405**
15	% from the mean			
	L		SR	VR
	31		**3,110**	**7,465**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Mn **Sample: 1** Unit: µg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean			Lab.standard dev. Si	Vi	Recovery %
1	A60x	PD01	DB10	1104,7	1099,9	1110,4	1122,5	0	1109	*b*	*	9,75	0,88	74,78
2	A79	PD03	DB10	1250,9	1247,0	1211,3	1228,4	4	1234		*	18,26	1,48	83,21
3	F06x	PD02	DB06	1345,3	1343,9	1323,1	1353,6	4	1341			12,98	0,97	90,43
4	A88	PD99	DB08	1363,7	1474,9	1291,9	1293,5	4	1356			86,05	6,35	91,41
5	F07x	PC01	DB08	1350,0	1369,0	1366,0	1342,0	4	1357			12,89	0,95	91,46
6	F14x	PC01	DB08	1387,0	1367,0	1374,0	1375,0	4	1376			8,30	0,60	92,74
7	A56	PC01	DB08	1381,5	1393,8	1387,5	1402,1	4	1391			8,82	0,63	93,78
8	A82	PC01	DB08	1414,0	1411,0	1434,0	1412,0	4	1418			10,90	0,77	95,57
9	F19	PD02	DB08	1420,0	1410,0	1450,0	1480,0	4	1440			31,62	2,20	97,07
10	A61x	PD01	DB08	1448,0	1427,0	1455,0	1435,0	4	1441			12,61	0,87	97,15
11	A45	PB99	DB08	1440,0	1450,0	1440,0	1440,0	4	1443			5,00	0,35	97,24
12	F18x	PD99	DB08	1440,0	1450,0	1460,0	1450,0	4	1450			8,16	0,56	97,74
13	A49	PD05	DB08	1446,0	1469,0	1459,0	1454,0	4	1457			9,63	0,66	98,21
14	A43	PB06	DB01	1450,0	1456,0	1478,0	1462,0	4	1462			12,04	0,82	98,52
15	F03	PD02	DB08	1466,8	1454,2	1473,2	1472,2	4	1467			8,72	0,59	98,86
16	F05x	PD02	DB08	1480,0	1500,0	1480,0	1500,0	4	1490			11,55	0,77	100,44
17	A53	PZ01	DD02	1490,0	1490,0	1500,0	1480,0	4	1490			8,16	0,55	100,44
18	F09	PZ02	DD02	1470,0	1495,0	1511,0	1522,0	4	1500			22,58	1,51	101,08
19	F27	PD01	DB01	1508,8	1532,4	1491,2	1480,0	4	1503			22,85	1,52	101,32
20	F15x	PC01	DB08	1504,0	1518,0	1518,0	1495,0	4	1509			11,30	0,75	101,70
21	F33x	PD01	DB10	1485,0	1632,0	1413,0	1519,0	4	1512			91,25	6,03	101,94
22	A36	PD02	DB08	1482,0	1545,0	1547,0	1496,0	4	1518			33,41	2,20	102,29
23	F12x	PC01	DB08	1526,0	1535,0	1537,0	1514,0	4	1528			10,49	0,69	103,00
24	A39	PD02	DB08	1606,0	1571,0	1484,0	1470,0	4	1533			66,19	4,32	103,32
25	A80	PD03	DB10	1524,0	1553,0	1514,0	1552,0	4	1536			19,77	1,29	103,52
26	A57	PZ98	DD02	1547,0	1557,0	1535,0	1527,0	4	1542			13,20	0,86	103,91
27	F16x	PC01	DB08	1556,0	1524,0	1499,0	1604,0	4	1546			45,30	2,93	104,20
28	F02x	PD02	DB08	1543,0	1537,0	1566,0	1547,0	4	1548			12,53	0,81	104,37
29	F13x	PD01	DB08	1565,0	1542,0	1581,0	1513,0	4	1550			29,55	1,91	104,50
30	A65	PD01	DB08	1612,0	1676,0	1612,0	1551,0	4	1613			51,04	3,16	108,71
31	F08	PD02	DB10	1613,0	1577,0	1650,0	1650,0	4	1623			34,99	2,16	109,37
32	F32	PD02	DB08	1628,0	1661,0	1628,0	1628,0	4	1636			16,50	1,01	110,30
33	A55	PD02	DB08	1654,1	1679,5	1661,4	1663,6	4	1665			10,70	0,64	112,21
34	A59	PB03	DB08	1946,6	1950,5	1889,9	1927,2	0	1929	*b*	*	27,71	1,44	130,00
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	N	Mean	SI	VI
all labs	128	**1483,5**	**23,667**	**1,595**
15	% from the mean			
	L		SR	VR
	32		**92,541**	**6,238**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Mn **Sample: 2** Unit: µg/g

No.	Lab.	Method code		Replications				n	Lab.mean		Lab.standard dev.		Recovery
	Code	P	D	1	2	3	4				Si	Vi	%
1	A60x	PD01	DB10	272,33	268,89	278,70	282,60	0	275,63	*b* *	6,17	2,24	76,71
2	A79	PD03	DB10	311,24	311,86	305,35	303,84	4	308,07		4,07	1,32	85,74
3	F33x	PD01	DB10	326,00	330,00	305,00	297,00	4	314,50		16,01	5,09	87,53
4	F07x	PC01	DB08	313,60	316,40	314,80	315,70	4	315,13		1,21	0,38	87,70
5	F14x	PC01	DB08	330,90	333,30	330,70	330,10	4	331,25		1,41	0,43	92,19
6	F19	PD02	DB08	336,00	335,00	340,00	335,00	4	336,50		2,38	0,71	93,65
7	A56	PC01	DB08	336,82	336,96	339,82	332,88	4	336,62		2,85	0,85	93,69
8	F06x	PD02	DB06	345,30	348,80	331,40	326,10	4	337,90		10,88	3,22	94,04
9	F03	PD02	DB08	340,86	340,39	339,12	338,93	4	339,83		0,95	0,28	94,58
10	F18x	PD99	DB08	344,00	345,00	342,00	345,00	4	344,00		1,41	0,41	95,74
11	A61x	PD01	DB08	352,00	346,00	343,00	344,00	4	346,25		4,03	1,16	96,37
12	A49	PD05	DB08	348,00	349,00	352,00	349,00	4	349,50		1,73	0,50	97,27
13	A88	PD99	DB08	359,80	325,90	354,50	366,30	4	351,63		17,82	5,07	97,86
14	A45	PB99	DB08	362,00	361,00	364,00	352,00	4	359,75		5,32	1,48	100,12
15	F15x	PC01	DB08	358,00	364,00	357,00	364,00	4	360,75		3,77	1,05	100,40
16	A82	PC01	DB08	368,00	366,00	363,00	365,00	4	365,50		2,08	0,57	101,73
17	F27	PD01	DB01	371,30	367,20	364,00	362,10	4	366,15		4,03	1,10	101,91
18	F09	PZ02	DD02	366,00	341,00	379,00	380,00	4	366,50		18,16	4,95	102,00
19	F05x	PD02	DB08	368,00	365,00	368,00	369,00	4	367,50		1,73	0,47	102,28
20	A43	PB06	DB01	388,00	362,00	367,00	362,00	4	369,75		12,39	3,35	102,91
21	A57	PZ98	DD02	371,10	373,80	368,30	368,00	4	370,30		2,72	0,73	103,06
22	F08	PD02	DB10	374,00	375,00	369,00	366,00	4	371,00		4,24	1,14	103,26
23	F12x	PC01	DB08	375,00	375,00	376,00	369,00	4	373,75		3,20	0,86	104,02
24	A36	PD02	DB08	368,00	378,00	373,00	378,00	4	374,25		4,79	1,28	104,16
25	F13x	PD01	DB08	377,20	376,30	375,60	375,80	4	376,23		0,71	0,19	104,71
26	A53	PZ01	DD02	378,00	375,00	376,00	376,00	4	376,25		1,26	0,33	104,72
27	A55	PD02	DB08	379,10	378,30	371,40	376,30	4	376,28		3,46	0,92	104,72
28	F16x	PC01	DB08	385,80	383,00	373,30	373,50	4	378,90		6,45	1,70	105,45
29	A39	PD02	DB08	381,80	378,80	379,80	376,10	4	379,13		2,37	0,63	105,52
30	F02x	PD02	DB08	382,00	386,00	380,00	377,00	4	381,25		3,77	0,99	106,11
31	A65	PD01	DB08	392,00	386,00	393,00	392,00	4	390,75		3,20	0,82	108,75
32	A80	PD03	DB10	406,00	382,00	389,00	387,00	4	391,00		10,42	2,67	108,82
33	F32	PD02	DB08	392,00	396,00	389,00	389,00	4	391,50		3,32	0,85	108,96
34	A59	PB03	DB08	467,77	477,46	470,25	*433,05a*	0	471,83	*b* *	5,03	1,07	131,32
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	N	Mean	SI	VI
all labs	128	**359,30**	**5,067**	**1,410**
15	% from the mean			
	L		SR	VR
	32		**22,689**	**6,315**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Mn **Sample: 3** Unit: µg/g

No.	Lab.	Method code		Replications				n	Lab.mean			Lab.standard dev.		Recovery
	Code	P	D	1	2	3	4					Si	Vi	%
1	A60x	PD01	DB10	498,81	499,19	505,98	515,77	0	504,94	*b*	*	7,94	1,57	75,18
2	A79	PD03	DB10	562,61	572,77	558,83	557,71	4	562,98		*	6,86	1,22	83,83
3	A88	PD99	DB08	575,40	582,90	597,10	611,00	4	591,60			15,76	2,66	88,09
4	F07x	PC01	DB08	619,70	620,10	626,70	615,50	4	620,50			4,63	0,75	92,39
5	F14x	PC01	DB08	620,90	622,70	626,30	623,10	4	623,25			2,25	0,36	92,80
6	A56	PC01	DB08	630,76	623,73	631,88	633,90	4	630,07			4,42	0,70	93,82
7	A43	PB06	DB01	616,00	651,00	636,00	651,00	4	638,50			16,58	2,60	95,07
8	F08	PD02	DB10	629,00	659,00	656,00	631,00	4	643,75			15,95	2,48	95,85
9	F06x	PD02	DB06	644,90	638,60	642,40	654,10	4	645,00			6,60	1,02	96,04
10	F18x	PD99	DB08	643,00	647,00	644,00	646,00	4	645,00			1,83	0,28	96,04
11	F03	PD02	DB08	644,18	644,18	647,90	644,44	4	645,18			1,82	0,28	96,07
12	F19	PD02	DB08	657,00	654,00	662,00	627,00	4	650,00			15,68	2,41	96,78
13	F33x	PD01	DB10	597,00	637,00	696,00	686,00	4	654,00			45,92	7,02	97,38
14	A61x	PD01	DB08	672,00	671,00	650,00	652,00	4	661,25			11,87	1,80	98,46
15	A82	PC01	DB08	664,00	666,00	663,00	663,00	4	664,00			1,41	0,21	98,87
16	A45	PB99	DB08	669,00	676,00	666,00	675,00	4	671,50			4,80	0,71	99,99
17	F27	PD01	DB01	684,40	676,50	680,40	668,30	4	677,40			6,87	1,01	100,86
18	A36	PD02	DB08	678,00	688,00	698,00	689,00	4	688,25			8,18	1,19	102,48
19	A39	PD02	DB08	675,80	708,30	684,30	688,60	4	689,25			13,77	2,00	102,63
20	F15x	PC01	DB08	691,00	688,00	695,00	684,00	4	689,50			4,65	0,68	102,67
21	F09	PZ02	DD02	680,00	687,00	696,00	697,00	4	690,00			8,04	1,17	102,74
22	A57	PZ98	DD02	691,80	696,20	692,50	690,90	4	692,85			2,33	0,34	103,16
23	F05x	PD02	DB08	698,00	697,00	701,00	699,00	4	698,75			1,71	0,24	104,04
24	A53	PZ01	DD02	700,00	701,00	701,00	702,00	4	701,00			0,82	0,12	104,38
25	F16x	PC01	DB08	693,20	710,10	715,60	688,50	4	701,85			13,04	1,86	104,50
26	A49	PD05	DB08	706,00	702,00	703,00	697,00	4	702,00			3,74	0,53	104,53
27	F12x	PC01	DB08	708,00	705,00	701,00	696,00	4	702,50			5,20	0,74	104,60
28	F13x	PD01	DB08	704,90	704,80	703,30	697,40	4	702,60			3,54	0,50	104,62
29	F02x	PD02	DB08	704,00	710,00	716,00	709,00	4	709,75			4,92	0,69	105,68
30	A65	PD01	DB08	715,00	713,00	714,00	706,00	4	712,00			4,08	0,57	106,02
31	A80	PD03	DB10	713,00	718,00	721,00	716,00	4	717,00			3,37	0,47	106,76
32	F32	PD02	DB08	735,00	732,00	737,00	735,00	4	734,75			2,06	0,28	109,40
33	A55	PD02	DB08	732,70	734,10	743,50	730,10	4	735,10			5,84	0,79	109,46
34	A59	PB03	DB08	934,60	913,04	923,82	888,30	0	914,94	*b*	*	19,82	2,17	136,23
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	N	Mean	SI	VI
all labs	128	**671,60**	**7,766**	**1,156**
15	% from the mean			
	L		SR	VR
	32		**40,184**	**5,983**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Mn **Sample: 4** Unit: µg/g

No.	Lab.	Method code		Replications				n	Lab.mean			Lab.standard dev.		Recovery
	Code	P	D	1	2	3	4					Si	Vi	%
1	A60x	PD01	DB10	143,23	138,81	141,29	144,98	0	142,08	*b*	*	2,65	1,86	77,59
2	A79	PD03	DB10	153,65	155,76	152,78	152,78	4	153,74		*	1,41	0,91	83,96
3	F07x	PC01	DB08	162,20	164,10	163,10	162,70	4	163,03			0,81	0,49	89,03
4	A88	PD99	DB08	167,60	172,00	164,70	162,00	4	166,58			4,28	2,57	90,97
5	F14x	PC01	DB08	170,30	168,40	168,20	168,10	4	168,75			1,04	0,62	92,16
6	F19	PD02	DB08	170,00	170,00	170,00	168,00	4	169,50			1,00	0,59	92,57
7	F33x	PD01	DB10	180,00	169,00	161,00	178,00	4	172,00			8,76	5,09	93,93
8	A56	PC01	DB08	173,07	171,46	174,29	172,06	4	172,72			1,24	0,72	94,33
9	F03	PD02	DB08	175,39	175,42	175,67	178,02	4	176,13			1,27	0,72	96,19
10	F15x	PC01	DB08	176,00	178,00	174,00	179,00	4	176,75			2,22	1,25	96,53
11	F08	PD02	DB10	173,00	175,00	183,00	176,00	4	176,75			4,35	2,46	96,53
12	F18x	PD99	DB08	178,00	177,00	177,00	177,00	4	177,25			0,50	0,28	96,80
13	A49	PD05	DB08	178,00	178,00	177,00	181,00	4	178,50			1,73	0,97	97,48
14	F06x	PD02	DB06	177,80	182,40	184,40	175,90	4	180,13			3,95	2,19	98,37
15	A43	PB06	DB01	180,00	182,00	181,00	180,00	4	180,75			0,96	0,53	98,71
16	A61x	PD01	DB08	179,00	183,00	183,00	182,00	4	181,75			1,89	1,04	99,26
17	A45	PB99	DB08	186,00	185,00	180,00	183,00	4	183,50			2,65	1,44	100,22
18	F27	PD01	DB01	188,30	179,30	186,00	184,40	4	184,50			3,82	2,07	100,76
19	A82	PC01	DB08	186,00	186,00	185,00	188,00	4	186,25			1,26	0,68	101,72
20	F09	PZ02	DD02	185,00	187,00	188,00	191,00	4	187,75			2,50	1,33	102,54
21	A55	PD02	DB08	188,80	190,30	189,10	189,30	4	189,38			0,65	0,34	103,42
22	F05x	PD02	DB08	191,00	190,00	191,00	190,00	4	190,50			0,58	0,30	104,04
23	A36	PD02	DB08	190,00	190,00	193,00	189,00	4	190,50			1,73	0,91	104,04
24	A57	PZ98	DD02	190,50	192,00	194,80	191,50	4	192,20			1,84	0,96	104,97
25	F12x	PC01	DB08	194,00	195,00	190,00	191,00	4	192,50			2,38	1,24	105,13
26	A53	PZ01	DD02	194,00	194,00	193,00	194,00	4	193,75			0,50	0,26	105,81
27	F13x	PD01	DB08	195,40	193,70	191,20	197,80	4	194,53			2,78	1,43	106,24
28	F16x	PC01	DB08	189,90	189,20	203,90	197,50	4	195,13			6,95	3,56	106,56
29	A80	PD03	DB10	197,00	203,00	194,00	198,00	4	198,00			3,74	1,89	108,13
30	F02x	PD02	DB08	196,00	197,00	200,00	201,00	4	198,50			2,38	1,20	108,41
31	A65	PD01	DB08	203,00	202,00	198,00	197,00	4	200,00			2,94	1,47	109,23
32	F32	PD02	DB08	206,00	205,00	205,00	204,00	4	205,00			0,82	0,40	111,96
33	A39	PD02	DB08	233,70	240,00	235,70	232,40	0	235,45	*b*	*	3,32	1,41	128,59
34	A59	PB03	DB08	245,61	268,25	258,75	245,56	0	254,54	*b*	*	11,05	4,34	139,01
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	N	Mean	SI	VI
all labs	124	**183,11**	**2,352**	**1,285**
15	% from the mean			
	L		SR	VR
	31		**12,010**	**6,559**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Fe **Sample: 1** Unit: µg/g

No.	Lab.	Method code		Replications				n	Lab.mean		Lab.standard dev.		Recovery
	Code	P	D	1	2	3	4				Si	Vi	%
1	F33x	PD01	DB10	61,50	69,20	58,40	67,30	4	64,10	*	5,02	7,83	79,58
2	A79	PD03	DB10	63,89	63,20	65,22	65,52	4	64,46		1,10	1,70	80,02
3	F06x	PD02	DB08	70,76	69,35	69,51	69,04	4	69,67		0,76	1,08	86,49
4	A45x	PB99	DB08	69,00	70,80	69,60	69,40	4	69,70		0,77	1,11	86,53
5	F13x	PD01	DB08	73,50	73,20	72,60	69,10	4	72,10		2,03	2,82	89,51
6	F07x	PC01	DB08	73,05	72,52	72,67	72,62	4	72,72		0,23	0,32	90,27
7	F19	PD02	DB08	72,60	73,70	75,70	69,10	4	72,78		2,77	3,80	90,35
8	A57	PZ98	DD02	77,10	77,50	69,70	67,40	4	72,93		5,14	7,05	90,53
9	F27	PD01	DB01	69,08	71,86	77,48	75,42	4	73,46		3,73	5,08	91,20
10	A49	PD05	DB08	74,50	79,10	76,70	79,90	4	77,55		2,45	3,15	96,28
11	A53	PZ01	DD02	76,90	77,70	81,00	76,90	4	78,13		1,95	2,50	96,99
12	F05x	PD02	DB08	78,60	78,40	78,40	79,20	4	78,65		0,38	0,48	97,64
13	A55	PD02	DB08	78,70	80,16	78,33	79,76	4	79,24		0,86	1,09	98,37
14	F18x	PD99	DB08	80,00	81,30	76,10	81,70	4	79,78		2,56	3,20	99,04
15	A65	PD01	DB08	74,90	88,10	77,10	81,70	4	80,45		5,83	7,25	99,88
16	F09	PZ02	DD02	78,90	81,00	82,80	81,30	4	81,00		1,61	1,98	100,56
17	F16x	PC01	DB08	80,54	77,73	85,81	80,53	4	81,15		3,37	4,16	100,75
18	A80	PD03	DB10	83,30	79,10	79,90	83,10	4	81,35		2,16	2,66	100,99
19	F02x	PD02	DB08	81,60	78,70	84,30	83,00	4	81,90		2,40	2,93	101,68
20	F12x	PC01	DB08	84,00	82,00	81,00	83,00	4	82,50		1,29	1,56	102,42
21	A61x	PD01	DB08	80,90	85,80	84,60	82,30	4	83,40		2,21	2,65	103,54
22	F14x	PC01	DB08	84,81	82,21	82,84	84,31	4	83,54		1,22	1,46	103,72
23	F15x	PC01	DB08	85,00	85,00	83,00	83,00	4	84,00		1,15	1,37	104,28
24	A60x	PD01	DB10	85,25	85,49	84,88	84,99	4	85,15		0,28	0,32	105,71
25	A39	PD02	DB08	90,69	88,32	86,00	85,14	4	87,54		2,49	2,85	108,67
26	F03	PD02	DB08	87,23	87,26	88,43	90,15	4	88,27		1,37	1,56	109,58
27	F32	PD02	DB08	88,80	88,10	90,30	89,60	4	89,20		0,96	1,07	110,74
28	F08	PD02	DB10	91,30	92,30	91,50	93,20	4	92,08		0,87	0,94	114,31
29	A36	PD02	DB08	91,40	101,00	92,10	92,10	4	94,15		4,58	4,86	116,88
30	A88	PD99	DB08	97,20	94,30	95,60	*108,1a*	3	95,70		1,45	1,52	118,81
31	A82	PC01	DB08	102,00	95,90	109,00	110,00	4	104,23	*	6,59	6,33	129,39
32	A59	PB03	DB08	125,05	125,67	109,44	120,14	0	120,08	*b* *	7,51	6,25	149,07
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	N	Mean	SI	VI
all labs	123	**80,55**	**2,245**	**2,787**
20	% from the mean			
	L		SR	VR
	31		**9,011**	**11,170**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Fe **Sample: 2** Unit: µg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean		Lab.standard dev. Si	Vi	Recovery %
1	F33x	PD01	DB10	52,50	56,50	49,80	48,90	4	51,93	*	3,41	6,57	70,42
2	A79	PD03	DB10	60,16	57,51	60,36	58,78	4	59,20		1,33	2,25	80,29
3	F19	PD02	DB08	66,60	63,20	64,00	67,20	4	65,25		1,95	2,99	88,50
4	F06x	PD02	DB08	67,02	68,05	62,67	65,58	4	65,83		2,34	3,55	89,28
5	A53	PZ01	DD02	67,50	67,50	66,10	66,90	4	67,00		0,66	0,99	90,87
6	F27	PD01	DB01	65,15	66,55	72,39	64,93	4	67,26		3,50	5,20	91,21
7	A45x	PB99	DB08	66,90	69,50	69,20	65,40	4	67,75		1,95	2,88	91,89
8	F13x	PD01	DB08	70,60	70,10	70,10	67,00	4	69,45		1,65	2,38	94,19
9	F14x	PC01	DB08	70,15	70,82	70,68	69,62	4	70,32		0,55	0,78	95,37
10	A36	PD02	DB08	72,10	68,80	70,90	70,50	4	70,58		1,36	1,93	95,72
11	A55	PD02	DB08	69,08	73,13	70,88	71,28	4	71,09		1,66	2,34	96,42
12	A49	PD05	DB08	75,20	68,40	68,90	72,50	4	71,25		3,20	4,50	96,63
13	F03	PD02	DB08	69,02	73,41	71,46	71,64	4	71,38		1,80	2,53	96,81
14	F09	PZ02	DD02	71,10	71,30	72,80	73,30	4	72,13		1,09	1,51	97,82
15	F18x	PD99	DB08	69,10	72,10	73,40	75,40	4	72,50		2,64	3,64	98,33
16	F12x	PC01	DB08	79,00	71,00	71,00	72,00	4	73,25		3,86	5,27	99,35
17	F05x	PD02	DB08	73,00	73,20	74,70	73,10	4	73,50		0,80	1,09	99,68
18	F07x	PC01	DB08	72,33	73,19	74,26	74,49	4	73,57		1,00	1,36	99,78
19	F02x	PD02	DB08	72,00	74,00	75,20	73,30	4	73,63		1,34	1,82	99,85
20	F16x	PC01	DB08	76,59	73,59	72,86	73,08	4	74,03		1,73	2,34	100,40
21	A80	PD03	DB10	78,80	72,20	77,10	77,20	4	76,33		2,86	3,74	103,52
22	A61x	PD01	DB08	80,30	73,80	76,40	80,50	4	77,75		3,24	4,17	105,45
23	A60x	PD01	DB10	78,86	75,26	79,61	77,56	4	77,82		1,91	2,45	105,55
24	F32	PD02	DB08	76,80	76,60	76,40	81,50	4	77,83		2,46	3,16	105,55
25	A88	PD99	DB08	77,30	72,70	80,10	82,80	4	78,23		4,31	5,51	106,09
26	F15x	PC01	DB08	69,00	77,00	80,00	91,00	4	79,25		9,11	11,49	107,48
27	A65	PD01	DB08	87,50	80,80	84,60	77,50	4	82,60		4,37	5,29	112,03
28	A39	PD02	DB08	85,12	80,12	84,82	84,27	4	83,58		2,34	2,79	113,36
29	F08	PD02	DB10	85,50	85,50	80,80	82,70	4	83,63		2,30	2,75	113,42
30	A82	PC01	DB08	94,40	88,90	92,10	100,00	4	93,85	*	4,68	4,99	127,28
31	A57	PZ98	DD02	98,00	98,70	94,40	84,80	4	93,98	*	6,40	6,81	127,45
32	A59	PB03	DB08	112,30	113,84	*106,97a*	113,46	0	113,20 *b*	*	0,80	0,71	153,53
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	N	Mean	SI	VI
all labs	124	**73,73**	**2,639**	**3,579**
20	% from the mean			
	L		SR	VR
	31		**8,568**	**11,620**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Fe **Sample: 3** Unit: µg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean			Lab.standard dev. Si	Vi	Recovery %
1	F33x	PD01	DB10	60,60	65,10	72,10	71,30	0	67,28	*b*	*	5,44	8,09	73,93
2	A79	PD03	DB10	70,49	70,03	69,60	68,54	0	69,67	*b*	*	0,83	1,19	76,56
3	F27	PD01	DB01	80,82	81,51	82,23	80,93	4	81,37			0,65	0,79	89,42
4	F13x	PD01	DB08	86,60	85,60	81,50	80,00	4	83,43			3,18	3,81	91,68
5	F19	PD02	DB08	87,60	85,10	84,40	76,80	4	83,48			4,66	5,58	91,73
6	A45x	PB99	DB08	84,80	82,50	85,90	83,70	4	84,23			1,46	1,73	92,55
7	F06x	PD02	DB08	85,24	83,73	84,36	84,36	4	84,42			0,62	0,74	92,77
8	F14x	PC01	DB08	85,56	86,13	86,03	86,86	4	86,15			0,54	0,62	94,66
9	F03	PD02	DB08	87,92	87,52	85,05	87,17	4	86,92			1,28	1,47	95,51
10	A49	PD05	DB08	87,50	89,70	86,90	86,70	4	87,70			1,38	1,57	96,37
11	A36	PD02	DB08	86,80	89,70	89,20	87,40	4	88,28			1,39	1,58	97,00
12	A88	PD99	DB08	86,80	86,60	90,10	93,20	4	89,18			3,13	3,51	97,99
13	A55	PD02	DB08	89,38	88,66	89,95	89,66	4	89,41			0,55	0,62	98,25
14	F12x	PC01	DB08	91,00	88,00	91,00	88,00	4	89,50			1,73	1,94	98,35
15	A53	PZ01	DD02	88,60	91,40	89,60	89,40	4	89,75			1,18	1,32	98,63
16	F18x	PD99	DB08	89,40	95,50	90,80	87,70	4	90,85			3,35	3,69	99,83
17	F07x	PC01	DB08	90,69	91,11	90,23	92,06	4	91,02			0,78	0,86	100,02
18	F05x	PD02	DB08	90,20	91,40	92,40	92,70	4	91,68			1,13	1,23	100,74
19	F09	PZ02	DD02	90,70	92,50	92,90	93,00	4	92,28			1,07	1,16	101,40
20	A61x	PD01	DB08	93,70	90,90	94,30	91,10	4	92,50			1,75	1,89	101,65
21	F02x	PD02	DB08	91,60	93,30	92,90	92,60	4	92,60			0,73	0,78	101,76
22	F16x	PC01	DB08	91,90	94,92	92,27	92,68	4	92,94			1,36	1,46	102,13
23	A80	PD03	DB10	92,70	93,10	94,00	93,20	4	93,25			0,54	0,58	102,47
24	F15x	PC01	DB08	92,00	94,00	98,00	91,00	4	93,75			3,10	3,30	103,02
25	F08	PD02	DB10	94,80	94,30	94,50	93,60	4	94,30			0,51	0,54	103,63
26	A60x	PD01	DB10	98,42	93,19	96,58	94,85	4	95,76			2,25	2,35	105,23
27	A39	PD02	DB08	102,20	96,30	101,20	92,90	4	98,15			4,35	4,43	107,86
28	F32	PD02	DB08	101,30	98,50	100,50	100,10	4	100,10			1,18	1,18	110,00
29	A65	PD01	DB08	97,80	103,00	102,30	99,80	4	100,73			2,39	2,37	110,69
30	A57	PZ98	DD02	105,30	105,80	105,40	100,80	4	104,33			2,36	2,26	114,64
31	A82	PC01	DB08	128,00	119,00	114,00	117,00	0	119,50	*b*	*	6,03	5,04	131,32
32	A59	PB03	DB08	139,73	130,14	128,32	146,85	0	136,26	*b*	*	8,65	6,35	149,74
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	N	Mean	SI	VI
all labs	112	**91,00**	**1,735**	**1,906**
20	% from the mean			
	L		SR	VR
	28		**5,534**	**6,082**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Fe **Sample: 4** Unit: µg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean			Lab.standard dev. Si	Vi	Recovery %
1	F33x	PD01	DB10	28,90	26,60	26,40	29,80	4	27,93		*	1,69	6,04	75,77
2	A79	PD03	DB10	29,05	27,55	30,77	30,46	4	29,46		*	1,48	5,01	79,93
3	F27	PD01	DB01	29,22	32,05	35,27	34,85	4	32,85			2,81	8,55	89,12
4	A53	PZ01	DD02	33,20	33,20	34,30	33,90	4	33,65			0,54	1,62	91,30
5	A45x	PB99	DB08	33,00	34,80	34,50	34,50	4	34,20			0,81	2,38	92,79
6	F06x	PD02	DB08	34,33	35,02	35,16	33,45	4	34,49			0,78	2,27	93,58
7	A49	PD05	DB08	34,60	34,70	34,60	34,90	4	34,70			0,14	0,41	94,15
8	F15x	PC01	DB08	36,00	34,00	35,00	36,00	4	35,25			0,96	2,72	95,64
9	F19	PD02	DB08	39,80	37,60	31,80	31,90	4	35,28			4,06	**11,50**	95,71
10	F13x	PD01	DB08	36,20	35,80	35,10	35,80	4	35,73			0,46	1,28	96,93
11	A55	PD02	DB08	36,97	35,17	35,44	36,39	4	35,99			0,84	2,32	97,65
12	F14x	PC01	DB08	35,59	39,15	35,33	35,03	4	36,28			1,93	5,32	98,42
13	F12x	PC01	DB08	37,00	38,00	38,00	37,00	4	37,50			0,58	1,54	101,74
14	F07x	PC01	DB08	37,44	37,42	36,48	38,91	4	37,56			1,00	2,67	101,91
15	A36	PD02	DB08	37,50	38,10	37,90	37,30	4	37,70			0,37	0,97	102,29
16	F16x	PC01	DB08	36,78	38,94	38,08	37,44	4	37,81			0,92	2,44	102,59
17	F03	PD02	DB08	38,38	37,43	37,21	38,73	4	37,94			0,73	1,93	102,93
18	A80	PD03	DB10	37,50	39,10	37,20	38,30	4	38,03			0,85	2,25	103,17
19	F02x	PD02	DB08	38,20	38,70	37,70	38,40	4	38,25			0,42	1,10	103,78
20	F09	PZ02	DD02	37,00	39,10	37,90	39,50	4	38,38			1,14	2,97	104,12
21	A88	PD99	DB08	40,50	38,80	37,40	39,40	4	39,03			1,29	3,31	105,88
22	F18x	PD99	DB08	44,00	37,30	38,90	36,80	4	39,25			3,29	8,38	106,49
23	F05x	PD02	DB08	39,10	38,80	39,50	40,20	4	39,40			0,61	1,54	106,90
24	A61x	PD01	DB08	40,00	39,40	39,50	40,50	4	39,85			0,51	1,27	108,12
25	F08	PD02	DB10	41,70	39,80	40,50	39,30	4	40,33			1,04	2,58	109,41
26	A60x	PD01	DB10	42,90	38,41	40,23	40,06	4	40,40			1,86	4,60	109,61
27	A65	PD01	DB08	42,70	41,10	40,00	40,00	4	40,95			1,28	3,12	111,10
28	F32	PD02	DB08	41,80	44,90	43,70	45,00	4	43,85			1,49	3,40	118,97
29	A82	PC01	DB08	52,60	47,40	47,20	48,80	0	49,00	*b*	*	2,50	5,11	132,95
30	A39	PD02	DB08	57,66	55,94	56,33	55,05	0	56,25	*b*	*	1,08	1,93	152,60
31	A57	PZ98	DD02	59,10	59,40	59,90	56,90	0	58,83	*b*	*	1,33	2,25	159,60
32	A59	PB03	DB08	68,81	83,63	74,31	74,99	0	75,44	*b*	*	6,12	8,12	204,67
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	N	Mean	SI	VI
all labs	112	**36,86**	**1,210**	**3,282**
20	% from the mean			
	L		SR	VR
	28		**3,394**	**9,209**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Cu **Sample: 1** Unit: µg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean			Lab.standard dev. Si	Vi	Recovery %
1	A45x	PB99	DB08	2,02	2,27	2,17	2,50	4	2,24		*	0,20	9,00	68,65
2	F09	PZ02	DD02	2,40	2,46	2,48	2,50	4	2,46		*	0,04	1,76	75,39
3	A79	PD03	DB10	2,56	2,49	2,62	2,59	4	2,56		*	0,06	2,19	78,58
4	F06x	PD02	DB08	3,05	2,92	2,88	3,00	4	2,96			0,08	2,56	90,86
5	F15x	PC01	DB08	3,05	3,03	2,79	3,08	4	2,99			0,13	4,46	91,56
6	A80	PD03	DB10	3,01	3,06	2,99	3,06	4	3,03			0,04	1,17	92,86
7	A57	PZ98	DD02	3,15	3,05	3,00	3,00	4	3,05			0,07	2,32	93,47
8	A61x	PD01	DB08	2,99	3,20	2,99	3,03	4	3,05			0,10	3,28	93,55
9	F12x	PC01	DB09	3,04	3,09	3,10	3,13	4	3,09			0,04	1,21	94,70
10	F02x	PD02	DB08	3,27	2,97	3,03	3,14	4	3,10			0,13	4,25	95,08
11	A39	PD02	DB08	3,15	3,17	3,17	2,96	4	3,11			0,10	3,28	95,39
12	A82	PC01	DB10	3,16	3,15	3,15	3,19	4	3,16			0,02	0,60	96,92
13	F13x	PD01	DB08	3,21	3,20	3,05	3,24	4	3,18			0,09	2,68	97,30
14	A55	PD02	DB10	3,19	3,17	3,20	3,17	4	3,18			0,02	0,54	97,47
15	F05x	PD02	DB09	2,97	3,40	3,18	3,58	4	3,28			0,26	8,07	100,60
16	A60	PD01	DB10	3,28	3,30	3,40	3,20	4	3,29			0,09	2,60	100,94
17	F03	PD02	DB08	3,39	3,29	3,29	3,28	4	3,31			0,05	1,57	101,52
18	F32x	PD02	DB08	3,32	3,33	3,32	3,28	4	3,31			0,02	0,67	101,52
19	F16x	PC01	DB08	3,47	3,15	3,50	3,31	4	3,36			0,16	4,78	102,89
20	A53	PZ02	DD02	3,32	3,38	3,36	3,44	4	3,38			0,05	1,48	103,43
21	F27	PD01	DB01	4,27	3,80	2,64	2,87	4	3,39			0,77	**22,64**	104,00
22	F19	PD02	DB08	3,37	3,25	3,53	3,45	4	3,40			0,12	3,51	104,20
23	F18x	PD99	DB10	3,41	3,48	3,47	3,41	4	3,44			0,04	1,10	105,50
24	F25	PB06	DB08	3,48	3,57	3,66	3,36	4	3,52			0,13	3,64	107,80
25	A65	PD01	DB08	3,60	3,60	3,50	3,40	4	3,53			0,10	2,72	108,03
26	F08	PD02	DB10	3,54	3,50	3,67	3,58	4	3,57			0,07	2,00	109,53
27	F14x	PC01	DB10	3,41	3,57	3,49	3,90	4	3,59			0,22	6,00	110,16
28	F07x	PC01	DB08	3,28	3,77	4,07	3,69	4	3,70			0,33	8,81	113,47
29	A49	PD05	DB08	3,69	3,73	3,76	3,73	4	3,73			0,03	0,77	114,24
30	F33x	PD01	DB10	3,40	3,77	4,30	4,05	4	3,88			0,39	9,96	118,91
31	A36	PD02	DB08	4,09	4,10	4,69	4,28	4	4,29		*	0,28	6,54	131,48
32	A59	PB03	DB08	5,04	5,16	5,10	4,99	0	5,07	*b*	*	0,07	1,45	155,46
33	A88	PD99	DB08	5,91	5,41	4,79	4,55	0	5,17	*b*	*	0,61	**11,90**	158,29
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	N	Mean	SI	VI
all labs	124	**3,26**	**0,136**	**4,154**
20	% from the mean			
	L		SR	VR
	31		**0,403**	**12,350**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Cu **Sample: 2** Unit: µg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean		Lab.standard dev. Si	Vi	Recovery %
1	F27	PD01	DB01	1,80	2,30	2,32	2,57	4	2,24	*	0,32	14,38	70,95
2	F09	PZ02	DD02	2,30	2,29	2,51	2,62	4	2,43	*	0,16	6,68	76,81
3	A79	PD03	DB10	2,53	2,48	2,55	2,54	4	2,53	*	0,03	1,26	79,91
4	A45x	PB99	DB08	2,57	2,55	2,61	2,50	4	2,56		0,05	1,79	80,84
5	F12x	PC01	DB09	2,83	2,85	2,89	2,85	4	2,86		0,03	0,88	90,24
6	F06x	PD02	DB08	2,93	2,99	2,78	2,75	4	2,86		0,12	4,08	90,41
7	A61x	PD01	DB08	2,90	2,99	2,89	2,96	4	2,94		0,05	1,63	92,77
8	F02x	PD02	DB08	3,00	3,08	2,93	2,87	4	2,97		0,09	3,05	93,88
9	A57	PZ98	DD02	3,00	2,90	3,05	2,95	4	2,98		0,06	2,17	94,03
10	A82	PC01	DB10	2,97	2,97	3,01	2,95	4	2,98		0,03	0,85	94,03
11	A80	PD03	DB10	3,10	2,89	2,98	2,95	4	2,98		0,09	2,96	94,19
12	A55	PD02	DB10	2,97	3,01	3,00	3,01	4	3,00		0,02	0,64	94,72
13	F15x	PC01	DB08	2,80	3,35	2,92	2,97	4	3,01		0,24	7,89	95,14
14	F13x	PD01	DB08	3,12	3,14	3,00	3,09	4	3,09		0,06	2,00	97,59
15	F03	PD02	DB08	3,13	2,98	3,11	3,29	4	3,13		0,13	4,06	98,85
16	F19	PD02	DB08	3,08	3,07	3,11	3,26	4	3,13		0,09	2,82	98,93
17	F05x	PD02	DB09	3,35	2,95	3,26	3,03	4	3,15		0,19	5,99	99,49
18	A60	PD01	DB10	3,14	3,15	3,21	3,12	4	3,15		0,04	1,28	99,70
19	F32x	PD02	DB08	3,20	3,21	3,20	3,21	4	3,21		0,01	0,18	101,30
20	F18x	PD99	DB10	3,10	3,24	3,28	3,25	4	3,22		0,08	2,49	101,70
21	F16x	PC01	DB08	3,08	3,18	3,28	3,37	4	3,23		0,13	3,88	102,04
22	A65	PD01	DB08	3,30	3,20	3,20	3,30	4	3,25		0,06	1,78	102,73
23	F33x	PD01	DB10	3,02	3,09	3,50	3,48	4	3,27		0,25	7,73	103,44
24	F14x	PC01	DB10	3,31	3,24	3,36	3,19	4	3,27		0,07	2,26	103,47
25	A53	PZ02	DD02	3,26	3,24	3,33	3,30	4	3,28		0,04	1,23	103,75
26	F25	PB06	DB08	3,31	3,25	3,36	3,23	4	3,29		0,06	1,80	103,91
27	F08	PD02	DB10	3,64	3,61	3,54	3,54	4	3,58		0,05	1,48	113,23
28	A36	PD02	DB08	3,64	3,59	3,71	3,89	4	3,71		0,13	3,54	117,19
29	A49	PD05	DB08	3,62	3,87	3,63	3,81	4	3,73		0,13	3,39	117,98
30	A88	PD99	DB08	4,11	3,55	3,96	4,14	4	3,94	*	0,27	6,89	124,54
31	F07x	PC01	DB08	3,48	4,01	4,36	4,33	4	4,05	*	0,41	10,10	127,90
32	A59	PB03	DB08	4,68	4,32	3,79	4,21	4	4,25	*	0,37	8,62	134,34
33	A39	PD02	DB08	4,72	4,69	4,66	4,82	0	4,72	*b* *	0,07	1,47	149,27
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	N	Mean	SI	VI
all labs	128	**3,16**	**0,120**	**3,790**
20	% from the mean			
	L		SR	VR
	32		**0,441**	**13,932**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Cu **Sample: 3** Unit: µg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean			Lab.standard dev. Si	Lab.standard dev. Vi	Recovery %
1	F09	PZ02	DD02	3,02	3,33	3,12	3,40	4	3,22			0,18	5,52	80,52
2	A45x	PB99	DB08	3,39	3,41	3,37	3,22	4	3,35			0,09	2,59	83,77
3	A79	PD03	DB10	3,31	3,27	3,38	3,47	4	3,36			0,09	2,59	83,98
4	F27	PD01	DB01	3,15	2,91	3,95	3,66	4	3,42			0,47	**13,82**	85,56
5	A57	PZ98	DD02	3,60	3,55	3,60	3,65	4	3,60			0,04	1,13	90,09
6	F33x	PD01	DB10	3,90	4,06	3,84	3,49	4	3,82			0,24	6,29	95,66
7	F12x	PC01	DB09	3,86	3,87	3,77	3,81	4	3,83			0,05	1,21	95,78
8	F06x	PD02	DB08	3,86	3,86	3,77	3,85	4	3,83			0,04	1,08	95,95
9	F05x	PD02	DB09	3,97	3,82	3,97	3,70	4	3,87			0,13	3,38	96,72
10	A61x	PD01	DB08	3,92	3,85	3,94	3,83	4	3,89			0,05	1,37	97,22
11	A80	PD03	DB10	3,87	3,90	3,93	3,89	4	3,90			0,03	0,64	97,54
12	F15x	PC01	DB08	3,56	3,87	4,61	3,62	4	3,92			0,48	**12,32**	97,97
13	A55	PD02	DB10	3,94	4,02	3,92	4,02	4	3,97			0,06	1,39	99,42
14	A82	PC01	DB10	4,02	4,05	3,87	4,10	4	4,01			0,10	2,47	100,35
15	F19	PD02	DB08	4,16	4,03	4,21	3,75	4	4,04			0,21	5,11	101,04
16	F13x	PD01	DB08	4,02	3,93	4,09	4,19	4	4,06			0,11	2,71	101,54
17	F02x	PD02	DB08	4,03	4,10	4,22	3,95	4	4,08			0,11	2,81	101,98
18	A53	PZ02	DD02	4,11	4,15	4,16	4,05	4	4,12			0,05	1,21	103,04
19	F03	PD02	DB08	4,23	4,10	4,04	4,16	4	4,13			0,08	1,97	103,42
20	A60	PD01	DB10	4,20	4,14	4,15	4,03	4	4,13			0,07	1,74	103,42
21	A88	PD99	DB08	4,09	4,11	4,21	4,15	4	4,14			0,05	1,28	103,60
22	F18x	PD99	DB10	4,10	4,22	4,17	4,22	4	4,18			0,06	1,36	104,54
23	F16x	PC01	DB08	4,29	3,96	4,21	4,26	4	4,18			0,15	3,66	104,56
24	F32x	PD02	DB08	4,23	4,19	4,21	4,20	4	4,21			0,02	0,41	105,29
25	F14x	PC01	DB10	4,12	4,27	4,19	4,27	4	4,21			0,07	1,70	105,43
26	F25	PB06	DB08	4,16	4,13	4,56	4,17	4	4,26			0,20	4,80	106,48
27	A65	PD01	DB08	4,40	4,30	4,40	4,40	4	4,38			0,05	1,14	109,48
28	F08	PD02	DB10	4,27	4,52	4,54	4,39	4	4,43			0,13	2,86	110,86
29	F07x	PC01	DB08	4,63	4,79	4,40	3,92	4	4,43			0,38	8,60	110,96
30	A49	PD05	DB08	4,51	*4,63a*	4,51	4,52	3	4,51			0,01	0,13	112,95
31	A36	PD02	DB08	4,66	4,55	4,63	4,40	4	4,56			0,12	2,55	114,11
32	A39	PD02	DB08	5,54	*5,8a*	5,58	5,51	0	5,54	*b*	*	0,04	0,63	138,72
33	A59	PB03	DB08	6,40	5,72	5,66	4,74	0	5,63	*b*	*	0,68	**12,11**	140,89
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	N	Mean	SI	VI
all labs	123	**4,00**	**0,126**	**3,154**
20	% from the mean			
	L		SR	VR
	31		**0,340**	**8,509**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Cu **Sample: 4** Unit: µg/g

No.	Lab.	Method code		Replications				n	Lab.mean			Lab.standard dev.		Recovery
	Code	P	D	1	2	3	4					Si	Vi	%
1	A45x	PB99	DB08	2,28	2,28	2,35	2,38	4	2,32		*	0,05	2,18	76,72
2	A79	PD03	DB10	2,43	2,33	2,44	2,47	4	2,42		*	0,06	2,47	79,85
3	F27	PD01	DB01	1,93	2,42	2,55	2,99	4	2,47			0,44	**17,64**	81,74
4	F15x	PC01	DB08	2,46	2,76	3,08	2,75	4	2,76			0,25	9,17	91,26
5	F05x	PD02	DB09	2,90	2,79	2,90	2,83	4	2,86			0,05	1,91	94,31
6	F12x	PC01	DB09	2,88	2,85	2,81	2,91	4	2,86			0,04	1,49	94,56
7	A82	PC01	DB10	2,93	2,82	2,85	2,86	4	2,87			0,05	1,62	94,64
8	F06x	PD02	DB08	2,84	2,92	2,94	2,78	4	2,87			0,07	2,58	94,74
9	A57	PZ98	DD02	2,90	2,90	2,90	2,85	4	2,89			0,02	0,87	95,39
10	A55	PD02	DB10	2,89	2,89	2,88	2,90	4	2,89			0,01	0,24	95,50
11	A80	PD03	DB10	2,90	3,00	2,98	2,93	4	2,95			0,05	1,55	97,54
12	F02x	PD02	DB08	2,81	3,03	2,92	3,15	4	2,98			0,15	4,90	98,36
13	F19	PD02	DB08	3,04	3,31	2,78	2,79	4	2,98			0,25	8,41	98,44
14	F13x	PD01	DB08	3,00	2,98	3,04	2,99	4	3,00			0,03	0,88	99,19
15	A61x	PD01	DB08	3,22	2,91	2,95	3,03	4	3,03			0,14	4,55	100,01
16	F09	PZ02	DD02	2,80	3,02	3,16	3,24	4	3,06			0,19	6,31	100,92
17	A60	PD01	DB10	3,17	3,09	3,06	2,96	4	3,07			0,09	2,80	101,44
18	F32x	PD02	DB08	3,10	3,11	3,11	3,13	4	3,11			0,01	0,40	102,82
19	F16x	PC01	DB08	3,11	3,23	2,97	3,19	4	3,12			0,12	3,75	103,22
20	F03	PD02	DB08	3,29	3,20	3,06	3,04	4	3,15			0,12	3,77	103,98
21	A88	PD99	DB08	3,15	3,23	3,14	3,09	4	3,15			0,06	1,84	104,14
22	F18x	PD99	DB10	3,23	3,19	3,17	3,20	4	3,20			0,03	0,78	105,63
23	F08	PD02	DB10	3,33	3,21	3,20	3,15	4	3,22			0,08	2,42	106,47
24	A53	PZ02	DD02	3,30	3,15	3,27	3,28	4	3,25			0,07	2,09	107,36
25	A36	PD02	DB08	3,18	3,22	3,52	3,19	4	3,28			0,16	4,96	108,27
26	A65	PD01	DB08	3,60	3,30	3,20	3,10	4	3,30			0,22	6,55	109,01
27	A49	PD05	DB08	3,47	3,33	3,30	3,32	4	3,36			0,08	2,32	110,83
28	F25	PB06	DB08	3,31	3,58	3,38	3,27	4	3,39			0,14	4,07	111,82
29	F14x	PC01	DB10	3,17	3,37	3,60	3,41	4	3,39			0,18	5,26	111,90
30	F33x	PD01	DB10	4,05	3,40	3,45	3,62	4	3,63			0,30	8,14	119,92
31	F07x	PC01	DB08	3,97	4,11	4,43	4,02	0	4,13	*b*	*	0,21	5,03	136,48
32	A59	PB03	DB08	4,32	4,77	4,53	4,37	0	4,50	*b*	*	0,20	4,50	148,57
33	A39	PD02	DB08	*4,42a*	4,71	4,73	4,72	0	4,72	*b*	*	0,01	0,21	155,92
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	N	Mean	SI	VI
all labs	120	**3,03**	**0,116**	**3,832**
20	% from the mean			
	L		SR	VR
	30		**0,290**	**9,571**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Pb **Sample: 1** Unit: µg/g

No.	Lab.	Method code		Replications				n	Lab.mean			Lab.standard dev.		Recovery
	Code	P	D	1	2	3	4					Si	Vi	%
1	A79	PD03	DB10	0,12	0,11	0,11	0,11	4	0,11			0,00	1,60	64,71
2	F08	PD02	DB10	0,12	0,12	0,14	0,12	4	0,13			0,01	6,39	70,99
3	A82	PC01	DB10	*1,39a*	0,13	0,13	0,13	3	0,13			0,00	3,35	73,60
4	F16x	PC01	DB10	0,13	0,13	0,13	0,13	4	0,13			0,00	2,13	74,24
5	A45x	PB99	DB10	0,13	0,13	0,14	0,14	4	0,13			0,00	2,33	75,58
6	F13x	PD01	DB05	0,14	0,13	0,14	0,13	4	0,14			0,01	4,02	77,42
7	A36	PD02	DB10	0,13	0,14	0,14	0,14	4	0,14			0,00	2,98	77,56
8	F33x	PD01	DB10	0,14	0,15	0,15	0,16	4	0,15			0,01	5,03	83,22
9	F32x	PD02	DB10	0,15	0,15	0,15	0,14	4	0,15			0,01	3,74	83,36
10	A55	PD02	DB10	0,15	0,15	0,15	0,15	4	0,15			0,00	1,30	84,16
11	F18x	PD99	DB10	0,15	0,16	0,16	0,16	4	0,16			0,00	3,13	90,16
12	A60	PD01	DB10	0,16	0,19	0,28	0,15	4	0,19			0,06	**31,16**	109,27
13	F02	PD02	DB05	0,26	0,16	0,21	0,15	4	0,20			0,05	**25,92**	111,90
14	F05x	PD02	DB09	0,23	0,24	0,21	0,23	4	0,23			0,01	5,57	128,23
15	F27	PD01	DB05	0,10	0,35	0,24	0,33	4	0,26		*	0,12	**44,91**	145,22
16	F07x	PC01	DB08	0,22	0,34	0,37	0,20	4	0,28		*	0,09	**30,77**	160,22
17	F14x	PC01	DB10	0,25	0,33	0,35	0,37	4	0,32		*	0,05	**16,16**	183,57
18	F12x	PC01	DB09	0,55	0,53	0,50	0,58	0	0,54	*b*	*	0,03	6,23	305,72
19	A88	PD99	DB08	0,67	0,51	0,74	0,86	0	0,70	*b*	*	0,15	**21,03**	393,47
20														
21														
22	A49	PD05	DB08	<3	<3	<3	<3				**			
23	A39	PD02	DB08	<,5	<,5	<,5	<,5							
24	F03	PC02	DB08	<,5	<,5	<,5	<,5							
25	F15x	PC01	DB08	<,5	<,5	<,5	<,5							
26	F06x	PD02	DB08	0,59	<,5	<,5	<,5							
27	A80	PD03	DB10	<,125	0,27	<,125	<,125							
28	A65	PD01	DB08	0,70	0,70	0,60	<,4							
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	N	Mean	SI	VI
all labs	67	**0,18**	**0,025**	**14,258**
40	% from the mean			
	L		SR	VR
	17		**0,062**	**35,172**

* = non tolerable mean because more than +/-

lower than the lowest evaluated result

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Pb **Sample: 2** Unit: µg/g

No.	Lab.	Method code		Replications				n	Lab.mean			Lab.standard dev.		Recovery
	Code	P	D	1	2	3	4					Si	Vi	%
1	F08	PD02	DB10	0,06	0,04	0,04	0,06	4	0,05			0,01	**22,78**	60,85
2	A79	PD03	DB10	0,05	0,05	0,05	0,05	4	0,05			0,00	1,62	61,59
3	F16x	PC01	DB10	0,05	0,05	0,06	0,05	4	0,05			0,00	6,84	63,47
4	A82	PC01	DB10	0,07	0,06	0,06	0,06	4	0,06			0,01	**11,39**	76,68
5	F32x	PD02	DB10	0,06	0,06	0,06	0,06	4	0,06			0,00	0,00	77,61
6	A36	PD02	DB10	0,06	0,06	0,07	0,07	4	0,06			0,01	8,65	79,15
7	F13x	PD01	DB05	0,07	0,06	0,07	0,06	4	0,07			0,00	6,85	82,23
8	F33x	PD01	DB10	0,07	0,07	0,08	0,06	4	0,07			0,01	9,13	87,46
9	A55	PD02	DB10	0,07	0,07	0,07	0,08	4	0,07			0,00	2,15	90,17
10	F18x	PD99	DB10	0,08	0,08	0,10	0,09	4	0,09			0,01	9,22	106,68
11	F02	PD02	DB05	0,11	0,08	0,11	0,08	4	0,09			0,02	**17,69**	116,07
12	A60	PD01	DB10	0,08	0,10	0,16	0,08	4	0,10			0,04	**39,29**	128,17
13	F05x	PD02	DB09	0,12	0,14	0,14	0,14	4	0,13		*	0,01	7,20	165,68
14	F14x	PC01	DB10	0,15	0,16	0,20	0,16	4	0,17		*	0,02	**14,62**	204,18
15	F27	PD01	DB05	0,23	0,22	0,24	0,20	0	0,22	*b*	*	0,02	7,86	271,01
16	F07x	PC01	DB08	0,24	0,29	0,28	0,33	0	0,28	*b*	*	0,04	**13,08**	349,72
17	A88	PD99	DB08	0,36	0,37	0,41	0,31	0	0,36	*b*	*	0,04	**11,35**	446,55
18														
19														
20	A49	PD05	DB08	<3	<3	<3	<3				**			
21	A39	PD02	DB08	<,5	<,5	<,5	<,5							
22	F06x	PD02	DB08	<,5	<,5	<,5	<,5							
23	F03	PC02	DB08	<,5	<,5	<,5	<,5							
24	F15x	PC01	DB08	<,5	<,5	<,5	<,5							
25	F12x	PC01	DB09	<,45	<,45	<,45	<,45							
26	A65	PD01	DB08	<,4	<,4	<,4	<,4							
27	A80	PD03	DB10	<,125	<,125	<,125	<,125							
28	A45x	PB99	DB10	<,08	<,08	<,08	<,08							
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	N	Mean	SI	VI
all labs	56	**0,08**	**0,010**	**12,345**
40	% from the mean			
	L		SR	VR
	14		**0,034**	**41,747**

* = non tolerable mean because more than +/-

lower than the lowest evaluated result

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Pb **Sample: 3** Unit: µg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean		Lab.standard dev. Si	Vi	Recovery %
1	A88	PD99	DB08	15,69	15,99	15,99	16,89	4	16,14	*	0,52	3,22	59,65
2	F27	PD01	DB05	23,17	18,45	16,76	16,74	4	18,78	*	3,03	16,16	69,41
3	A60	PD01	DB10	23,04	21,63	22,65	21,63	4	22,24		0,72	3,24	82,18
4	A79	PD03	DB10	22,94	22,63	23,32	22,84	4	22,93		0,29	1,26	84,75
5	F07x	PC01	DB08	22,83	22,93	23,04	23,59	4	23,10		0,34	1,47	85,37
6	A39	PD02	DB08	25,41	25,05	24,47	24,72	4	24,91		0,41	1,64	92,07
7	A82	PC01	DB10	26,50	25,80	25,60	25,80	4	25,93		0,39	1,52	95,82
8	F05x	PD02	DB09	26,40	26,70	26,60	26,00	4	26,43		0,31	1,17	97,66
9	A45x	PB99	DB10	27,00	26,80	26,70	26,80	4	26,83		0,13	0,47	99,14
10	F12x	PC01	DB09	27,70	27,30	26,70	27,20	4	27,23		0,41	1,51	100,62
11	A80	PD03	DB10	27,20	27,40	27,40	27,40	4	27,35		0,10	0,37	101,08
12	F16x	PC01	DB10	26,94	30,57	25,01	27,02	4	27,39		2,32	8,46	101,21
13	F06x	PD02	DB08	27,88	27,24	27,60	27,95	4	27,67		0,32	1,17	102,26
14	F32x	PD02	DB10	27,50	27,80	28,40	27,30	4	27,75		0,48	1,73	102,56
15	A36	PD02	DB10	28,40	27,80	27,50	27,30	4	27,75		0,48	1,73	102,56
16	F18x	PD99	DB10	27,70	27,70	28,20	28,40	4	28,00		0,36	1,27	103,49
17	F03	PC02	DB08	27,85	27,99	28,13	28,08	4	28,01		0,12	0,44	103,53
18	F14x	PC01	DB10	28,35	28,26	27,82	27,96	4	28,10		0,25	0,89	103,85
19	A65	PD01	DB08	28,20	27,90	28,40	28,50	4	28,25		0,26	0,94	104,41
20	F13x	PD01	DB05	29,55	29,56	29,03	28,14	4	29,07		0,67	2,30	107,44
21	A55	PD02	DB10	30,35	29,59	29,59	28,93	4	29,62		0,58	1,96	109,45
22	F15x	PC01	DB08	29,87	29,90	29,67	29,08	4	29,63		0,38	1,28	109,51
23	A49	PD05	DB08	29,00	30,50	29,60	29,60	4	29,68		0,62	2,08	109,68
24	F08	PD02	DB10	30,90	30,80	30,70	31,00	4	30,85		0,13	0,42	114,02
25	F33x	PD01	DB10	32,40	34,12	36,92	35,80	4	34,81		1,98	5,68	128,65
26	F02	PD02	DB05	33,43	35,74	35,18	35,94	4	35,07		1,14	3,25	129,62
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	N	Mean	SI	VI
all labs	104	**27,06**	**0,644**	**2,379**
30	% from the mean			

L	SR	VR
26	**4,092**	**15,124**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Pb **Sample: 4** Unit: µg/g

No.	Lab.	Method code		Replications				n	Lab.mean		Lab.standard dev.		Recovery
	Code	P	D	1	2	3	4				Si	Vi	%
1	A79	PD03	DB10	0,11	0,11	0,10	0,10	4	0,10		0,00	2,99	60,99
2	A82	PC01	DB10	0,11	0,11	0,12	0,11	4	0,11		0,00	3,41	64,89
3	F16x	PC01	DB10	0,11	0,13	0,11	0,12	4	0,12		0,01	**10,04**	68,81
4	F05x	PD02	DB09	0,12	0,15	0,13	0,11	4	0,13		0,02	**13,84**	73,24
5	A36	PD02	DB10	0,12	0,12	0,13	0,14	4	0,13		0,01	6,00	74,41
6	F32x	PD02	DB10	0,13	0,13	0,13	0,13	4	0,13		0,00	0,00	76,16
7	F08	PD02	DB10	0,13	0,12	0,14	0,13	4	0,13		0,01	4,01	76,30
8	A45x	PB99	DB10	0,12	0,13	0,14	0,14	4	0,13		0,01	8,66	77,19
9	A55	PD02	DB10	0,13	0,13	0,13	0,14	4	0,13		0,00	3,51	77,28
10	F33x	PD01	DB10	0,15	0,15	0,15	0,15	4	0,15		0,00	1,85	87,44
11	F18x	PD99	DB10	0,16	0,15	0,15	0,15	4	0,15		0,00	2,67	87,88
12	F13x	PD01	DB05	0,15	0,16	0,19	0,18	4	0,17		0,01	8,60	99,75
13	A60	PD01	DB10	0,16	0,17	0,22	0,16	4	0,18		0,03	**15,64**	103,99
14	A88	PD99	DB08	0,29	0,29	0,25	0,28	4	0,28	*	0,02	6,82	162,58
15	F14x	PC01	DB10	0,25	0,28	0,28	0,32	4	0,28	*	0,03	**10,89**	165,37
16	F02	PD02	DB05	0,31	0,36	0,25	0,23	4	0,29	*	0,06	**19,61**	169,13
17	F27	PD01	DB05	0,31	0,27	0,35	0,26	4	0,30	*	0,04	**13,24**	174,59
18													
19													
20	A49	PD05	DB08	<3	<3	<3	<3			**			
21	A39	PD02	DB08	<,5	<,5	<,5	<,5						
22	F15x	PC01	DB08	<,5	<,5	<,5	<,5						
23	F06x	PD02	DB08	<,5	<,5	<,5	<,5						
24	F03	PC02	DB08	<,5	<,5	<,5	<,5						
25	F12x	PC01	DB09	<,45	<,45	<,45	<,45						
26	A65	PD01	DB08	<,4	<,4	<,4	<,4						
27	F07x	PC01	DB08	<,2	<,2	<,2	<,2						
28	A80	PD03	DB10	<,125	<,125	<,125	<,125						
29													
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	N	Mean	SI	VI
all labs	68	**0,17**	**0,015**	**8,952**
40	% from the mean			
	L		SR	VR
	17		**0,069**	**40,403**

* = non tolerable mean because more than +/-

lower than the lowest evaluated result

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Cd **Sample: 1** Unit: ng/g

No.	Lab.	Method code		Replications				n	Lab.mean		Lab.standard dev.		Recovery
	Code	P	D	1	2	3	4				Si	Vi	%
1	A79	PD03	DB10	61,75	61,35	63,25	62,00	4	62,09		0,82	1,32	84,23
2	F07x	PC01	DB08	68,90	63,80	64,90	65,00	4	65,65		2,23	3,40	89,07
3	F16x	PC01	DB10	64,72	71,75	62,05	69,19	4	66,93		4,36	6,52	90,80
4	A80	PD03	DB10	66,90	68,40	66,10	67,20	4	67,15		0,95	1,42	91,10
5	A45x	PB99	DB10	68,40	67,40	67,30	68,00	4	67,78		0,52	0,77	91,95
6	F02	PD02	DB05	74,20	65,40	62,90	76,80	4	69,83		6,72	9,62	94,73
7	F12x	PC01	DB09	76,90	67,80	69,80	71,60	4	71,53		3,91	5,46	97,04
8	F03	PC02	DB08	76,30	74,90	69,50	66,20	4	71,73		4,71	6,56	97,31
9	A36	PD02	DB10	72,60	70,60	70,30	73,50	4	71,75		1,55	2,16	97,34
10	F05x	PD02	DB09	75,30	71,80	76,70	63,60	4	71,85		5,87	8,17	97,48
11	F06x	PD02	DB08	63,00	71,00	75,00	79,00	4	72,00		6,83	9,49	97,68
12	F13x	PD01	DB05	71,80	72,40	72,90	72,20	4	72,33		0,46	0,63	98,12
13	F33x	PD01	DB10	68,70	81,20	68,20	74,20	4	73,08		6,06	8,29	99,14
14	F32x	PD02	DB10	75,00	76,10	75,00	73,90	4	75,00		0,90	1,20	101,75
15	A55	PD02	DB05	75,70	76,20	75,00	73,50	4	75,10		1,17	1,56	101,89
16	A61x	PD01	DB08	77,00	75,00	75,00	77,00	4	76,00		1,15	1,52	103,11
17	A82	PC01	DB10	77,43	75,38	76,66	75,44	4	76,23		1,00	1,31	103,42
18	F08	PD02	DB10	73,50	79,90	74,90	77,60	4	76,48		2,85	3,72	103,75
19	F18x	PD99	DB10	78,10	77,40	78,50	75,20	4	77,30		1,47	1,90	104,87
20	F14x	PC01	DB10	87,86	79,25	75,31	78,37	4	80,20		5,38	6,71	108,80
21	A39	PD02	DB08	87,00	84,00	80,00	82,00	4	83,25		2,99	3,59	112,94
22	A60x	PD01	DB10	80,91	94,15	77,62	87,95	4	85,16		7,38	8,67	115,53
23	F27	PD01	DB05	85,80	87,90	90,40	83,60	4	86,93		2,91	3,34	117,93
24													
25													
26	F15x	PC01	DB08	<20	<20	<20	<20			*			
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	N	Mean	SI	VI
all labs	92	**73,71**	**3,139**	**4,258**
30	% from the mean			
	L		SR	VR
	23		**6,161**	**8,359**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Cd **Sample: 2** Unit: ng/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean	Lab.standard dev. Si	Vi	Recovery %
1	F33x	PD01	DB10	23,60	26,50	24,20	21,70	4	24,00	1,98	8,24	85,30
2	A79	PD03	DB10	24,75	23,85	24,60	24,05	4	24,31	0,43	1,77	86,41
3	A61x	PD01	DB08	26,00	26,00	25,00	25,00	4	25,50	0,58	2,26	90,63
4	F02	PD02	DB05	26,10	27,10	22,80	27,10	4	25,78	2,04	7,91	91,61
5	F16x	PC01	DB10	25,83	23,71	29,89	24,53	4	25,99	2,74	**10,55**	92,37
6	A45x	PB99	DB10	26,60	26,10	26,40	25,20	4	26,08	0,62	2,37	92,67
7	A80	PD03	DB10	27,20	25,80	26,00	26,10	4	26,28	0,63	2,39	93,38
8	F07x	PC01	DB08	26,30	24,70	25,80	28,80	4	26,40	1,73	6,57	93,83
9	F08	PD02	DB10	28,80	29,20	26,70	24,60	4	27,33	2,12	7,77	97,12
10	A55	PD02	DB05	27,50	27,30	27,20	27,40	4	27,35	0,13	0,47	97,21
11	F13x	PD01	DB05	26,40	28,00	27,60	28,20	4	27,55	0,81	2,93	97,92
12	A36	PD02	DB10	27,80	28,40	28,30	27,00	4	27,88	0,64	2,29	99,07
13	F18x	PD99	DB10	29,70	30,20	27,90	26,50	4	28,58	1,70	5,95	101,56
14	F14x	PC01	DB10	30,62	25,26	30,05	30,43	4	29,09	2,56	8,82	103,39
15	A82	PC01	DB10	28,68	29,98	29,73	28,60	4	29,25	0,71	2,43	103,95
16	F32x	PD02	DB10	29,40	29,40	29,40	29,40	4	29,40	0,00	0,00	104,49
17	A60x	PD01	DB10	29,60	39,07	29,84	36,09	4	33,65	4,70	**13,97**	119,60
18	A39	PD02	DB08	34,00	34,00	35,00	34,00	4	34,25	0,50	1,46	121,73
19	F27	PD01	DB05	36,20	34,70	37,70	35,20	4	35,95	1,32	3,68	127,77
20												
21												
22	F03	PC02	DB08	<50	<50	<50	<50					
23	F05x	PD02	DB09	<25	<25	<25	<25					
24	F15x	PC01	DB08	<20	<20	<20	<20					
25	F12x	PC01	DB09	29,30	<25	25,80	<25					
26	F06x	PD02	DB08	27,00	17,00	33,00	<15					
27												
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	N	Mean	SI	VI
all labs	76	**28,14**	**1,365**	**4,853**
30	% from the mean			

* = non tolerable mean because more than +/-

L	SR	VR
19	**3,283**	**11,669**

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Cd **Sample: 3** Unit: ng/g

No.	Lab.	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery
	Code	P	D	1	2	3	4			Si	Vi	%
1	F15x	PC01	DB08	212,00	282,00	236,00	232,00	4	240,50	29,59	**12,30**	81,78
2	F07x	PC01	DB08	252,70	255,80	261,50	257,00	4	256,75	3,65	1,42	87,30
3	F05x	PD02	DB09	257,00	262,00	265,00	257,00	4	260,25	3,95	1,52	88,49
4	F02	PD02	DB05	282,00	256,00	273,00	239,00	4	262,50	19,02	7,24	89,26
5	A79	PD03	DB10	261,70	262,60	262,00	268,50	4	263,70	3,22	1,22	89,67
6	F16x	PC01	DB10	261,30	290,70	276,20	284,90	4	278,28	12,79	4,60	94,62
7	F06x	PD02	DB08	277,00	266,00	305,00	271,00	4	279,75	17,42	6,23	95,12
8	A80	PD03	DB10	282,00	286,00	286,00	285,00	4	284,75	1,89	0,66	96,83
9	F33x	PD01	DB10	270,20	278,90	309,80	292,30	4	287,80	17,26	6,00	97,86
10	F13x	PD01	DB05	278,00	301,00	288,00	302,00	4	292,25	11,44	3,92	99,38
11	A45x	PB99	DB10	294,00	288,00	300,00	295,00	4	294,25	4,92	1,67	100,06
12	A55	PD02	DB05	298,00	299,20	298,30	299,40	4	298,73	0,68	0,23	101,58
13	F32x	PD02	DB10	296,00	307,00	296,00	296,00	4	298,75	5,50	1,84	101,59
14	A36	PD02	DB10	295,00	305,00	296,00	301,00	4	299,25	4,65	1,55	101,76
15	A61x	PD01	DB08	307,00	296,00	303,00	304,00	4	302,50	4,65	1,54	102,86
16	F12x	PC01	DB09	304,00	313,00	300,00	302,00	4	304,75	5,74	1,88	103,63
17	A39	PD02	DB08	317,00	296,00	305,00	307,00	4	306,25	8,62	2,81	104,14
18	F14x	PC01	DB10	329,60	292,30	301,10	305,00	4	307,00	15,98	5,20	104,39
19	F18x	PD99	DB10	320,00	304,00	307,00	311,00	4	310,50	6,95	2,24	105,58
20	F03	PC02	DB08	315,50	310,30	309,60	314,10	4	312,38	2,87	0,92	106,22
21	A82	PC01	DB10	310,00	309,70	317,70	312,73	4	312,53	3,70	1,18	106,27
22	F27	PD01	DB05	323,80	334,10	323,70	330,90	4	328,13	5,22	1,59	111,57
23	F08	PD02	DB10	341,10	325,50	320,30	334,80	4	330,43	9,31	2,82	112,36
24	A60x	PD01	DB10	336,38	357,91	330,83	359,42	4	346,14	14,66	4,23	117,70
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	N	Mean	SI	VI
all labs	96	**294,09**	**8,903**	**3,027**
30	% from the mean			

* = non tolerable mean because more than +/-

L	SR	VR
24	**25,211**	**8,573**

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: Cd **Sample: 4** Unit: ng/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean		Lab.standard dev. Si	Vi	Recovery %
1	F02	PD02	DB05	59,50	70,40	73,00	58,90	4	65,45		7,30	**11,15**	86,79
2	F07x	PC01	DB08	66,00	65,40	67,10	64,20	4	65,68		1,21	1,84	87,08
3	A79	PD03	DB10	68,15	63,85	65,90	67,75	4	66,41		1,97	2,97	88,06
4	F33x	PD01	DB10	67,00	65,70	62,80	70,40	4	66,48		3,15	4,74	88,14
5	F16x	PC01	DB10	72,93	73,95	64,15	68,45	4	69,87		4,50	6,44	92,65
6	F05x	PD02	DB09	71,50	74,30	74,90	64,80	4	71,38		4,63	6,48	94,64
7	A80	PD03	DB10	69,70	73,90	70,80	72,40	4	71,70		1,84	2,56	95,07
8	A45x	PB99	DB10	73,50	72,50	72,70	73,00	4	72,93		0,43	0,60	96,70
9	F12x	PC01	DB09	74,30	72,00	73,90	73,50	4	73,43		1,00	1,37	97,36
10	F03	PC02	DB08	75,00	73,60	72,30	75,00	4	73,98		1,30	1,75	98,09
11	F13x	PD01	DB05	74,20	74,00	76,30	73,00	4	74,38		1,39	1,86	98,62
12	A55	PD02	DB05	76,19	76,44	76,50	76,31	4	76,36		0,14	0,18	101,25
13	A36	PD02	DB10	77,20	74,00	78,60	77,20	4	76,75		1,95	2,54	101,77
14	F14x	PC01	DB10	81,08	73,88	76,19	76,02	4	76,79		3,05	3,97	101,83
15	A61x	PD01	DB08	76,00	77,00	76,00	79,00	4	77,00		1,41	1,84	102,10
16	F08	PD02	DB10	77,30	78,70	80,80	77,20	4	78,50		1,68	2,14	104,09
17	F32x	PD02	DB10	79,20	79,20	79,20	79,20	4	79,20		0,00	0,00	105,02
18	F18x	PD99	DB10	81,60	78,50	77,20	79,60	4	79,23		1,86	2,35	105,05
19	A82	PC01	DB10	81,66	76,86	82,07	78,34	4	79,73		2,54	3,19	105,72
20	A39	PD02	DB08	84,00	84,00	78,00	73,00	4	79,75		5,32	6,66	105,75
21	F06x	PD02	DB08	90,00	74,00	74,00	85,00	4	80,75		8,06	9,98	107,07
22	F27	PD01	DB05	85,10	87,20	89,10	90,50	4	87,98		2,35	2,67	116,65
23	A60x	PD01	DB10	88,37	93,78	91,07	90,30	4	90,88		2,24	2,47	120,50
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26	F15x	PC01	DB08	<20	120,00	93,00	143,00			*			
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	N	Mean	SI	VI
all labs	92	**75,42**	**2,579**	**3,419**
30	% from the mean			

L	SR	VR
23	**6,528**	**8,656**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: B **Sample: 1** Unit: µg/g

No.	Lab.	Method code		Replications				n	Lab.mean		Lab.standard dev.		Recovery
	Code	P	D	1	2	3	4				Si	Vi	%
1	A55	PD02	DB10	19,25	18,76	18,26	18,35	4	18,66		0,45	2,43	82,69
2	F07x	PC01	DB08	18,89	*18,31a*	18,95	19,02	3	18,95		0,07	0,34	84,02
3	A79	PD03	DB10	19,76	19,53	19,64	20,38	4	19,83		0,38	1,92	87,90
4	F18x	PD99	DB08	20,30	20,00	19,90	20,30	4	20,13		0,21	1,02	89,21
5	F05	PD02	DB09	20,10	20,90	20,20	19,80	4	20,25		0,47	2,30	89,76
6	F16x	PC01	DB10	19,79	23,25	19,35	21,48	4	20,97		1,78	8,48	92,94
7	F08	PZ99	DB08	21,80	21,80	21,50	22,00	4	21,78		0,21	0,95	96,52
8	A39	PD02	DB08	21,51	21,53	22,53	22,97	4	22,14		0,73	3,31	98,12
9	F19	PD02	DB08	22,00	22,00	22,20	22,40	4	22,15		0,19	0,86	98,19
10	F32	PD02	DB08	22,70	22,70	22,60	22,60	4	22,65		0,06	0,25	100,40
11	F02x	PD02	DB08	22,78	22,55	23,38	22,68	4	22,85		0,37	1,61	101,28
12	A65	PD01	DB08	23,00	23,90	22,80	22,20	4	22,98		0,70	3,06	101,84
13	F14x	PC01	DB08	23,27	22,82	23,01	23,06	4	23,04		0,18	0,80	102,13
14	A61x	PD01	DB08	23,07	23,43	23,32	23,08	4	23,23		0,18	0,77	102,95
15	A36	PD02	DB08	23,30	23,40	23,40	23,50	4	23,40		0,08	0,35	103,73
16	A49	PD05	DB08	24,30	24,60	24,60	24,80	4	24,58		0,21	0,84	108,94
17	A59	PB03	DB08	28,83	30,76	20,21	28,98	4	27,20	*	4,74	**17,42**	120,55
18	A60	PD01	DB10	31,85	29,12	31,77	28,92	4	30,42	*	1,61	5,30	134,82
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	N	Mean	SI	VI
all labs	71	**22,56**	**0,701**	**3,105**
20	% from the mean			
	L		SR	VR
	18		**2,863**	**12,718**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: B **Sample: 2** Unit: µg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean			Lab.standard dev. Si	Vi	Recovery %
1	F07x	PC01	DB08	9,96	9,68	9,81	9,76	4	9,80			0,12	1,19	81,27
2	F18x	PD99	DB08	9,89	10,20	10,30	10,40	4	10,20			0,22	2,16	84,55
3	A79	PD03	DB10	10,62	10,63	10,99	10,96	4	10,80			0,20	1,87	89,53
4	F08	PZ99	DB08	10,60	11,50	11,00	11,00	4	11,03			0,37	3,34	91,41
5	F16x	PC01	DB10	9,37	12,70	10,56	11,88	4	11,13			1,47	**13,18**	92,26
6	A55	PD02	DB10	11,30	11,45	11,30	11,42	4	11,37			0,08	0,69	94,25
7	F32	PD02	DB08	11,90	12,00	12,00	12,00	4	11,98			0,05	0,42	99,28
8	A65	PD01	DB08	12,00	11,90	12,00	12,10	4	12,00			0,08	0,68	99,49
9	F19	PD02	DB08	12,00	12,00	12,10	12,00	4	12,03			0,05	0,42	99,70
10	F02x	PD02	DB08	11,76	12,30	12,13	11,96	4	12,04			0,23	1,92	99,80
11	F14x	PC01	DB08	12,29	12,22	12,19	12,22	4	12,23			0,04	0,35	101,40
12	A61x	PD01	DB08	12,34	12,66	12,34	12,58	4	12,48			0,16	1,32	103,47
13	F05	PD02	DB09	12,60	12,60	12,70	12,30	4	12,55			0,17	1,38	104,05
14	A36	PD02	DB08	12,50	12,60	13,30	13,40	4	12,95			0,47	3,59	107,37
15	A39	PD02	DB08	13,45	14,10	13,82	13,62	4	13,75			0,28	2,03	113,98
16	A49	PD05	DB08	13,70	13,90	13,70	14,00	4	13,83			0,15	1,08	114,62
17	A59	PB03	DB08	16,51	15,87	13,41	13,83	4	14,91		*	1,52	**10,17**	123,58
18	A60	PD01	DB10	20,66	18,05	20,77	18,80	0	19,57	*b*	*	1,36	6,94	162,25
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	N	Mean	SI	VI
all labs	68	**12,06**	**0,333**	**2,759**
20	% from the mean			
	L		SR	VR
	17		**1,320**	**10,945**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: B **Sample: 3** Unit: µg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean			Lab.standard dev. Si	Vi	Recovery %
1	F07x	PC01	DB08	13,81	14,28	13,78	14,18	4	14,01			0,25	1,82	86,11
2	F18x	PD99	DB08	14,60	14,20	14,10	14,10	4	14,25			0,24	1,67	87,57
3	A79	PD03	DB10	14,36	14,39	14,58	14,38	4	14,43			0,10	0,70	88,66
4	A55	PD02	DB10	15,47	15,52	15,67	15,63	4	15,57			0,09	0,60	95,70
5	F16x	PC01	DB10	15,62	17,05	13,86	16,65	4	15,80			1,42	9,01	97,07
6	F08	PZ99	DB08	16,00	16,10	16,10	15,90	4	16,03			0,10	0,60	98,48
7	F05	PD02	DB09	15,80	15,90	16,40	16,30	4	16,10			0,29	1,83	98,94
8	F19	PD02	DB08	16,50	16,70	16,50	16,80	4	16,63			0,15	0,90	102,17
9	A65	PD01	DB08	16,80	16,80	16,60	16,70	4	16,73			0,10	0,57	102,78
10	F32	PD02	DB08	16,80	16,80	16,80	16,80	4	16,80			0,00	0,00	103,24
11	F02x	PD02	DB08	16,69	16,94	17,10	16,80	4	16,88			0,18	1,05	103,75
12	A39	PD02	DB08	17,30	17,53	16,57	16,42	4	16,96			0,54	3,20	104,20
13	F14x	PC01	DB08	16,92	16,98	17,05	17,03	4	17,00			0,06	0,34	104,44
14	A61x	PD01	DB08	17,20	17,25	16,98	17,14	4	17,14			0,12	0,68	105,35
15	A36	PD02	DB08	17,30	17,10	17,30	17,50	4	17,30			0,16	0,94	106,32
16	A49	PD05	DB08	18,90	19,00	18,60	18,50	4	18,75			0,24	1,27	115,23
17	A59	PB03	DB08	23,47	21,85	19,77	21,42	0	21,63	*b*	*	1,52	7,03	132,91
18	A60	PD01	DB10	24,66	23,03	25,36	22,85	0	23,98	*b*	*	1,23	5,13	147,34
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	N	Mean	SI	VI
all labs	64	**16,27**	**0,253**	**1,553**
20	% from the mean			
	L		SR	VR
	16		**1,247**	**7,665**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Element: B **Sample: 4** Unit: µg/g

No.	Lab. Code	Method code P	Method code D	Replications 1	2	3	4	n	Lab.mean		Lab.standard dev. Si	Vi	Recovery %
1	F07x	PC01	DB08	3,68	3,44	3,45	3,43	4	3,50	*	0,12	3,43	68,73
2	A79	PD03	DB10	4,39	4,29	4,26	4,23	4	4,29		0,07	1,60	84,31
3	F08	PZ99	DB08	4,33	4,33	4,23	4,36	4	4,31		0,06	1,29	84,65
4	F02x	PD02	DB08	4,50	4,64	4,21	4,08	4	4,36		0,26	5,91	85,54
5	A55	PD02	DB10	4,70	4,62	4,65	4,72	4	4,67		0,05	0,98	91,73
6	F16x	PC01	DB10	5,19	4,04	4,89	4,65	4	4,69		0,49	**10,41**	92,14
7	F14x	PC01	DB08	5,02	4,95	4,96	4,90	4	4,96		0,05	0,99	97,32
8	A61x	PD01	DB08	4,97	4,96	5,13	5,08	4	5,04		0,08	1,66	98,85
9	F32	PD02	DB08	5,09	5,09	5,08	5,05	4	5,08		0,02	0,37	99,68
10	A65	PD01	DB08	5,10	5,10	5,10	5,10	4	5,10		0,00	0,00	100,12
11	F19	PD02	DB08	5,25	5,20	5,32	5,24	4	5,25		0,05	0,95	103,12
12	A49	PD05	DB08	5,71	5,36	5,07	5,23	4	5,34		0,27	5,09	104,88
13	A36	PD02	DB08	5,30	5,40	5,90	6,00	4	5,65		0,35	6,22	110,92
14	F05	PD02	DB09	6,10	5,81	5,95	5,91	4	5,94		0,12	2,03	116,66
15	A39	PD02	DB08	6,04	6,18	6,06	6,02	4	6,08		0,07	1,18	119,26
16	A59	PB03	DB08	7,14	7,56	6,89	7,36	4	7,24	*	0,29	3,98	142,08
17	A60	PD01	DB10	13,31	11,28	12,30	10,61	0	11,88	*b* *	1,18	9,96	233,13
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20	F18x	PD99	DB08	<5	<5	<5	<5			**			
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	N	Mean	SI	VI
all labs	64	**5,09**	**0,146**	**2,873**
20	% from the mean			
	L		SR	VR
	16		**0,870**	**17,088**

* = non tolerable mean because more than +/-

19th Needle/Leaf Interlaboratory Comparison Test 2016/2017

Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Ag	(ng/g)	1	A82	PC01	DB10	2,634	2,627	3,504	2,578	2,84	0,446	15,735
		1	F14	PC01	DB10	4,2	3,5	3	3,6	3,58	0,492	13,775
Ag	(ng/g)	2	A82	PC01	DB10	2,309	2,4	2,842	2,327	2,47	0,251	10,181
			F14	PC01	DB10	3,3	3,4	3,9	2,7	3,33	0,492	14,810
Ag	(ng/g)	3	A82	PC01	DB10	17,098	19,686	17,936	16,853	17,89	1,282	7,165
			F14	PC01	DB10	19,6	17,7	19,4	17,7	18,60	1,042	5,604
Ag	(ng/g)	4	A82	PC01	DB10	2,975	3,136	2,434	3,445	3,00	0,423	14,121
			F14	PC01	DB10	5,9	4,8	3,8	4,8	4,83	0,858	17,778
Al	(µg/g)	1	F27	PD01	DB05	59,33	55,07	73,01	75,04	65,61	9,903	15,093
			F18x	PD99	DB08	83,1	84,2	81,8	84,2	83,33	1,141	1,370
			A79	PD03	DB10	84,193	85,035	83,798	83,676	84,18	0,614	0,729
			F33x	PC01	DB10	85,2	94,9	80,3	87,8	87,05	6,087	6,993
			F05x	PD02	DB08	91,7	91,4	92	90,9	91,50	0,469	0,513
			A80	PD03	DB10	90,9	93,2	90,8	92,4	91,83	1,173	1,277
			A36	PD02	DB08	95	95,1	89,4	91,3	92,70	2,823	3,045
			F03	PC02	DB08	90,27	92,56	96,2	93,87	93,23	2,479	2,659
			A60x	PD01	DB10	94	95,779	101,747	95,306	96,71	3,443	3,560
			A45x	PB99	DB08	96,4	99,3	96,5	98,3	97,63	1,417	1,452
			A65	PD01	DB08	97	101	96	98	98,00	2,160	2,204
			A39	PD02	DB08	99,89	98,3	97,58	98,63	98,60	0,965	0,979
			F16x	PC01	DB08	96,06	101,9	104,2	93,35	98,88	5,032	5,089
			A55	PD02	DB10	98,73	99,05	100,29	97,91	99,00	0,988	0,998
			F12x	PC01	DB08	99	99	99	99	99,00	0,000	0,000
			A49	PD05	DB08	98,9	100,4	100,2	99,3	99,70	0,716	0,719
			F15x	PC01	DB08	97	106	99	100	100,50	3,873	3,854
			F14x	PC01	DB08	109,6	117,6	114,6	113,8	113,90	3,301	2,898
			A53	PZ02	DD02	125	136	136	132	132,25	5,188	3,923
			A59	PB03	DB08	172,53	194,78	166,4	169,95	175,92	12,825	7,291
			A57	PZ98	DD02	191,4	194,9	172,4	175,2	183,48	11,321	6,170

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Al	(µg/g)	2	F27	PD01	DB05	32,34	31,37	31,26	50,73	36,43	9,549	26,216
			F33x	PC01	DB10	45,2	44,7	40	39,9	42,45	2,894	6,818
			F18x	PD99	DB08	45,2	45,6	44,6	45,2	45,15	0,412	0,913
			A79	PD03	DB10	53,272	51,541	51,989	50,754	51,89	1,054	2,031
			A36	PD02	DB08	51	52,6	52,5	52,9	52,25	0,850	1,628
			F05x	PD02	DB08	53	53,6	53,4	53	53,25	0,300	0,563
			A80	PD03	DB10	55,7	52,3	54,1	53,1	53,80	1,465	2,723
			F03	PC02	DB08	53,03	53,87	52,83	57,85	54,40	2,347	4,315
			A39	PD02	DB08	55,54	58,43	57,76	60,21	57,99	1,930	3,329
			F12x	PC01	DB08	59	57	59	57	58,00	1,155	1,991
			A60x	PD01	DB10	57,952	53,639	63,2308	58,506	58,33	3,924	6,727
			F15x	PC01	DB08	58	59	58	60	58,75	0,957	1,630
			A55	PD02	DB10	58,66	58,48	59,76	58,27	58,79	0,664	1,130
			A65	PD01	DB08	60	59	59	60	59,50	0,577	0,970
			F16x	PC01	DB08	62,66	56,85	61,03	64,45	61,25	3,247	5,302
			A49	PD05	DB08	63,8	61,9	62	62,5	62,55	0,874	1,397
			A45x	PB99	DB08	61,3	63,8	62,8	65,1	63,25	1,605	2,538
			F14x	PC01	DB08	63,8	63,8	70,4	68,8	66,70	3,412	5,115
			A53	PZ02	DD02	66	72	76	74	72,00	4,320	6,001
			A57	PZ98	DD02	104,1	103,4	99,1	98,8	101,35	2,789	2,752
			A59	PB03	DB08	131,72	133,91	139,38	130,04	133,76	4,066	3,040
Al	(µg/g)	3	F27	PD01	DB05	75,01	94,94	99,83	94,56	91,09	10,982	12,057
			F18x	PD99	DB08	99,3	100	97,1	96,9	98,33	1,559	1,585
			F33x	PC01	DB10	95,6	104,5	89,4	103,8	98,33	7,192	7,315
			A79	PD03	DB10	97,874	101,82	97,73	99,31	99,18	1,897	1,913
			A36	PD02	DB08	105	108	107	104	106,00	1,826	1,722
			F03	PC02	DB08	113,28	109,97	105,32	109,86	109,61	3,269	2,983
			A80	PD03	DB10	109	110	111	111	110,25	0,957	0,868
			F05x	PD02	DB08	112	112	108	109	110,25	2,062	1,870

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Al	(µg/g)	3	A60x	PD01	DB10	113,86	111,625	119,622	110,25	113,84	4,132	3,630
			F12x	PC01	DB08	116	116	115	115	115,50	0,577	0,500
			F16x	PC01	DB08	117,7	114,6	115,5	117,8	116,40	1,602	1,376
			A65	PD01	DB08	119	119	117	118	118,25	0,957	0,810
			A55	PD02	DB10	118,84	118,54	118,54	120,41	119,08	0,896	0,753
			F15x	PC01	DB08	119	128	121	118	121,50	4,509	3,711
			A45x	PB99	DB08	123	123	120	122	122,00	1,414	1,159
			A49	PD05	DB08	123,9	122,1	122,9	122,1	122,75	0,854	0,696
			F14x	PC01	DB08	120	128,5	121,4	125,1	123,75	3,828	3,094
			A39	PD02	DB08	125,6	128,7	119,6	128,6	125,63	4,266	3,396
			A57	PZ98	DD02	139,7	141,9	150,5	129,2	140,33	8,759	6,242
			A53	PZ02	DD02	146	144	143	147	145,00	1,826	1,259
			A59	PB03	DB08	193,4	213,28	181,54	181,03	192,31	15,101	7,853
Al	(µg/g)	4	F27	PD01	DB05	275,7	245,7	311,5	320,2	288,28	34,300	11,898
			A79	PD03	DB10	300,34	303,51	291,47	290,63	296,49	6,420	2,165
			F33x	PC01	DB10	329,9	299,6	289,9	319,5	309,73	18,240	5,889
			F18x	PD99	DB08	335	333	335	334	334,25	0,957	0,286
			F05x	PD02	DB08	336	338	335	335	336,00	1,414	0,421
			A49	PD05	DB08	332	340	336	338	336,50	3,416	1,015
			A45x	PB99	DB08	344	349	337	335	341,25	6,449	1,890
			F14x	PC01	DB08	341,7	341,4	347,9	356,9	346,98	7,263	2,093
			A55	PD02	DB10	347,73	345,59	348,47	347,01	347,20	1,228	0,354
			F12x	PC01	DB08	349	356	349	348	350,50	3,697	1,055
			F03	PC02	DB08	357,73	347,32	353,7	357,57	354,08	4,877	1,377
			F15x	PC01	DB08	357	354	362	354	356,75	3,775	1,058
			A60x	PD01	DB10	369,442	349,541	355,5548	358,449	358,25	8,335	2,327
			A80	PD03	DB10	356	367	352	359	358,50	6,351	1,772
			F16x	PC01	DB08	374,2	358,7	354,5	354,3	360,43	9,405	2,609
			A36	PD02	DB08	362	367	365	353	361,75	6,185	1,710

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Al	(µg/g)	4	A65	PD01	DB08	373	364	358	355	362,50	7,937	2,190
			A57	PZ98	DD02	368,3	371,2	407	384,5	382,75	17,638	4,608
			A39	PD02	DB08	396,3	390,8	416,9	421,5	406,38	15,096	3,715
			A59	PB03	DB08	415,8	454,21	417,94	415,48	425,86	18,933	4,446
			A53	PZ02	DD02	437	452	453	446	447,00	7,348	1,644
As	(ng/g)	1	F05	PD02	DB09	<413	<413	<413	<413			
			A39	PD02	DB08	<100	<100	<100	<100			
			A45x	PB99	DB10	<40	<40	<40	<40			
			A79	PD03	DB10	<25	<25	<25	<25			
			A55	PD02	DB04	15,04	14,18	14,17	12,95	14,09	0,860	6,103
			A80	PD03	DB10	23,4	24,1	23,1	24,3	23,73	0,568	2,394
			F08	PD02	DB10	27,31	24,95	21,4	25,92	24,90	2,523	10,136
			F16x	PC01	DB10	24,82	26,97	22,98	25,35	25,03	1,644	6,570
			A82	PC01	DB10	26,132	25,349	25,413	25,544	25,61	0,358	1,397
			F14	PC01	DB10	36	29	25	20	27,50	6,758	24,573
			F32	PD02	DB10	26,8	30	25,7	30	28,13	2,211	7,862
			A36	PD02	DB10	28,7	29,7	26,9	29,3	28,65	1,237	4,317
			F33x	PD01	DB10	34,1	34	36,7	39,8	36,15	2,736	7,567
As	(ng/g)	2	F05	PD02	DB09	<413	<413	<413	<413			
			A39	PD02	DB08	<100	<100	<100	<100			
			A45x	PB99	DB10	<40	<40	<40	<40			
			A79	PD03	DB10	<25	<25	<25	<25			
			A80	PD03	DB10	<20	<20	<20	<20			
			F33x	PD01	DB10	12	15,3	11	10,9	12,30	2,061	16,754
			A55	PD02	DB04	13,38	14,43	13,17	12,96	13,49	0,653	4,842
			A82	PC01	DB10	20,641	20,21	20,559	22,34	20,94	0,953	4,554
			A36	PD02	DB10	21,4	21,8	20,7	21,3	21,30	0,455	2,134
			F16x	PC01	DB10	24,42	19,62	22,03	23,15	22,31	2,039	9,141
			F32	PD02	DB10	27,3	21	21	28,3	24,40	3,947	16,177

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
As	(ng/g)	2	F08	PD02	DB10	24,53	22,31	26,22	24,95	24,50	1,629	6,647
			F14	PC01	DB10	23	33	24	20	25,00	5,598	22,390
As	(ng/g)	3	F05	PD02	DB09	<413	<413	<413	<413			
			A39	PD02	DB08	<100	<100	<100	<100			
			A79	PD03	DB10	88,55	87,45	90,75	93,5	90,06	2,671	2,966
			F33x	PD01	DB10	86,1	97,9	82,5	95,8	90,58	7,443	8,217
			A45x	PB99	DB10	102	95,7	95,5	101	98,55	3,432	3,482
			A80	PD03	DB10	102	101	101	102	101,50	0,577	0,569
			F32	PD02	DB10	106	106	102	106	105,00	2,000	1,905
			F14	PC01	DB10	116	117	102	107	110,50	7,234	6,547
			A55	PD02	DB04	114,2	110,7	111,4	112,8	112,28	1,552	1,382
			F08	PD02	DB10	108,92	111,89	115,93	113,8	112,64	2,976	2,642
			A36	PD02	DB10	113,9	114,6	113,4	109,7	112,90	2,189	1,939
			F16x	PC01	DB10	108,9	108,8	119,2	117,5	113,60	5,529	4,867
			A82	PC01	DB10	110,073	113,05	113,293	118,782	113,80	3,630	3,190
As	(ng/g)	4	F05	PD02	DB09	<413	<413	<413	<413			
			A39	PD02	DB08	<100	<100	<100	<100			
			A45x	PB99	DB10	<40	<40	<40	<40			
			A79	PD03	DB10	<25	<25	<25	<25			
			A80	PD03	DB10	<20	<20	<20	<20			
			A55	PD02	DB04	8,77	8,32	9,012	8,32	8,61	0,344	3,999
			A82	PC01	DB10	11,122	10,537	12,136	10,269	11,02	0,827	7,510
			F16x	PC01	DB10	10,53	11,42	13,12	12,89	11,99	1,231	10,264
			A36	PD02	DB10	12,2	12,8	12,7	12,3	12,50	0,294	2,355
			F32	PD02	DB10	10,8	13	10,8	16,3	12,73	2,599	20,426
			F14	PC01	DB10	11	14	15	16	14,00	2,160	15,430
			F08	PD02	DB10	14,68	17,67	16,07	17,57	16,50	1,416	8,580
			F33x	PD01	DB10	22,4	22,2	19,7	22,9	21,80	1,431	6,562

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Ba	(µg/g)	1	F16x	PC01	DB10	6,593	7,047	6,464	6,987	6,77	0,288	4,252
			A39	PD02	DB08	7	7,14	6,87	7,12	7,03	0,125	1,774
			A65	PD01	DB08	6,9	7,3	7	7,8	7,25	0,404	5,574
			A80	PD03	DB10	7,22	7,74	7,2	7,39	7,39	0,250	3,384
			F14	PC01	DB10	7,611	7,565	7,452	7,573	7,55	0,069	0,907
			A49	PD05	DB08	7,48	7,54	7,64	7,58	7,56	0,067	0,891
			A82	PC01	DB08	13,7	7,86	8,04	7,99	9,40	2,869	30,533
Ba	(µg/g)	2	F16x	PC01	DB10	45,79	36,95	42,58	39,08	41,10	3,894	9,474
			A39	PD02	DB08	41,9	41,2	42	41,6	41,68	0,359	0,862
			F14	PC01	DB10	46,596	46,345	46,473	46,0084	46,36	0,253	0,546
			A80	PD03	DB10	48,1	45,2	46,3	46	46,40	1,225	2,640
			A49	PD05	DB08	45,5	48,3	45,8	48	46,90	1,454	3,100
			A82	PC01	DB08	48	47,7	47,2	47,4	47,58	0,350	0,736
			A65	PD01	DB08	47,1	47,2	48,3	47,9	47,63	0,574	1,205
Ba	(µg/g)	3	F16x	PC01	DB10	44,28	45,03	47,8	48,99	46,53	2,234	4,802
			A39	PD02	DB08	46,1	48,2	47,3	46,5	47,03	0,929	1,975
			A49	PD05	DB08	51,5	52,4	51,3	51,3	51,63	0,525	1,017
			F14	PC01	DB10	52,43	52,57	52,25	51,71	52,24	0,377	0,721
			A80	PD03	DB10	51,9	52,7	52,6	52,2	52,35	0,370	0,706
			A82	PC01	DB08	52,8	53,3	52,8	52,7	52,90	0,271	0,512
			A65	PD01	DB08	53,9	54	54,1	53,3	53,83	0,359	0,668
Ba	(µg/g)	4	A49	PD05	DB08	<1,8	<1,8	<1,8	<1,8			
			F16x	PC01	DB10	1,69	1,605	1,273	1,387	1,49	0,192	12,916
			A39	PD02	DB08	1,6	1,68	1,72	1,66	1,67	0,050	3,003
			A80	PD03	DB10	1,74	1,79	1,72	1,76	1,75	0,030	1,704
			A82	PC01	DB08	1,86	1,81	1,8	1,86	1,83	0,032	1,747
			A65	PD01	DB08	2,1	1,8	1,8	1,7	1,85	0,173	9,362
			F14	PC01	DB10	1,87	1,944	1,826	1,809	1,86	0,060	3,236

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Be	(ng/g)	1	F16x	PC01	DB10	6,851	6,085	5,609	5,202	5,94	0,708	11,931
			F32	PD02	DB10	6,32	6,64	6,32	6,43	6,43	0,151	2,347
Be	(ng/g)	2	F16x	PC01	DB10	6,627	7,847	8,255	5,838	7,14	1,111	15,553
			F32	PD02	DB10	7,24	7,66	7,87	8,19	7,74	0,398	5,145
Be	(ng/g)	3	F16x	PC01	DB10	6,998	8,945	8,226	7,145	7,83	0,924	11,803
			F32	PD02	DB10	8,36	8,36	8,36	8,15	8,31	0,105	1,264
Be	(ng/g)	4	F16x	PC01	DB10	2,252	1,812	1,86	1,975	1,97	0,197	9,980
			F32	PD02	DB10	1,95	2,17	2,28	2,06	2,12	0,142	6,714
Bi	(ng/g)	1	F16x	PC01	DB10	5,061	5,474	4,993	5,242	5,19	0,215	4,142
			A80	PD03	DB10	4,88	5,4	5,2	5,34	5,21	0,232	4,463
			F14	PC01	DB10	15,5	27	40,3	28,3	27,78	10,139	36,506
Bi	(ng/g)	2	A80	PD03	DB10	7,63	<3,5	<3,5	<3,5	7,63		
			F16x	PC01	DB10	1,267	1,549	1,305	1,734	1,46	0,219	14,979
			F14	PC01	DB10	20,9	15,7	25,7	16,7	19,75	4,562	23,098
Bi	(ng/g)	3	F16x	PC01	DB10	39,8	43,22	38,03	42,82	40,97	2,483	6,061
			A80	PD03	DB10	43,3	46,3	45,8	44,7	45,03	1,330	2,954
			F14	PC01	DB10	66,9	65,8	64,2	62,4	64,83	1,960	3,024
Bi	(ng/g)	4	A80	PD03	DB10	<3,5	<3,5	<3,5	<3,5			
			F16x	PC01	DB10	1,021	0,8366	1,291	1,188	1,08	0,199	18,358
			F14	PC01	DB10	12,6	16,8	17,9	22,7	17,50	4,151	23,722
Br	(µg/g)	1	A53	PZ02	DD02	<1	<1	<1	<1			
Br	(µg/g)	2	A53	PZ02	DD02	<1	<1	<1	<1			
Br	(µg/g)	3	A53	PZ02	DD02	<1	<1	<1	<1			
Br	(µg/g)	4	A53	PZ02	DD02	<1	<1	<1	<1			
Ce	(ng/g)	1	A80	PD03	DB10	43,1	52,7	43,6	43,2	45,65	4,705	10,307
Ce	(ng/g)	2	A80	PD03	DB10	35	30,5	32,4	29,6	31,88	2,388	7,492
Ce	(ng/g)	3	A80	PD03	DB10	84,8	84,2	93	87,3	87,33	4,014	4,597
Ce	(ng/g)	4	A80	PD03	DB10	27,8	29,4	26,1	26,7	27,50	1,449	5,270

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Cl	(µg/g)	1	F05x	PZ99	DF08	501	504	508	508	505,25	3,403	0,674
			F02	PA06	DF08	590	570	570	570	575,00	10,000	1,739
			A53	PZ02	DD02	610	610	610	610	610,00	0,000	0,000
			A57	PZ98	DD02	695	705	695	695	697,50	5,000	0,717
Cl	(µg/g)	2	F05x	PZ99	DF08	338	344	334	338	338,50	4,123	1,218
			F02	PA06	DF08	380	380	380	380	380,00	0,000	0,000
			A53	PZ02	DD02	400	400	400	400	400,00	0,000	0,000
			A57	PZ98	DD02	510	510	540	480	510,00	24,495	4,803
Cl	(µg/g)	3	F05x	PZ99	DF08	540	471	504	485	500,00	29,900	5,980
			F02	PA06	DF08	570	570	570	570	570,00	0,000	0,000
			A53	PZ02	DD02	660	660	660	660	660,00	0,000	0,000
			A57	PZ98	DD02	720	725	755	715	728,75	17,970	2,466
Cl	(µg/g)	4	F05x	PZ99	DF08	335	335	331	332	333,25	2,062	0,619
			F02	PA06	DF08	350	350	360	340	350,00	8,165	2,333
			A53	PZ02	DD02	380	380	380	380	380,00	0,000	0,000
			A57	PZ98	DD02	470	475	485	475	476,25	6,292	1,321
Co	(µg/g)	1	F15	PC01	DB08	0,36	0,38	0,33	0,36	0,36	0,021	5,767
			A79	PD03	DB10	0,4031	0,3977	0,4092	0,4113	0,41	0,006	1,520
			A45x	PB99	DB10	0,416	0,422	0,415	0,428	0,42	0,006	1,433
			A39	PD02	DB08	0,435	0,457	0,441	0,43	0,44	0,012	2,661
			F06x	PD02	DB08	0,4	0,449	0,453	0,505	0,45	0,043	9,498
			F33x	PD01	DB10	0,459	0,511	0,438	0,47	0,47	0,031	6,536
			F16x	PC01	DB10	0,4877	0,4438	0,4592	0,4963	0,47	0,024	5,186
			A36	PD02	DB10	0,47	0,472	0,475	0,483	0,48	0,006	1,203
			F32	PD02	DB10	0,482	0,471	0,482	0,471	0,48	0,006	1,333
			F14	PC01	DB10	0,481	0,49	0,467	0,481	0,48	0,009	1,980
			F12x	PC01	DB09	0,489	0,491	0,473	0,484	0,48	0,008	1,664
			A55	PD02	DB08	0,4835	0,4835	0,4996	0,4942	0,49	0,008	1,641
			A80	PD03	DB10	0,489	0,494	0,483	0,498	0,49	0,006	1,320

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Co	(µg/g)	1	A82	PC01	DB10	0,48	0,488	0,496	0,507	0,49	0,012	2,340
			A60	PD01	DB10	0,495	0,503	0,507	0,489	0,50	0,008	1,617
			A61x	PD01	DB08	0,507	0,508	0,498	0,503	0,50	0,005	0,902
			F08	PD02	DB10	0,53	0,533	0,549	0,538	0,54	0,008	1,553
Co	(µg/g)	2	F15	PC01	DB08	0,15	0,13	0,17	0,14	0,15	0,017	11,578
			F33x	PD01	DB10	0,254	0,256	0,237	0,231	0,24	0,012	5,070
			A79	PD03	DB10	0,253	0,256	0,2585	0,2565	0,26	0,002	0,888
			F16x	PC01	DB10	0,2832	0,2715	0,2555	0,2542	0,27	0,014	5,205
			A45x	PB99	DB10	0,26	0,271	0,269	0,27	0,27	0,005	1,894
			F06x	PD02	DB08	0,286	0,265	0,281	0,257	0,27	0,014	4,977
			A39	PD02	DB08	0,284	0,291	0,279	0,289	0,29	0,005	1,882
			A36	PD02	DB10	0,283	0,302	0,279	0,28	0,29	0,011	3,777
			F12x	PC01	DB09	0,3	0,28	0,286	0,283	0,29	0,009	3,080
			F14	PC01	DB10	0,285	0,301	0,292	0,288	0,29	0,007	2,385
			F32	PD02	DB10	0,294	0,294	0,304	0,304	0,30	0,006	1,931
			A55	PD02	DB08	0,3002	0,3002	0,295	0,3055	0,30	0,004	1,428
			A82	PC01	DB10	0,302	0,296	0,305	0,3	0,30	0,004	1,255
			A60	PD01	DB10	0,3001	0,304	0,313	0,303	0,31	0,006	1,825
			A80	PD03	DB10	0,319	0,298	0,304	0,304	0,31	0,009	2,925
			A61x	PD01	DB08	0,309	0,31	0,311	0,304	0,31	0,003	1,008
			F08	PD02	DB10	0,307	0,324	0,303	0,315	0,31	0,009	2,974
Co	(µg/g)	3	F12x	PC01	DB09	<,15	<,15	<,15	<,15			
			F06x	PD02	DB08	<,1	<,1	<,1	<,1			
			F15	PC01	DB08	<,05	<,05	<,05	<,05			
			A45x	PB99	DB10	0,107	0,108	0,108	0,113	0,11	0,003	2,484
			F33x	PD01	DB10	0,109	0,117	0,108	0,126	0,12	0,008	7,275
			A79	PD03	DB10	0,1145	0,1149	0,1171	0,1229	0,12	0,004	3,300
			A36	PD02	DB10	0,118	0,12	0,122	0,132	0,12	0,006	5,055
			F16x	PC01	DB10	0,1186	0,1344	0,1196	0,1292	0,13	0,008	6,094

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Co	(µg/g)	3	A55	PD02	DB08	0,1317	0,1319	0,1318	0,1297	0,13	0,001	0,802
			F08	PD02	DB10	0,137	0,128	0,13	0,137	0,13	0,005	3,527
			A80	PD03	DB10	0,137	0,135	0,137	0,137	0,14	0,001	0,733
			F14	PC01	DB10	0,132	0,141	0,137	0,138	0,14	0,004	2,731
			F32	PD02	DB10	0,138	0,138	0,138	0,138	0,14	0,000	0,000
			A60	PD01	DB10	0,138	0,146	0,145	0,132	0,14	0,007	4,671
			A82	PC01	DB10	0,153	0,141	0,143	0,136	0,14	0,007	4,981
			A61x	PD01	DB08	0,155	0,156	0,148	0,153	0,15	0,004	2,326
			A39	PD02	DB08	0,165	0,154	0,159	0,157	0,16	0,005	2,926
Co	(µg/g)	4	F12x	PC01	DB09	<,15	<,15	<,15	<,15			
			F15	PC01	DB08	<,05	0,16	0,13	0,09	0,13	0,035	27,725
			A45x	PB99	DB10	0,0953	0,103	0,0981	0,11	0,10	0,006	6,340
			A79	PD03	DB10	0,1044	0,1001	0,1047	0,1055	0,10	0,002	2,342
			F06x	PD02	DB08	0,176	0,17	0,169	<,1	0,17	0,004	2,205
			F33x	PD01	DB10	0,116	0,108	0,104	0,114	0,11	0,006	4,984
			F16x	PC01	DB10	0,1062	0,1186	0,1114	0,1156	0,11	0,005	4,765
			A55	PD02	DB08	0,1176	0,1174	0,1166	0,1193	0,12	0,001	0,964
			F32	PD02	DB10	0,119	0,13	0,119	0,119	0,12	0,006	4,517
			A82	PC01	DB10	0,126	0,125	0,126	0,123	0,13	0,001	1,131
			F14	PC01	DB10	0,125	0,121	0,126	0,129	0,13	0,003	2,638
			F08	PD02	DB10	0,126	0,127	0,126	0,124	0,13	0,001	1,001
			A36	PD02	DB10	0,1321	0,122	0,121	0,128	0,13	0,005	4,157
			A80	PD03	DB10	0,126	0,13	0,126	0,128	0,13	0,002	1,502
			A60	PD01	DB10	0,13	0,134	0,134	0,128	0,13	0,003	2,281
			A39	PD02	DB08	0,135	0,145	0,144	0,123	0,14	0,010	7,466
			A61x	PD01	DB08	0,142	0,144	0,143	0,144	0,14	0,001	0,668
Cr	(µg/g)	1	F05	PD02	DB09	2,52	2,47	2,56	2,47	2,51	0,044	1,740
			F33x	PD01	DB10	2,375	2,61	2,98	2,564	2,63	0,253	9,617
			F06x	PD02	DB08	2,859	2,668	2,739	2,684	2,74	0,087	3,161

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Cr	(µg/g)	1	F16x	PC01	DB10	3,044	2,91	3,085	2,998	3,01	0,075	2,496
			F18x	PD99	DB10	3,03	3,02	3,07	2,97	3,02	0,041	1,361
			A79	PD03	DB10	3,222	3,255	3,255	3,334	3,27	0,048	1,458
			F02	PD02	DB08	2,7	3,69	3,34	3,59	3,33	0,445	13,365
			F27	PD01	DB05	2,984	2,987	3,75	3,722	3,36	0,433	12,898
			A80	PD03	DB10	3,72	3,14	3,31	3,75	3,48	0,303	8,700
			F03	PD02	DB08	3,76	3,6	3,67	3,66	3,67	0,066	1,798
			A39	PD02	DB08	3,88	3,88	3,71	3,53	3,75	0,167	4,457
			F32	PD02	DB10	3,55	4,02	3,91	4,11	3,90	0,246	6,304
			F12x	PC01	DB09	3,82	4,33	3,76	3,97	3,97	0,256	6,442
			A55	PD02	DB08	4,149	3,926	4,006	3,938	4,00	0,102	2,557
			A36	PD02	DB10	4,27	3,98	4,11	4,05	4,10	0,124	3,014
			F14	PC01	DB10	4,227	3,873	4	4,428	4,13	0,246	5,947
			A88	PD99	DB08	4,45	4,19	3,87	4,57	4,27	0,310	7,266
			A49	PD05	DB08	3,94	4,62	3,98	4,74	4,32	0,419	9,696
			F08	PD02	DB10	4,313	4,324	4,573	4,435	4,41	0,121	2,745
			A60	PD01	DB10	4,344	4,591	4,392	4,386	4,43	0,111	2,497
			A82	PC01	DB10	4,268	3,802	4,773	5,657	4,63	0,794	17,169
			A65	PD01	DB08	4,6	6,1	4,9	4,1	4,93	0,850	17,259
			F15	PC01	DB08	6,16	4,43	5,43	5,26	5,32	0,710	13,351
Cr	(µg/g)	2	F05	PD02	DB09	2,9	2,83	3,05	3,25	3,01	0,186	6,181
			F33x	PD01	DB10	3,085	3,353	2,934	2,96	3,08	0,192	6,218
			A36	PD02	DB10	3,57	3,64	3,37	3,34	3,48	0,148	4,243
			F06x	PD02	DB08	3,687	3,921	3,538	3,671	3,70	0,159	4,297
			F02	PD02	DB08	3,66	4,06	3,63	3,72	3,77	0,199	5,270
			F27	PD01	DB05	3,792	3,98	3,809	3,839	3,86	0,086	2,220
			A79	PD03	DB10	4	3,731	3,982	3,773	3,87	0,139	3,597
			F03	PD02	DB08	3,9	3,86	4,09	3,81	3,92	0,122	3,125
			F16x	PC01	DB10	3,735	3,788	4,055	4,088	3,92	0,181	4,616

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Cr	(µg/g)	2	A55	PD02	DB08	4,14	4,093	4,193	4,04	4,12	0,065	1,587
			F18x	PD99	DB10	4,05	4,45	4,44	4,24	4,30	0,190	4,420
			F12x	PC01	DB09	4,12	4,51	4,39	4,34	4,34	0,163	3,758
			A88	PD99	DB08	4,36	4,4	4,47	4,47	4,43	0,054	1,231
			F14	PC01	DB10	4,502	4,737	4,626	4,296	4,54	0,189	4,163
			A39	PD02	DB08	4,4	4,69	4,58	4,57	4,56	0,120	2,625
			F32	PD02	DB10	4,55	4,81	4,85	4,3	4,63	0,256	5,525
			A80	PD03	DB10	4,7	4,23	4,66	5,08	4,67	0,348	7,449
			A49	PD05	DB08	5,13	4,33	4,28	5,01	4,69	0,445	9,490
			A60	PD01	DB10	4,767	4,807	4,936	4,718	4,81	0,093	1,943
			A82	PC01	DB10	5,178	4,514	4,879	5,064	4,91	0,291	5,920
			F08	PD02	DB10	5,492	5,263	4,998	5,185	5,23	0,205	3,907
			A65	PD01	DB08	6,6	5,2	5,6	4,5	5,48	0,877	16,019
			F15	PC01	DB08	4,17	5,55	5,88	8,87	6,12	1,979	32,347
Cr	(µg/g)	3	F05	PD02	DB09	1,68	1,6	1,57	1,61	1,62	0,047	2,882
			F33x	PD01	DB10	2,016	2,114	2,067	2,411	2,15	0,177	8,236
			F03	PD02	DB08	2,19	2,11	2,13	2,19	2,16	0,041	1,913
			A36	PD02	DB10	2,18	2,31	1,98	2,17	2,16	0,136	6,291
			A79	PD03	DB10	2,418	2,433	2,443	2,537	2,46	0,054	2,190
			F02	PD02	DB08	2,57	2,59	2,29	2,46	2,48	0,137	5,548
			F06x	PD02	DB08	2,506	2,364	2,56	2,505	2,48	0,084	3,377
			F27	PD01	DB05	2,497	2,503	2,438	2,551	2,50	0,046	1,854
			F08	PD02	DB10	2,481	2,447	2,624	2,521	2,52	0,077	3,046
			F16x	PC01	DB10	2,657	2,645	2,538	2,524	2,59	0,070	2,690
			A80	PD03	DB10	2,79	2,81	2,78	2,77	2,79	0,017	0,613
			F14	PC01	DB10	2,815	2,984	2,818	2,708	2,83	0,114	4,025
			A39	PD02	DB08	2,78	3,03	2,8	2,73	2,84	0,133	4,702
			A55	PD02	DB08	2,885	2,895	2,957	2,808	2,89	0,061	2,118
			F18x	PD99	DB10	2,97	2,81	2,97	2,97	2,93	0,080	2,730

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Cr	(µg/g)	3	F12x	PC01	DB09	3,01	2,9	2,94	2,9	2,94	0,052	1,766
			A60	PD01	DB10	2,899	2,92	3,071	2,863	2,94	0,092	3,117
			F32	PD02	DB10	2,77	3	2,98	3,02	2,94	0,116	3,947
			F15	PC01	DB08	3,53	3,02	2,93	2,84	3,08	0,309	10,028
			A49	PD05	DB08	3,04	3,09	3,15	3,06	3,09	0,048	1,555
			A88	PD99	DB08	3,19	3,06	3,03	3,12	3,10	0,071	2,281
			A65	PD01	DB08	3,2	3,3	3,4	3,3	3,30	0,082	2,474
			A82	PC01	DB10	4,14	3,19	2,98	3,13	3,36	0,527	15,698
Cr	(µg/g)	4	A65	PD01	DB08	<1,1	<1,1	<1,1	<1,1			
			F03	PD02	DB08	<1	<1	<1	<1			
			F05	PD02	DB09	0,591	0,56	0,582	0,562	0,57	0,015	2,649
			A79	PD03	DB10	0,723	0,684	0,72	0,717	0,71	0,018	2,555
			F27	PD01	DB05	0,725	0,709	0,77	0,773	0,74	0,032	4,321
			A36	PD02	DB10	0,734	0,744	0,756	0,775	0,75	0,018	2,344
			F16x	PC01	DB10	0,7306	0,8023	0,7226	0,7686	0,76	0,037	4,868
			A55	PD02	DB08	0,765	0,7577	0,7714	0,7552	0,76	0,007	0,963
			F02	PD02	DB08	0,82	0,79	0,72	0,86	0,80	0,059	7,409
			A49	PD05	DB08	0,8	0,85	0,79	0,85	0,82	0,032	3,892
			A80	PD03	DB10	0,829	0,831	0,801	0,847	0,83	0,019	2,311
			F06x	PD02	DB08	0,819	0,944	0,779	0,775	0,83	0,079	9,531
			F32	PD02	DB10	0,857	0,781	0,814	0,868	0,83	0,040	4,834
			F12x	PC01	DB09	0,81	0,88	0,83	0,8	0,83	0,036	4,288
			F33x	PD01	DB10	0,882	0,846	0,832	0,921	0,87	0,040	4,579
			F08	PD02	DB10	0,916	0,913	0,882	0,862	0,89	0,026	2,898
			A60	PD01	DB10	0,859	0,933	0,907	0,899	0,90	0,031	3,408
			F14	PC01	DB10	0,805	0,873	0,987	0,957	0,91	0,083	9,118
			A82	PC01	DB10	0,986	0,96	0,933	0,9	0,94	0,037	3,901
			A39	PD02	DB08	1,13	1,08	1,06	1,11	1,10	0,031	2,839
			F18x	PD99	DB10	1,16	1,16	1,13	1,13	1,15	0,017	1,513

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Cr	(µg/g)	4	F15	PC01	DB08	0,76	1	1,18	1,68	1,16	0,390	33,766
			A88	PD99	DB08	1,45	1,28	1,24	1,97	1,49	0,336	22,620
Cs	(ng/g)	1	A80	PD03	DB10	109	111	109	112	110,25	1,500	1,361
			A82	PC01	DB10	117,221	118,754	114,245	123,31	118,38	3,781	3,194
Cs	(ng/g)	2	A80	PD03	DB10	11	10	10,5	10,5	10,50	0,408	3,888
			A82	PC01	DB10	11,749	10,584	11,985	10,742	11,27	0,705	6,256
Cs	(ng/g)	3	A80	PD03	DB10	60,4	61,3	61,4	60,9	61,00	0,455	0,745
			A82	PC01	DB10	65,452	64,371	63,406	63,139	64,09	1,050	1,638
Cs	(ng/g)	4	A80	PD03	DB10	110	112	108	110	110,00	1,633	1,485
			A82	PC01	DB10	113,982	112,711	115,16	116,144	114,50	1,484	1,296
F	(µg/g)	1	F32x	PE99	DF03	<5	<5	<5	<5			
			F05	PZ99	DF03	1,68	1,89	1,45	1,51	1,63	0,197	12,091
			F02	PE01	DF03	2,5	2,2	1,9	2	2,15	0,265	12,306
F	(µg/g)	2	F32x	PE99	DF03	<5	<5	<5	<5			
			F05	PZ99	DF03	1,73	1,62	1,77	1,35	1,62	0,189	11,702
			F02	PE01	DF03	1,8	1,7	2	1,8	1,83	0,126	6,895
F	(µg/g)	3	F32x	PE99	DF03	<5	<5	<5	<5			
			F05	PZ99	DF03	2,07	2,09	2,35	2,35	2,22	0,156	7,047
			F02	PE01	DF03	2,9	3,2	2,6	2,5	2,80	0,316	11,294
F	(µg/g)	4	F32x	PE99	DF03	<5	<5	<5	<5			
			F05	PZ99	DF03	1,09	0,83	0,98	0,92	0,96	0,109	11,423
			F02	PE01	DF03	1,1	1,3	1,5	1	1,23	0,222	18,101
Hg	(ng/g)	1	F08	PD02	DB03	13,7	14,9	13,7	14,4	14,18	0,585	4,129
			A39	PZ98	DA05	18	17,5	17,5	17,5	17,63	0,250	1,418
			F16x	PC01	DB10	22,16	18,25	20,13	23,95	21,12	2,470	11,695
			A79	PD03	DB10	21,9	20,5	22,1	21	21,38	0,754	3,530
			F02	PZ98	DA05	22,4	22,1	23	20,8	22,08	0,929	4,207
			A45x	PZ98	DA05	22,2	22,2	22,4	22,2	22,25	0,100	0,449
			F32	PZ98	DA05	23,6	23	21,7	21,6	22,48	0,984	4,380

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Hg	(ng/g)	1	A36	PD02	DB03	24,7	22,7	21,3	23,6	23,08	1,438	6,234
			A82	PZ98	DA05	23,1	23,2	23,6	23	23,23	0,263	1,132
			A55	PD02	DB03	23,74	24,07	23,85	23,74	23,85	0,156	0,652
			F03	PD02	DB08	25,73	28,22	27,9	25,3	26,79	1,486	5,546
			A80	PZ98	DA05	33,2	31,4	29,8	30,4	31,20	1,488	4,768
			F18x	PD99	DA05	40,8	32,3	34,9	35,4	35,85	3,569	9,955
			A88	PD99	DA05	64,1	52,2	45,3	58,1	54,93	8,048	14,653
Hg	(ng/g)	2	F08	PD02	DB03	15,5	14,7	15,5	14,4	15,03	0,562	3,740
			F32	PZ98	DA05	21,8	20,1	19,5	19,8	20,30	1,030	5,072
			A39	PZ98	DA05	25	22,5	22,5	21	22,75	1,658	7,289
			F16x	PC01	DB10	26,86	26,02	23,05	25,41	25,34	1,635	6,454
			A79	PD03	DB10	29,1	26,6	25,85	26,55	27,03	1,425	5,273
			A36	PD02	DB03	27,6	28	26,8	27,9	27,58	0,544	1,972
			A45x	PZ98	DA05	28	28,2	28,1	27,9	28,05	0,129	0,460
			A55	PD02	DB03	29,87	30,13	30,04	29,86	29,98	0,132	0,441
			A82	PZ98	DA05	30,1	30,5	29,9	30	30,13	0,263	0,873
			F02	PZ98	DA05	30,9	32,1	31,6	32	31,65	0,545	1,721
			A88	PD99	DA05	36,6	27,3	37,9	40,8	35,65	5,837	16,373
			A80	PZ98	DA05	36,2	36,2	36	35,7	36,03	0,236	0,656
			F18x	PD99	DA05	35,8	38,2	38,4	39,6	38,00	1,592	4,189
			F03	PD02	DB08	48,95	52,56	50,43	49,82	50,44	1,538	3,050
Hg	(ng/g)	3	A88	PD99	DA05	24,3	31,2	36,4	37,4	32,33	6,001	18,564
			A39	PZ98	DA05	33	34	32	31,5	32,63	1,109	3,398
			F32	PZ98	DA05	35	34,6	34,2	34,7	34,63	0,330	0,954
			F08	PD02	DB03	36,4	36,9	34,6	34,9	35,70	1,122	3,144
			A79	PD03	DB10	38,85	38,9	39,35	38,2	38,83	0,473	1,219
			F16x	PC01	DB10	38,67	41,07	44,45	36,06	40,06	3,570	8,910
			A45x	PZ98	DA05	41,5	41,6	41,9	41,6	41,65	0,173	0,416
			A36	PD02	DB03	42,3	42	41,8	40,9	41,75	0,603	1,444

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Hg	(ng/g)	3	A82	PZ98	DA05	43,7	43,7	43	44	43,60	0,424	0,973
			F18x	PD99	DA05	50,2	44,9	42,6	45,4	45,78	3,192	6,973
			A55	PD02	DB03	47,3	47,4	46,55	46,02	46,82	0,653	1,395
			F02	PZ98	DA05	48,3	47,7	46,4	47,4	47,45	0,794	1,673
			A80	PZ98	DA05	51,8	52,4	52,4	51,8	52,10	0,346	0,665
			F03	PD02	DB08	58,86	63,35	62,92	60,09	61,31	2,179	3,554
Hg	(ng/g)	4	A88	PD99	DA05	13,3	14,8	14,9	14,7	14,43	0,754	5,230
			A39	PZ98	DA05	13	15,5	16	15	14,88	1,315	8,840
			F08	PD02	DB03	14,2	16	15,1	14,8	15,03	0,750	4,992
			F32	PZ98	DA05	17,9	18,1	18,7	18,8	18,38	0,443	2,408
			F16x	PC01	DB10	17,61	20,74	17,97	18,68	18,75	1,399	7,462
			A82	PZ98	DA05	19,9	19,3	19,8	19,3	19,58	0,320	1,636
			A36	PD02	DB03	19,8	19,4	19,6	20,1	19,73	0,299	1,514
			A45x	PZ98	DA05	19,9	19,8	19,8	19,8	19,83	0,050	0,252
			F02	PZ98	DA05	19,6	19,2	20,6	20,3	19,93	0,640	3,210
			A79	PD03	DB10	22,55	19,4	19,85	18,8	20,15	1,657	8,222
			A55	PD02	DB03	20,48	20,36	20,59	20,5	20,48	0,095	0,462
			A80	PZ98	DA05	25,7	25,6	25,7	25,4	25,60	0,141	0,552
			F18x	PD99	DA05	31,4	31,4	29,7	31,1	30,90	0,812	2,629
			F03	PD02	DB08	40,83	38,76	39,2	39,11	39,48	0,923	2,338
La	(ng/g)	1	A80	PD03	DB10	23,3	28,5	23,1	23,4	24,58	2,620	10,660
La	(ng/g)	2	A80	PD03	DB10	20,4	17,4	19	17,4	18,55	1,446	7,793
La	(ng/g)	3	A80	PD03	DB10	46,1	47,7	47,1	47,5	47,10	0,712	1,511
La	(ng/g)	4	A80	PD03	DB10	22,9	23,6	21,8	22,3	22,65	0,777	3,429
Li	(µg/g)	1	F14	PC01	DB10	0,1553	0,1523	0,1553	0,1558	0,15	0,002	1,035
Li	(µg/g)	2	F14	PC01	DB10	0,1473	0,153	0,1517	0,1494	0,15	0,003	1,676
Li	(µg/g)	3	F14	PC01	DB10	0,1878	0,1851	0,18	0,1844	0,18	0,003	1,755
Li	(µg/g)	4	F14	PC01	DB10	0,0232	0,0237	0,0206	0,0244	0,02	0,002	7,217

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Mo	(ng/g)	1	A45x	PB99	DB10	108	110	120	116	113,50	5,508	4,852
			F08	PD02	DB10	122	118	124	127	122,75	3,775	3,075
			F32	PD02	DB10	129	129	129	129	129,00	0,000	0,000
			F16x	PC01	DB10	131,1	157,7	122	128,6	134,85	15,710	11,650
			A55	PD02	DB10	134,6	138,6	135,8	141	137,50	2,873	2,089
			A80	PD03	DB10	157	149	147	157	152,50	5,260	3,449
			A36	PD02	DB10	150,6	152,1	162	152,5	154,30	5,198	3,369
			F14	PC01	DB10	171	168	191	174	176,00	10,296	5,850
			A39	PD02	DB08	247	259	251	269	256,50	9,713	3,787
Mo	(ng/g)	2	A45x	PB99	DB10	236	252	253	240	245,25	8,539	3,482
			A36	PD02	DB10	257,1	253,9	252,7	259,2	255,73	2,969	1,161
			F08	PD02	DB10	276	264	273	289	275,50	10,344	3,755
			F16x	PC01	DB10	271	281,4	301,4	332,9	296,68	27,246	9,184
			A55	PD02	DB10	289,8	293,7	304,8	298,6	296,73	6,476	2,183
			F32	PD02	DB10	304	304	304	304	304,00	0,000	0,000
			F14	PC01	DB10	307	343	330	335	328,75	15,457	4,702
			A80	PD03	DB10	330	306	320	365	330,25	25,171	7,622
			A39	PD02	DB08	435	490	417	446	447,00	31,059	6,948
Mo	(ng/g)	3	A45x	PB99	DB10	293	288	296	296	293,25	3,775	1,287
			A36	PD02	DB10	319,6	317,7	308,8	316,9	315,75	4,770	1,511
			F08	PD02	DB10	324	320	338	340	330,50	9,983	3,021
			F16x	PC01	DB10	368,9	338,2	365,8	346,9	354,95	14,806	4,171
			A55	PD02	DB10	361,5	348,5	356,3	354	355,08	5,390	1,518
			F32	PD02	DB10	339	360	360	370	357,25	13,048	3,652
			F14	PC01	DB10	383	374	372	379	377,00	4,967	1,317
			A80	PD03	DB10	380	383	385	376	381,00	3,916	1,028
			A39	PD02	DB08	359	412	394	378	385,75	22,603	5,860
Mo	(ng/g)	4	A45x	PB99	DB10	47,8	46	45,6	52	47,85	2,927	6,118
			A55	PD02	DB10	57,39	55,68	56,02	52,91	55,50	1,878	3,384

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Mo	(ng/g)	4	F16x	PC01	DB10	56,13	57,37	59,25	53,52	56,57	2,403	4,247
			F32	PD02	DB10	57,5	56,4	57,5	59,7	57,78	1,384	2,396
			A36	PD02	DB10	62,8	57,8	56	62,5	59,78	3,402	5,692
			A80	PD03	DB10	66,9	65,7	62,7	63,3	64,65	1,982	3,066
			F08	PD02	DB10	72	68,2	70	66,5	69,18	2,364	3,418
			F14	PC01	DB10	79	85	83	89	84,00	4,163	4,956
			A39	PD02	DB08	227	229	253	250	239,75	13,647	5,692
Na	(µg/g)	1	A53	PZ02	DD02	<35	<35	<35	<35			
			A55	PD02	DB08	<25	<25	<25	<25			
			A79	PD03	DB10	13,293	13,073	13,891	14,388	13,66	0,595	4,356
			F05x	PD02	DB01	14,9	14,9	13,9	13,1	14,20	0,872	6,139
			F32x	PD02	DB08	16,4	16,3	16,3	16,3	16,33	0,050	0,306
			F15x	PC01	DB08	15	17	17	17	16,50	1,000	6,061
			F16x	PC01	DB10	17,68	16,53	19,14	15,08	17,11	1,723	10,070
			F18x	PD99	DB08	17,7	18,1	17,6	17,6	17,75	0,238	1,341
			F14x	PC01	DB01	19,605	18,606	18,628	18,426	18,82	0,534	2,836
			A49	PD05	DB08	19,1	18,4	18,8	19,1	18,85	0,332	1,759
			F33x	PD01	DB10	19,5	20,6	17,1	20,8	19,50	1,699	8,713
			F12x	PC99	DB08	23	20	23	20	21,50	1,732	8,056
			A36	PD02	DB08	22,4	22,4	22,2	22,8	22,45	0,252	1,121
			A39	PD02	DB08	23,92	21,91	20,64	23,84	22,58	1,591	7,048
			A65	PD01	DB08	30,3	22,9	19,7	21,4	23,58	4,670	19,809
			A60	PD01	DB10	24,569	23,163	24,403	22,938	23,77	0,837	3,520
			F03	PD02	DB08	24,18	25	23,6	23,56	24,09	0,673	2,793
			F27	PD01	DB06	35,75	23,39	49,35	30,17	34,67	11,018	31,783
			F06x	PD02	DB08	32,52	32,73	36,71	36,81	34,69	2,389	6,887
Na	(µg/g)	2	A53	PZ02	DD02	<35	<35	<35	<35			
			A55	PD02	DB08	<25	<25	<25	<25			
			F12x	PC99	DB08	<12	<12	<12	<12			

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Na	(µg/g)	2	A79	PD03	DB10	6,829	6,724	7,058	7,051	6,92	0,166	2,403
			F32x	PD02	DB08	7,35	7,56	7,35	7,77	7,51	0,201	2,678
			F05x	PD02	DB01	7,93	7,13	8,3	7,64	7,75	0,494	6,371
			F16x	PC01	DB10	7,305	9,909	9,713	8,19	8,78	1,248	14,210
			F33x	PD01	DB10	10,4	8,3	9,2	9	9,23	0,873	9,466
			F14x	PC01	DB01	9,634	9,749	9,576	9,58	9,63	0,081	0,837
			F18x	PD99	DB08	9,99	9,9	9,46	9,88	9,81	0,237	2,412
			A49	PD05	DB08	11,5	12	11,8	11,6	11,73	0,222	1,891
			A60	PD01	DB10	14,096	11,606	12,749	12,186	12,66	1,065	8,416
			A65	PD01	DB08	14,8	13,6	13,5	13,7	13,90	0,606	4,356
			F03	PD02	DB08	14,36	14,73	15,34	14,24	14,67	0,494	3,371
			A36	PD02	DB08	15,1	15,5	13,5	18,4	15,63	2,042	13,068
			F27	PD01	DB06	12,4	24,99	39,56	26,85	25,95	11,114	42,829
			F15x	PC01	DB08	23	28	27	26	26,00	2,160	8,309
			A39	PD02	DB08	26,19	28,07	28,91	29,4	28,14	1,413	5,020
			F06x	PD02	DB08	31,6	32,24	34,57	33,99	33,10	1,407	4,252
Na	(µg/g)	3	A55	PD02	DB08	<25	<25	<25	<25			
			A79	PD03	DB10	56,959	58,404	58,433	57,32	57,78	0,753	1,303
			A53	PZ02	DD02	72,3	72,4	79,2	67,9	72,95	4,665	6,395
			F05x	PD02	DB01	75	76,4	76,6	76,8	76,20	0,816	1,072
			F06x	PD02	DB08	82,68	80,93	83,32	82,15	82,27	1,013	1,232
			A39	PD02	DB08	80,3	86,64	82,38	83,14	83,12	2,639	3,175
			A49	PD05	DB08	85,1	84,8	83,5	83	84,10	1,010	1,201
			F14x	PC01	DB01	84,597	85,673	87,04	86,225	85,88	1,025	1,194
			F18x	PD99	DB08	86,8	86,3	87,3	86	86,60	0,572	0,660
			F03	PD02	DB08	87,82	87,84	87,71	85,93	87,33	0,932	1,067
			A36	PD02	DB08	86,9	91,4	90,4	86,6	88,83	2,434	2,740
			F12x	PC99	DB08	92	88	86	90	89,00	2,582	2,901
			F32x	PD02	DB08	90,6	90,5	89,8	90,5	90,35	0,370	0,409

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Na	(µg/g)	3	A65	PD01	DB08	92,5	90,8	91	92	91,58	0,810	0,884
			F16x	PC01	DB10	90,13	105,2	80,84	100,9	94,27	10,969	11,636
			F33x	PD01	DB10	92,4	94,8	98,4	96	95,40	2,498	2,618
			F27	PD01	DB06	98,52	100,4	104,2	104,1	101,81	2,815	2,765
			F15x	PC01	DB08	99	95	114	100	102,00	8,287	8,124
			A60	PD01	DB10	117,6	110,43	123,6	112,99	116,16	5,782	4,978
Na	(µg/g)	4	A53	PZ02	DD02	<35	<35	<35	<35			
			A55	PD02	DB08	<25	<25	<25	<25			
			F12x	PC99	DB08	<12	<12	<12	16	16,00		
			F05x	PD02	DB01	6,41	6,1	7,31	7,61	6,86	0,718	10,465
			A79	PD03	DB10	8,135	7,667	8,225	8,346	8,09	0,297	3,670
			F32x	PD02	DB08	8,77	8,6	8,69	8,94	8,75	0,144	1,651
			F16x	PC01	DB10	8,411	9,539	10,05	8,019	9,00	0,949	10,540
			F18x	PD99	DB08	9,55	9,32	8,85	9,04	9,19	0,308	3,352
			F33x	PD01	DB10	10,9	10	10,2	10,1	10,30	0,408	3,964
			F14x	PC01	DB01	10,931	12,019	12,058	10,973	11,50	0,628	5,461
			A49	PD05	DB08	11,8	12,4	11,9	11,8	11,98	0,287	2,399
			F15x	PC01	DB08	14	8	10	16	12,00	3,651	30,429
			A60	PD01	DB10	12,977	10,776	12,609	12,076	12,11	0,963	7,951
			A36	PD02	DB08	12,5	12,7	10,9	13	12,28	0,939	7,653
			A65	PD01	DB08	15	11,1	13,4	13,2	13,18	1,601	12,150
			F03	PD02	DB08	16,74	15,45	16,6	16,16	16,24	0,580	3,574
			F06x	PD02	DB08	20,96	21,76	23,41	25,44	22,89	1,981	8,654
			F27	PD01	DB06	10,46	21,42	28,83	30,96	22,92	9,257	40,392
			A39	PD02	DB08	37,4	36,64	40,05	36,39	37,62	1,676	4,455
Nb	(ng/g)	1	A80	PD03	DB10	<10	<10	<10	<10			
Nb	(ng/g)	2	A80	PD03	DB10	<10	<10	<10	<10			
Nb	(ng/g)	3	A80	PD03	DB10	13,7	14,2	14,4	13,6	13,98	0,386	2,764
Nb	(ng/g)	4	A80	PD03	DB10	<10	<10	<10	<10			

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Ni	(µg/g)	1	A79	PD03	DB10	1,516	1,55	1,544	1,571	1,55	0,023	1,468
			A45x	PB99	DB10	1,66	1,67	1,56	1,56	1,61	0,061	3,768
			F19	PD02	DB08	1,7	1,68	1,8	1,73	1,73	0,053	3,040
			F33x	PD01	DB10	1,741	1,826	1,658	1,708	1,73	0,071	4,075
			A39	PD02	DB08	1,73	1,74	1,76	1,84	1,77	0,050	2,824
			F27	PD01	DB05	1,732	1,762	1,833	1,803	1,78	0,045	2,497
			F05x	PD02	DB09	1,88	1,85	1,84	1,85	1,86	0,017	0,934
			A80	PD03	DB10	1,96	1,88	1,82	1,93	1,90	0,061	3,231
			F16x	PC01	DB10	1,844	1,792	2,069	2,017	1,93	0,133	6,906
			F15	PC01	DB08	1,92	1,88	1,91	2,09	1,95	0,095	4,865
			F12x	PC01	DB08	1,94	1,95	1,93	2,03	1,96	0,046	2,330
			F32	PD02	DB10	1,99	2,02	1,92	1,93	1,97	0,048	2,441
			F18x	PD99	DB10	1,98	1,97	2,01	1,99	1,99	0,017	0,859
			A36	PD02	DB10	2,1	1,94	2,04	1,97	2,01	0,072	3,569
			F03	PB05	DB08	1,97	2,04	1,99	2,06	2,02	0,042	2,086
			F02	PD02	DB08	2,06	2,01	2,12	2,12	2,08	0,053	2,558
			A55	PD02	DB10	2,086	2,148	2,02	2,068	2,08	0,053	2,544
			F14	PC01	DB10	2,372	2,085	2,159	2,102	2,18	0,132	6,065
			A65	PD01	DB08	2,2	2,4	2,2	2,1	2,23	0,126	5,655
			A82	PC01	DB10	2,27	1,95	2,27	2,65	2,29	0,286	12,529
			A88	PD99	DB08	2,54	2,32	2,27	2,59	2,43	0,159	6,524
			F08	PD02	DB10	2,84	3,016	2,527	2,538	2,73	0,239	8,769
			A60	PD01	DB10	2,183	3,084	7,059	2,356	3,67	2,292	62,457
Ni	(µg/g)	2	F33x	PD01	DB10	1,805	1,908	1,675	1,676	1,77	0,113	6,378
			A45x	PB99	DB10	1,95	1,99	1,92	1,95	1,95	0,029	1,471
			F19	PD02	DB08	2,06	1,94	1,92	1,96	1,97	0,062	3,156
			A79	PD03	DB10	2,032	1,892	2,051	1,936	1,98	0,076	3,851
			F03	PB05	DB08	1,92	1,96	2,04	2,06	2,00	0,066	3,312
			F05x	PD02	DB09	1,89	1,89	2,13	2,15	2,02	0,145	7,175

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Ni	(µg/g)	2	F27	PD01	DB05	2,057	2,03	2,137	2,143	2,09	0,057	2,718
			A36	PD02	DB10	2,09	2,14	2,03	2,12	2,10	0,048	2,289
			A39	PD02	DB08	2,13	2,18	2,15	2,1	2,14	0,034	1,573
			F15	PC01	DB08	1,97	2,8	1,77	2,06	2,15	0,450	20,929
			F16x	PC01	DB10	2,08	2,347	2,04	2,282	2,19	0,150	6,867
			F12x	PC01	DB08	2,37	2,25	2,22	2,34	2,30	0,071	3,112
			F02	PD02	DB08	2,19	2,26	2,78	2,22	2,36	0,280	11,844
			A55	PD02	DB10	2,404	2,408	2,404	2,41	2,41	0,003	0,125
			A80	PD03	DB10	2,41	2,27	2,4	2,56	2,41	0,119	4,921
			F18x	PD99	DB10	2,42	2,41	2,4	2,43	2,42	0,013	0,535
			F32	PD02	DB10	2,38	2,42	2,37	2,5	2,42	0,059	2,444
			A82	PC01	DB10	2,35	2,35	2,65	2,45	2,45	0,141	5,772
			F14	PC01	DB10	2,421	2,523	2,592	2,384	2,48	0,095	3,832
			F08	PD02	DB10	2,682	2,58	2,458	2,576	2,57	0,092	3,558
			A88	PD99	DB08	2,63	2,57	2,64	2,6	2,61	0,032	1,212
			A65	PD01	DB08	3,5	2,7	2,6	2,5	2,83	0,457	16,189
			A60	PD01	DB10	2,598	3,233	5,776	2,684	3,57	1,496	41,859
Ni	(µg/g)	3	F33x	PD01	DB10	2,69	2,835	2,604	3,106	2,81	0,220	7,829
			A79	PD03	DB10	2,963	2,951	3,013	3,101	3,01	0,068	2,267
			A45x	PB99	DB10	2,96	3,09	3,01	3,07	3,03	0,059	1,949
			F05x	PD02	DB09	3,07	3,29	3,24	2,96	3,14	0,153	4,858
			F19	PD02	DB08	3,21	2,95	3,32	3,09	3,14	0,159	5,061
			F03	PB05	DB08	3,41	3,41	3,02	3,31	3,29	0,184	5,611
			F16x	PC01	DB10	3,248	3,31	3,319	3,434	3,33	0,078	2,330
			A39	PD02	DB08	3,27	3,52	3,19	3,45	3,36	0,153	4,571
			A36	PD02	DB10	3,47	3,6	3,23	3,52	3,46	0,159	4,610
			F15	PC01	DB08	3,66	3,55	3,56	3,52	3,57	0,061	1,701
			A55	PD02	DB10	3,592	3,55	3,566	3,624	3,58	0,032	0,903
			F27	PD01	DB05	3,597	3,559	3,61	3,612	3,59	0,025	0,684

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Ni	(µg/g)	3	A80	PD03	DB10	3,58	3,6	3,64	3,59	3,60	0,026	0,730
			F02	PD02	DB08	3,61	3,79	3,58	3,52	3,63	0,116	3,205
			F12x	PC01	DB08	3,66	3,65	3,57	3,62	3,63	0,040	1,115
			A88	PD99	DB08	3,61	3,62	3,51	3,78	3,63	0,112	3,076
			F32	PD02	DB10	3,78	3,68	3,67	3,69	3,71	0,051	1,367
			F08	PD02	DB10	3,614	3,816	3,773	3,702	3,73	0,088	2,372
			F14	PC01	DB10	3,68	3,87	3,699	3,673	3,73	0,094	2,510
			F18x	PD99	DB10	3,69	3,8	3,68	3,78	3,74	0,061	1,640
			A82	PC01	DB10	4,16	3,84	3,68	3,74	3,86	0,214	5,545
			A65	PD01	DB08	4	4,2	4,2	4,1	4,13	0,096	2,321
			A60	PD01	DB10	4,043	4,688	6,035	3,964	4,68	0,958	20,464
Ni	(µg/g)	4	F33x	PD01	DB10	4,557	4,153	4,192	4,443	4,34	0,195	4,506
			A79	PD03	DB10	4,63	4,242	4,62	4,491	4,50	0,181	4,018
			A45x	PB99	DB10	4,93	4,8	4,84	4,98	4,89	0,082	1,682
			F16x	PC01	DB10	5,503	4,832	4,655	4,998	5,00	0,365	7,309
			F19	PD02	DB08	5,1	5,12	4,95	4,98	5,04	0,085	1,687
			A39	PD02	DB08	5,13	5,14	4,83	5,25	5,09	0,180	3,539
			F02	PD02	DB08	5,11	5,12	5,1	5,14	5,12	0,017	0,334
			F05x	PD02	DB09	5,37	5,37	5,34	5,27	5,34	0,047	0,884
			A88	PD99	DB08	5,34	5,44	5,11	5,54	5,36	0,184	3,436
			A36	PD02	DB10	5,52	5,31	5,31	5,51	5,41	0,118	2,188
			A55	PD02	DB10	5,457	5,43	5,409	5,419	5,43	0,021	0,381
			F03	PB05	DB08	5,44	5,47	5,44	5,42	5,44	0,021	0,379
			A80	PD03	DB10	5,42	5,58	5,35	5,47	5,46	0,097	1,774
			F12x	PC01	DB08	5,51	5,51	5,41	5,44	5,47	0,051	0,925
			F32	PD02	DB10	5,5	5,53	5,45	5,55	5,51	0,043	0,790
			A82	PC01	DB10	5,637	5,471	5,532	5,472	5,53	0,078	1,412
			F27	PD01	DB05	5,46	5,475	5,746	5,622	5,58	0,135	2,421
			F14	PC01	DB10	5,484	5,538	5,674	5,681	5,59	0,099	1,764

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Ni	(µg/g)	4	F18x	PD99	DB10	5,68	5,63	5,65	5,66	5,66	0,021	0,368
			F15	PC01	DB08	5,38	5,82	5,84	6,16	5,80	0,320	5,524
			A60	PD01	DB10	5,767	6,298	5,701	5,642	5,85	0,302	5,155
			F08	PD02	DB10	6,141	5,832	6,122	6,12	6,05	0,148	2,447
			A65	PD01	DB08	6,3	6,2	6,2	6,1	6,20	0,082	1,317
Rb	(µg/g)	1	F14	PC01	DB10	26,75	26,48	26,57	26,98	26,70	0,221	0,827
			A80	PD03	DB10	27,1	27,5	26,8	27,6	27,25	0,370	1,357
			F16x	PC01	DB10	28,52	30,36	28,05	30,3	29,31	1,196	4,082
Rb	(µg/g)	2	F14	PC01	DB10	5,404	5,271	5,319	5,288	5,32	0,059	1,111
			A80	PD03	DB10	5,73	5,34	5,49	5,42	5,50	0,168	3,061
			F16x	PC01	DB10	5,029	4,946	6,152	6,208	5,58	0,690	12,352
Rb	(µg/g)	3	F14	PC01	DB10	11,68	11,76	11,74	11,75	11,73	0,036	0,306
			A80	PD03	DB10	12,1	12,1	12,2	12,2	12,15	0,058	0,475
			F16x	PC01	DB10	12,6	13,68	12,79	12,34	12,85	0,582	4,526
Rb	(µg/g)	4	F14	PC01	DB10	18,93	18,6	18,8	18,84	18,79	0,139	0,742
			A80	PD03	DB10	19,3	19,9	19	19,4	19,40	0,374	1,929
			F16x	PC01	DB10	18,93	21,7	19,92	20	20,14	1,150	5,709
Sb	(ng/g)	1	F16x	PC01	DB10	28,4	26,77	26,41	28,48	27,52	1,079	3,920
			A79	PD03	DB10	28,8	27,6	29,3	28,8	28,63	0,723	2,525
			A80	PD03	DB10	34,7	37	35,8	35,1	35,65	1,008	2,828
			F32	PD02	DB10	37,5	37,5	36,4	35,4	36,70	1,010	2,752
Sb	(ng/g)	2	A79	PD03	DB10	<25	<25	<25	<25			
			A80	PD03	DB10	<12,5	<12,5	<12,5	<12,5			
			F16x	PC01	DB10	8,182	8,487	8,058	8,423	8,29	0,202	2,433
			F32	PD02	DB10	10,5	13,6	12,6	10,5	11,80	1,556	13,183
Sb	(ng/g)	3	F16x	PC01	DB10	361,9	397,3	361,6	404,6	381,35	22,828	5,986
			A79	PD03	DB10	416,1	411,9	432,8	428,3	422,28	9,880	2,340
			A80	PD03	DB10	500	498	496	501	498,75	2,217	0,445
			F32	PD02	DB10	508	497	508	487	500,00	10,100	2,020

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Sb	(ng/g)	4	A79	PD03	DB10	<25	<25	<25	<25			
			A80	PD03	DB10	<12,5	<12,5	<12,5	<12,5			
			F16x	PC01	DB10	3,659	3,777	3,707	3,71	3,71	0,049	1,306
			F32	PD02	DB10	3,25	4,34	4,34	4,34	4,07	0,545	13,399
Se	(ng/g)	1	A82	PC01	DB10	<12,457	<12,457	<12,457	<12,457			
			A36	PD02	DB10	8,8	9,12	9,01	8,91	8,96	0,137	1,528
			F16x	PC01	DB10	11,77	11,66	15,85	12,1	12,85	2,012	15,664
			F33x	PD01	DB10	125	102	114	77	104,50	20,599	19,712
Se	(ng/g)	2	A82	PC01	DB10	<12,457	<12,457	<12,457	<12,457			
			A36	PD02	DB10	7,96	7,75	7,44	8,38	7,88	0,394	5,005
			F16x	PC01	DB10	15,99	12,44	11,61	13,96	13,50	1,924	14,253
			F33x	PD01	DB10	129	123	122	140	128,50	8,266	6,433
Se	(ng/g)	3	A82	PC01	DB10	16,577	19,867	19,403	22,289	19,53	2,343	11,992
			A36	PD02	DB10	21,9	20,6	21,8	22,6	21,73	0,830	3,821
			F16x	PC01	DB10	24,97	31,91	28,61	27,53	28,26	2,875	10,176
			F33x	PD01	DB10	141	142	132	127	135,50	7,234	5,339
Se	(ng/g)	4	A82	PC01	DB10	<12,457	<12,457	<12,457	12,959	12,96		
			F16x	PC01	DB10	11,06	13,56	14,45	13,95	13,26	1,508	11,377
			A36	PD02	DB10	15	14,8	14,4	14,5	14,68	0,275	1,877
			F33x	PD01	DB10	165	102	138	173	144,50	32,047	22,178
Si	(µg/g)	1	A53	PZ02	DD02	1560	1520	1540	1500	1530,00	25,820	1,688
			F16x	PD05	DB08	2611	2563	2611	2563	2587,00	27,713	1,071
Si	(µg/g)	2	A53	PZ02	DD02	1980	2020	2000	2010	2002,50	17,078	0,853
			F16x	PD05	DB08	3197	3216	3197	3216	3206,50	10,970	0,342
Si	(µg/g)	3	A53	PZ02	DD02	2450	2420	2450	2440	2440,00	14,142	0,580
			F16x	PD05	DB08	3369	3413	3369	3413	3391,00	25,403	0,749
Si	(µg/g)	4	A53	PZ02	DD02	390	400	390	390	392,50	5,000	1,274
			F16x	PD05	DB08	621,4	621,4	621,4	621,4	621,40	0,000	0,000

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Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Sn	(ng/g)	1	F16x	PC01	DB10	59,45	59,15	70,96	64,84	63,60	5,560	8,742
			A80	PD03	DB10	80,3	86,4	83,5	82,4	83,15	2,541	3,056
Sn	(ng/g)	2	A80	PD03	DB10	28,2	<25	<25	26,6	27,40	1,131	4,129
			F16x	PC01	DB10	23,3	16,31	18,44	17,65	18,93	3,046	16,097
Sn	(ng/g)	3	F16x	PC01	DB10	660,7	681,7	722,3	727,4	698,03	32,207	4,614
			A80	PD03	DB10	966	960	936	959	955,25	13,200	1,382
Sn	(ng/g)	4	A80	PD03	DB10	<25	<25	<25	<25			
			F16x	PC01	DB10	14,42	9,614	21,19	11,64	14,22	5,050	35,520
Sr	(µg/g)	1	F02	PD02	DB08	3,37	3,24	3,32	3,33	3,32	0,054	1,643
			A80	PD03	DB10	3,38	3,44	3,35	3,42	3,40	0,040	1,186
			A65	PD01	DB08	3,3	3,5	3,3	3,6	3,43	0,150	4,380
			F14	PC01	DB10	3,453	3,433	3,434	3,428	3,44	0,011	0,320
			A39	PD02	DB08	3,45	3,41	3,6	3,64	3,53	0,112	3,180
			F16x	PC01	DB10	3,804	3,354	3,334	3,931	3,61	0,307	8,508
			A53	PZ02	DD02	3,83	3,65	3,9	3,89	3,82	0,116	3,035
Sr	(µg/g)	2	F02	PD02	DB08	19,43	19,08	19,41	19,27	19,30	0,162	0,837
			A53	PZ02	DD02	20	19,9	20,2	19,6	19,93	0,250	1,255
			A39	PD02	DB08	20,57	20,2	19,32	20,09	20,05	0,525	2,620
			F14	PC01	DB10	20,73	20,53	20,58	20,5	20,59	0,102	0,496
			A80	PD03	DB10	21,9	20,7	21,1	21	21,18	0,512	2,420
			A65	PD01	DB08	21,4	21,5	21,6	21,4	21,48	0,096	0,446
			F16x	PC01	DB10	22,54	24,44	25,23	22,06	23,57	1,511	6,413
Sr	(µg/g)	3	F02	PD02	DB08	6,19	6,19	6,16	6,16	6,18	0,017	0,280
			F14	PC01	DB10	6,3827	6,5222	6,4744	6,378	6,44	0,071	1,101
			A39	PD02	DB08	6,3	6,71	6,55	6,64	6,55	0,179	2,734
			A80	PD03	DB10	6,5	6,59	6,61	6,54	6,56	0,050	0,757
			A53	PZ02	DD02	6,59	6,84	6,95	6,67	6,76	0,163	2,407
			A65	PD01	DB08	6,8	6,9	6,8	6,8	6,83	0,050	0,733
			F16x	PC01	DB10	7,159	7,369	7,307	7,348	7,30	0,095	1,298

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Sr	(µg/g)	4	F02	PD02	DB08	3,04	3,05	3,02	2,99	3,03	0,026	0,875
			F16x	PC01	DB10	2,929	2,884	3,316	3,065	3,05	0,194	6,371
			F14	PC01	DB10	3,125	3,084	3,078	3,151	3,11	0,035	1,115
			A80	PD03	DB10	3,13	3,22	3,09	3,16	3,15	0,055	1,739
			A65	PD01	DB08	3,3	3,3	3,2	3,2	3,25	0,058	1,776
			A53	PZ02	DD02	3,5	3,39	3,62	3,52	3,51	0,094	2,688
			A39	PD02	DB08	4,12	4,1	4,49	4,37	4,27	0,191	4,480
Ti	(µg/g)	1	A80	PD03	DB10	1,08	1,1	1,11	1,05	1,09	0,026	2,438
			A39	PD02	DB08	2,25	2,25	2,01	2,15	2,17	0,114	5,246
Ti	(µg/g)	2	A80	PD03	DB10	1,22	1,08	1,11	1,49	1,23	0,187	15,236
			A39	PD02	DB08	1,69	1,65	1,66	1,66	1,67	0,017	1,040
Ti	(µg/g)	3	A80	PD03	DB10	3,78	3,95	3,92	4,06	3,93	0,115	2,935
			A39	PD02	DB08	5,21	5,55	6,2	5,71	5,67	0,412	7,264
Ti	(µg/g)	4	A80	PD03	DB10	0,713	0,758	0,698	0,756	0,73	0,030	4,153
			A39	PD02	DB08	1,25	1,2	1,23	1,21	1,22	0,022	1,814
Tl	(ng/g)	1	A79	PD03	DB10	40,65	38,95	40,35	40	39,99	0,741	1,853
			F16x	PC01	DB10	47,07	46,05	47,44	45,07	46,41	1,068	2,301
			A82	PC01	DB10	48,77	47,632	48,737	48,135	48,32	0,543	1,123
			F14	PC01	DB10	50	49	47	48	48,50	1,291	2,662
			A36	PD02	DB10	47,6	46,8	51,2	49,1	48,68	1,935	3,974
			F32	PD02	DB10	52,5	52,5	51,4	53,6	52,50	0,898	1,711
			A80	PD03	DB10	58,1	54,6	49,8	49,5	53,00	4,126	7,784
			F08	PD02	DB10	57,1	56,1	56,6	56,3	56,53	0,435	0,769
Tl	(ng/g)	2	A79	PD03	DB10	<10	<10	<10	<10			
			A80	PD03	DB10	<10	<10	<10	<10			
			F14	PC01	DB10	4	4	5	4	4,25	0,500	11,765
			A36	PD02	DB10	5,03	4,4	4,19	5,03	4,66	0,433	9,285
			F16x	PC01	DB10	4,447	5,012	4,711	4,854	4,76	0,240	5,044
			A82	PC01	DB10	4,107	4,891	5,145	4,979	4,78	0,461	9,647

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Tl	(ng/g)	2	F32	PD02	DB10	5,77	5,46	5,35	5,56	5,54	0,179	3,227
			F08	PD02	DB10	6,87	6,66	6,98	6,45	6,74	0,235	3,480
Tl	(ng/g)	3	A79	PD03	DB10	886,2	871,4	904,8	881,3	885,93	14,008	1,581
			A82	PC01	DB10	1065,027	1063,945	996,786	1020	1036,44	33,746	3,256
			F16x	PC01	DB10	982,8	1065	993,8	1116	1039,40	62,732	6,035
			A80	PD03	DB10	1020	1066	1089	1079	1063,50	30,490	2,867
			A36	PD02	DB10	1083	1068	1063	1063	1069,25	9,465	0,885
			F14	PC01	DB10	1070	1098	1089	1092	1087,25	12,093	1,112
			F32	PD02	DB10	1132	1143	1122	1122	1129,75	10,012	0,886
			F08	PD02	DB10	1120	1131	1122	1166	1134,75	21,376	1,884
Tl	(ng/g)	4	A79	PD03	DB10	<10	<10	<10	<10			
			A82	PC01	DB10	6,793	6,584	6,817	6,57	6,69	0,132	1,975
			F14	PC01	DB10	7	6	7	7	6,75	0,500	7,407
			F16x	PC01	DB10	6,794	7,284	7,376	6,551	7,00	0,394	5,630
			F32	PD02	DB10	7,7	7,7	7,81	7,48	7,67	0,138	1,804
			A36	PD02	DB10	7,86	8,08	8,08	8,83	8,21	0,425	5,169
			F08	PD02	DB10	9,53	8,57	8,03	9,21	8,84	0,669	7,570
			A80	PD03	DB10	44,4	20,6	14,7	12,9	23,15	14,543	62,822
V	(µg/g)	1	A79	PD03	DB10	<,25	<,25	<,25	<,25			
			A39	PD02	DB08	0,066	0,07	0,069	0,073	0,07	0,003	4,154
			F16x	PC01	DB10	0,0694	0,074	0,0673	0,0735	0,07	0,003	4,560
			A80	PD03	DB10	0,0716	0,0712	0,0716	0,0752	0,07	0,002	2,591
			A55	PD02	DB10	0,0738	0,0734	0,0743	0,075	0,07	0,001	0,931
			F32	PD02	DB10	0,073	0,084	0,074	0,074	0,08	0,005	6,804
			F08	PD02	DB10	0,0795	0,0795	0,076	0,0799	0,08	0,002	2,320
			F33x	PD01	DB10	0,085	0,086	0,075	0,077	0,08	0,006	6,886
			A82	PC01	DB10	0,081	0,081	0,085	0,09	0,08	0,004	5,071
			F14x	PC01	DB10	0,091	0,083	0,09	0,084	0,09	0,004	4,693

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
V	(µg/g)	2	A79	PD03	DB10	<,25	<,25	<,25	<,25			
			F08	PD02	DB10	0,0524	0,0518	0,0535	0,0538	0,05	0,001	1,770
			F16x	PC01	DB10	0,0525	0,0546	0,0548	0,0559	0,05	0,001	2,608
			A80	PD03	DB10	0,0601	0,0529	0,0567	0,0584	0,06	0,003	5,402
			A39	PD02	DB08	0,065	0,062	0,06	0,058	0,06	0,003	4,875
			A55	PD02	DB10	0,0616	0,0631	0,0606	0,066	0,06	0,002	3,745
			F14x	PC01	DB10	0,064	0,059	0,064	0,067	0,06	0,003	5,223
			A82	PC01	DB10	0,066	0,066	0,069	0,068	0,07	0,002	2,230
			F32	PD02	DB10	0,064	0,072	0,076	0,067	0,07	0,005	7,620
			F33x	PD01	DB10	0,085	0,069	0,083	0,077	0,08	0,007	9,157
V	(µg/g)	3	A79	PD03	DB10	<,25	<,25	<,25	<,25			
			F08	PD02	DB10	0,1662	0,1597	0,1579	0,1591	0,16	0,004	2,318
			A80	PD03	DB10	0,165	0,166	0,17	0,164	0,17	0,003	1,582
			F16x	PC01	DB10	0,1815	0,1747	0,162	0,1549	0,17	0,012	7,151
			A55	PD02	DB10	0,1712	0,1672	0,1709	0,167	0,17	0,002	1,352
			F33x	PD01	DB10	0,17	0,171	0,17	0,174	0,17	0,002	1,105
			F32	PD02	DB10	0,18	0,169	0,169	0,169	0,17	0,005	3,202
			A82	PC01	DB10	0,184	0,174	0,177	0,178	0,18	0,004	2,352
			A39	PD02	DB08	0,171	0,179	0,183	0,18	0,18	0,005	2,874
			F14x	PC01	DB10	0,18	0,191	0,175	0,179	0,18	0,007	3,779
V	(µg/g)	4	A79	PD03	DB10	<,25	<,25	<,25	<,25			
			F16x	PC01	DB10	0,0376	0,0423	0,0356	0,0412	0,04	0,003	7,954
			A80	PD03	DB10	0,0408	0,0429	0,0394	0,0388	0,04	0,002	4,499
			A55	PD02	DB10	0,0413	0,0414	0,0414	0,0421	0,04	0,000	0,890
			A82	PC01	DB10	0,045	0,045	0,045	0,044	0,04	0,001	1,117
			F32	PD02	DB10	0,045	0,046	0,043	0,052	0,05	0,004	8,329
			F08	PD02	DB10	0,0469	0,0477	0,0476	0,044	0,05	0,002	3,731
			F14x	PC01	DB10	0,048	0,05	0,048	0,055	0,05	0,003	6,575
			F33x	PD01	DB10	0,11	0,101	0,098	0,106	0,10	0,005	5,123

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
V	(µg/g)	4	A39	PD02	DB08	0,106	0,112	0,112	0,11	0,11	0,003	2,571
U	(ng/g)	1	F08	PD02	DB10	<,0002	<,0002	<,0002	<,0002			
			F14	PC01	DB10	2	3	3	3	2,75	0,500	18,182
U	(ng/g)	2	F08	PD02	DB10	<,0002	<,0002	<,0002	<,0002			
			F14	PC01	DB10	1	1	1	1	1,00	0,000	0,000
U	(ng/g)	3	F08	PD02	DB10	<,0002	<,0002	<,0002	<,0002			
			F14	PC01	DB10	3	2	2	2	2,25	0,500	22,222
U	(ng/g)	4	F08	PD02	DB10	<,0002	<,0002	<,0002	<,0002			
			F14	PC01	DB10	1	1	1	1	1,00	0,000	0,000